Contents

Complement B_I—Description of the Effect of a Perturbation by an Effective Hamiltonian

Complement C_I—Discrete Level Coupled to a Broad Continuum: A Simple Model

II
A SURVEY OF SOME INTERACTION PROCESSES BETWEEN PHOTONS AND ATOMS

Complement A_{II}—Photodetection Signals and Correlation Functions

COMPLEMENT B_{II}—RADIATIVE CORRECTIONS IN THE PAULI–FIERZ REPRESENTATION

III
NONPERTURBATIVE CALCULATION OF TRANSITION AMPLITUDES

COMPLEMENT C_{III}—DISCRETE STATE COUPLED TO A FINITE-WIDTH CONTINUUM: FROM THE WEISSKOPF–WIGNER EXPONENTIAL DECAY TO THE RABI OSCILLATION

IV
RADIATION CONSIDERED AS A RESERVOIR: MASTER EQUATION FOR THE PARTICLES

COMPLEMENT A_{IV}—FLUCTUATIONS AND LINEAR RESPONSE APPLICATION TO RADIATIVE PROCESSES

Complement B_{IV}—Master Equation for a Damped Harmonic Oscillator

Complement C_{IV}—Quantum Langevin Equations for a Simple Physical System

V
OPTICAL BLOCH EQUATIONS

COMPLEMENT A_V—BLOCH–LANGEVIN EQUATIONS AND QUANTUM REGRESSION THEOREM

VI
THE DRESSED ATOM APPROACH

COMPLEMENT A_{VI}—THE DRESSED ATOM IN THE RADIO-FREQUENCY DOMAIN

COMPLEMENT B_{VI}—COLLISIONAL PROCESSES IN THE PRESENCE OF LASER IRRADIATION

Exercises

APPENDIX
QUANTUM ELECTRODYNAMICS IN THE COULOMB GAUGE—SUMMARY OF THE ESSENTIAL RESULTS