Notation used

m_e	electron rest mass
h	Planck's constant
$\hbar$	$h/2\pi$
e	electron charge
ϵ_0	permittivity of free space
a_0	Bohr radius
ψ	wavefunction (lower case often used for time independant)
Ψ	wavefunction (upper case often used for time dependent)
σ	spin part of the wavefunction
T	time part of the wavefunction
$*$	indicates the complex conjugate of a quantity
$\hat{}$	indicates that the quantity is an operator
r, $\mathbf{r}$	position coordinate
x, y, z	Cartesian coordinates
θ	spherical polar coordinate (polar angle)
ϕ	spherical polar coordinate (azimuthal angle)
t	time
∇	vector differential operator (3D)
∇^2	Laplacian differential operator (3D)
R, R_∞, R_M	Rydberg constant in various forms
E	(total) energy
V	potential energy
Z	atomic number / nuclear charge (in units of +e)
m	particle mass
M	mass of nucleus
τ	volume
μ	reduced mass of electron/nucleus system
ν	frequency of radiation
λ	wavelength of radiation
n	principle quantum number
L	orbital angular momentum (Bohr model)
l, L	orbital angular momentum quantum number (Schrödinger QM)
v	speed
$\hat{H}$	Hamiltonian operator
$\mathbf{p}$, $\hat{\mathbf{p}}$	momentum, momentum operator
$\mathbf{L}$	orbital angular momentum vector
L_x, L_y, L_z	component of the orbital angular momentum vector
$\hat{L}_x, \hat{L}_y, \hat{L}_z$	operators corresponding to components of the orbital angular momentum vector
$\mathbf{L}^2, \hat{\mathbf{L}}^2$	square of the magnitude of the orbital angular momentum vector, associated operator
m_l	quantum number giving L_z in units of $\hbar$

$\mathbf{S}$	spin vector
s, S	spin quantum number
m_s, M_S	quantum number giving S_z in units of $\hbar$
$\mathbf{J}$	total angular momentum vector
j, J	total angular momentum quantum number
m_j, M_J	quantum number giving J_z in units of $\hbar$
α	fine-structure constant
$< ... >$	indicates an expectation value
J, K	*Coulomb* and *Exchange Integrals* for two-electron atoms
α, β ...	labels used as sub-scripts to distinguish orbitals in multi-electron atoms
s, p, d, f ...	spectroscopic notation designating l-values for electrons in configuration
S, P, D, F ...	spectroscopic notation designating L-values in terms
$\boldsymbol{\mu}$	magnetic dipole moment
g_s	spin g-factor
μ_B	Bohr magneton
$\mathbf{B}$, B	Magnetic flux density; its magnitude
I	electric current
μ_0	permittivity of free space
A_{ul}, B_{lu}, B_{ul}	Einstein coefficients
ρ	photon energy density
$\mathbf{d}$	electric dipole moment
N_u, N_l	numbers of atoms in upper and lower states of a transition
g_u, g_l	degeneracies of upper and lower states of a transition
g_S, g_L	g-factors for spin and orbital angular momenta ($g_S \approx 2$, $g_L = 1$)
g_J	Landé g-factor
$\mathbf{I}$; I	Nuclear spin angular momentum; its quantum number
$\mathbf{F}$; F	Total angular momentum (including nuclear spin); its quantum number