1. Record Nr. UNINA9910713581603321

Autore	Nickerson Edward L.
Titolo	Aquifer tests in the flood-plain alluvium and Santa Fe Group at the Rio Grande near Canutillo, El Paso County, Texas / / by Edward L. Nickerson
Pubbl/distr/stampa	Albuquerque, New Mexico : , : U.S. Geological Survey, , 1989
Descrizione fisica	1 online resource (v, 30 pages) : illustrations, maps
Collana	Water-resources investigations report ; ; 89-4011
Soggetti	Groundwater - Texas - Canutillo - Testing Water quality - Texas - Canutillo - Testing Alluvium - Texas - Canutillo Groundwater - Testing Water quality - Testing Santa Fe Group
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"Prepared in cooperation with the New Mexico State Engineer Office, City of El Paso, U.S. Section - International Boundary and Water Commission, U.S. Bureau of Reclamation, and City of Las Cruces."
Nota di bibliografia	Includes bibliographical references (pages 28-29).

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Autore	Dutra S. M (Sergio M.)
Titolo	Cavity quantum electrodynamics [[electronic resource]] : the strange theory of light in a box / / Sergio M. Dutra
Pubbl/distr/stampa	New York, : J. Wiley, c2005
ISBN	1-280-27569-3 9786610275694 0-470-31825-2 0-471-71347-3 0-471-71346-5
Edizione	[1st edition]
Descrizione fisica	1 online resource (407 p.)
Collana	Wiley series in lasers and applications
Disciplina	535/.15
Soggetti	Quantum optics Quantum electrodynamics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 335-380) and index.
Nota di contenuto	Cavity Quantum Electrodynamics; Contents; Preface; Acknowledgments; 1 Introduction; 1.1 What is light?; 1.1.1 Geometrical optics; 1.1.2 Wave optics; 1.1.3 Classical electrodynamics and relativity; 1.1.4 Quantum mechanics and quantum electrodynamics; 1.2 A brief history of cavity QED; 1.3 A map of the book; 1.4 How to read this book; 2 Fiat Lux!; 2.1 How to quantize a theory; 2.2 Why the radiation field is special; 2.3 What is a cavity?; 2.3.1 What is resonance?; 2.3.2 Confinement is the key; 2.4 Canonical quantization of the radiation field; 2.4.1 Quantization in a cavity 2.4.2 Quantization in free space2.5 The Casimir force; 2.5.1 Zero-point potential energy; 2.5.2 Maxwell stress tensor; 2.5.3 The vacuum catastrophe; Recommended reading; Problems; 3 The photon's wavefunction; 3.1 Position in relativistic quantum mechanics; 3.2 Extreme quantum theory of light with a twist; 3.3 The configuration space problem; 3.4 Back to vector notation; 3.5 The limit of vanishing rest mass; 3.6 Second quantization; Recommended reading; Problems; 4 A box of photons; 4.1 The classical limit; 4.1.1 Coherent states; 4.1.2 The density matrix

4.1.3 The diagonal coherent-state representation4.2 Squeezed states; 4.2.1 The squeezing operator; 4.2.2 Generating squeezed states; 4.2.3 Geometrical picture; 4.2.4 Homodyne detection; Recommended reading; Problems; 5 Let matter be!; 5.1 A single point dipole; 5.2 An arbitrary charge distribution; 5.3 Matter-radiation coupling and gauge invariance; Recommended reading; 6 Spontaneous emission; 6.1 Emission in free space; 6.2 Emission in a cavity; Recommended reading; 7 Macroscopic QED; 7.1 The dielectric JCM; 7.2 Polariton-photon dressed excitations
7.3 Quantum noise of matter and macroscopic averages7.4 How a macroscopic description is possible; 7.5 The Kramers-Kronig dispersion relation; 7.6 Including absorption in the dielectric JCM; 7.7 Dielectric permittivity; 7.8 Huttner-Barnett theory; 7.8.1 The matter Hamiltonian; 7.8.2 Diagonalization of the total Hamiltonian; Recommended reading; Problems; 8 The maser; the laser; and their cavity QED cousins; 8.1 The ASER idea; 8.2 How to add noise; 8.2.1 Einstein's approach to Brownian motion; 8.2.2 Langevin's approach to Brownian motion; 8.2.3 The modern form of Langevin's equation
8.2.4 Ito's and Stratonovich's stochastic calculus8.3 Rate equations with noise; 8.4 Ideal laser light; 8.5 The single-atom maser; 8.6 The thresholdless laser; 8.7 The one-and-the-same atom laser; Recommended reading; Problems; 9 Open cavities; 9.1 The Gardiner-Collett Hamiltonian; 9.2 The radiation condition; 9.3 Natural modes; 9.4 Completeness in general; 9.4.1 Whittaker's scalar potentials; 9.4.2 General formulation of the problem; Recommended reading; Problems; Appendix A Perfect cavity modes; Appendix B Perfect cavity boundary conditions; Appendix C Quaternions and special relativity
C.1 What are quaternions?

Sommario/riassunto

What happens to light when it is trapped in a box?Cavity Quantum Electrodynamics addresses a fascinating question in physics: what happens to light, and in particular to its interaction with matter, when it is trapped inside a box? With the aid of a model-building approach, readers discover the answer to this question and come to appreciate its important applications in computing, cryptography, quantum teleportation, and opto-electronics. Instead of taking a traditional approach that requires readers to first master a series of seemingly unconnected mathematical techniques, this book engag