PHYSICAL CONSTANTS (SI)

Physical Quantity	Symbol	Value	Units
Boltzmann constant	k	1.3807×10^{-23}	$\mathrm{J\,K^{-1}}$
Elementary charge	e	1.6022×10^{-19}	C
Electron mass	m_e	9.1094×10^{-31}	kg
Proton mass	m_p	1.6726×10^{-27}	kg
Gravitational constant	G	6.6726×10^{-11}	$\mathrm{m^3 s^{-2} kg^{-1}}$
Planck constant	h	6.6261×10^{-34}	J s
	$\hbar = h/2\pi$	1.0546×10^{-34}	J s
Speed of light in vacuum	c	2.9979×10^{8}	$\mathrm{m\,s^{-1}}$
Permittivity of free space	ϵ_0	8.8542×10^{-12}	$\mathrm{F\,m^{-1}}$
Permeability of free space	μ_0	$4\pi \times 10^{-7}$	$\mathrm{H\,m^{-1}}$
Proton/electron mass ratio	m_p/m_e	1.8362×10^{3}	
Electron charge/mass ratio	e/m_e	1.7588×10^{11}	$\mathrm{C\,kg^{-1}}$
Rydberg constant	$R_\infty = \dfrac{me^4}{8{\epsilon_0}^2 ch^3}$	1.0974×10^{7}	$\mathrm{m^{-1}}$
Bohr radius	$a_0 = \epsilon_0 h^2/\pi m e^2$	5.2918×10^{-11}	m
Atomic cross section	$\pi {a_0}^2$	8.7974×10^{-21}	$\mathrm{m^2}$
Classical electron radius	$r_e = e^2/4\pi\epsilon_0 mc^2$	2.8179×10^{-15}	m
Thomson cross section	$(8\pi/3){r_e}^2$	6.6525×10^{-29}	$\mathrm{m^2}$
Compton wavelength of electron	$h/m_e c$	2.4263×10^{-12}	m
	$\hbar/m_e c$	3.8616×10^{-13}	m
Fine-structure constant	$\alpha = e^2/2\epsilon_0 hc$	7.2974×10^{-3}	
	α^{-1}	137.04	
First radiation constant	$c_1 = 2\pi hc^2$	3.7418×10^{-16}	$\mathrm{W\,m^2}$
Second radiation constant	$c_2 = hc/k$	1.4388×10^{-2}	m K
Stefan-Boltzmann constant	σ	5.6705×10^{-8}	$\mathrm{W\,m^{-2} K^{-4}}$