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Glossary of Terms

Units

The system of atomic units (a.u.) is used: $e^2 = m = \hbar = 1$.

Length (Bohr radius)	$a_0 = 0.529\ 177\ 249(24) \times 10^{-8}$ cm
Energy	$E_0 = e^2/a_0 = 27.211\ 3961(81)$ eV = 2Ry
Rydberg	$1\text{ Ry} = me^4/2\hbar^2 = 13.605\ 6981(40)$ eV = $109\ 737.315\ 34(13)$ cm ⁻¹
Time	$\tau_0 = \hbar^3/me^4 = a_0/v_0$ = $2.418\ 88433(11) \times 10^{-17}$ s
Velocity	$v_0 = e^2\hbar = 2.187\ 691\ 417(98) \times 10^8$ cm/s
Cross section	$\pi a_0^2 = 0.879\ 735\ 6696(80) \times 10^{-16}$ cm ²
Fine-structure constant	$\alpha = e^2/\hbar c = 1/137.035\ 9895(61)$
Velocity of light	$c = 1/\alpha = 137.035\ 9895(61)$ a.u. = $2.997\ 92458 \times 10^{10}$ cm/s

The values of the fundamental physical constants are given in a report of the CODATA Task Group on Fundamental Constants, CODATA Bulletin No. 63, E.R. Cohen, B.N. Taylor: Rev. Mod. Phys. **59**, 1121 (1987).

List of Symbols

<i>A</i>	Autoionization transition probability
[A]	Ions of the isoelectronic sequence of an atom A or A-like ions
<i>E</i>	Incident particle energy
E_{cm}	Center-of-mass energy
E_{κ}	Electric 2 [*] -pole transition
<i>f</i>	Oscillator strength
<i>I</i>	Binding energy; ionization potential
<i>l</i>	Orbital quantum number
<i>M</i>	Nuclear mass
M_{κ}	Magnetic 2 [*] -pole transition
<i>m</i>	Electron mass
<i>N</i>	Total number of atomic electrons
<i>n</i>	Principal quantum number
<i>q</i>	Number of equivalent electrons