Contents

N, n	Particle number, particle number density
N	Normalisation factor
n	Principal quantum number or number of photons or an integer
P	Spectral radiation flux density (5.2) or probability
P_l^0	Legendre polynomial
P_l^m	($m \neq 0$) Associated Legendre function
$p, \bar{p}$	Momentum, expectation value of momentum
Q	Nuclear quadrupole moment (20.20)
Q, q	Charge
$R(r)$	Radial part of the hydrogen wavefunction
$\boldsymbol{r}$	Position coordinate (three-dimensional vector)
r	Distance
S	Resultant spin (17.4)
S	Symbol for orbital angular momentum $L = 0$
$\boldsymbol{s}, s$	Electron spin and corresponding quantum number (12.15)
$\hat{\boldsymbol{s}}$	Spin operator $= (\hat{s}_x, \hat{s}_y, \hat{s}_z)$
T	Absolute temperature
T_1	Longitudinal relaxation time
T_2	Transverse relaxation time
t	Time
u	Spectral energy density (5.2), atomic mass unit [2.2]
V	Volume, potential, electric voltage
$\bar{V}$	Expectation value of the potential energy
$\boldsymbol{v}$	Velocity, particle velocity
x	Particle coordinate (one-dimensional)
$\bar{x}$	Expectation value of position
$Y_{l,m}(\theta, \phi)$	Spherical harmonic functions (10.10, 48 – 50)
Z	Nuclear charge
α	Fine structure constant [8.10] or absorption coefficient (2.22)
β	Constant
Γ	Decay constant
γ	Decay constant or linewidth gyromagnetic ratio (12.12)
∇^2	Laplace operator $= \partial^2/\partial x^2 + \partial^2/\partial y^2 + \partial^2/\partial z^2$
ΔE	Energy uncertainty
Δk	Wavenumber uncertainty
Δp	Momentum uncertainty
Δt	Time uncertainty (= finite measurement time)
ΔV	Finite volume element
$\Delta\omega$	Uncertainty in the angular frequency
Δx	Position uncertainty
$\delta(x)$	Dirac delta function (see mathematics appendix)
$\delta_{\mu,\nu}$	Kronecker delta symbol: $\delta_{\mu,\nu} = 1$ for $\mu = \nu$, $\delta_{\mu,\nu} = 0$ for $\mu \neq \nu$.
ε	Dimensionless energy (9.83)
$\varepsilon^{(n)}$	Energy contributions to perturbation theory
ε_0	Permittivity constant of vacuum
θ	Angle coordinate (10.2)
κ	Defined in (10.54)
λ	Wavelength (exception: expansion parameter in [15.2.1, 2])
$\boldsymbol{\mu}, \mu$	Magnetic moment (12.1)
μ	Reduced mass (8.15)
μ_B	Bohr magneton (12.8)
μ_N	Nuclear magneton (20.3)
ν	Frequency [8.1]
$\bar{\nu}$	Wavenumber [8.1]
ξ	Dimensionless coordinate (9.83)
ϱ	Charge density, density of states, mass density; or dimensionless distance
σ	Scattering coefficient, interaction cross section (2.16)
τ	Torque (12.2)
Φ	Phase
ϕ	Phase angle, angle coordinate
$\phi(x)$	Wavefunction of a particle
$\phi_\uparrow, \phi_\downarrow, \phi$	Spin wavefunctions
ψ	Wavefunction
Ψ	Wavefunction of several electrons
$\hat{\Omega}$	Generalised quantum mechanical operator
Ω	Frequency [14.4, 14.5, 15.3]
ω	Angular frequency $2\pi\nu$, or eigenvalue [9.3.6]
$\triangleq$	means "corresponds to"