Fundamental Physical Constants — Non-SI units

Quantity	Symbol	Value	Unit	Relative std. uncert. u_r
electron volt: (e/C) J	eV	$1.602\,176\,487(40) \times 10^{-19}$	J	2.5×10^{-8}
(unified) atomic mass unit: 1 u $= m_u = \frac{1}{12}m(^{12}\mathrm{C})$ $= 10^{-3}$ kg mol$^{-1}/N_A$	u	$1.660\,538\,782(83) \times 10^{-27}$	kg	5.0×10^{-8}
Natural units (n.u.)				
n.u. of velocity: speed of light in vacuum	c, c_0	299 792 458	m s^{-1}	(exact)
n.u. of action: reduced Planck constant $(h/2\pi)$	$\hbar$	$1.054\,571\,628(53) \times 10^{-34}$	J s	5.0×10^{-8}
in eV s		$6.582\,118\,99(16) \times 10^{-16}$	eV s	2.5×10^{-8}
in MeV fm	$\hbar c$	197.326 9631(49)	MeV fm	2.5×10^{-8}
n.u. of mass: electron mass	m_e	$9.109\,382\,15(45) \times 10^{-31}$	kg	5.0×10^{-8}
n.u. of energy	$m_e c^2$	$8.187\,104\,38(41) \times 10^{-14}$	J	5.0×10^{-8}
in MeV		0.510 998 910(13)	MeV	2.5×10^{-8}
n.u. of momentum	$m_e c$	$2.730\,924\,06(14) \times 10^{-22}$	kg m s^{-1}	5.0×10^{-8}
in MeV/c		0.510 998 910(13)	MeV/c	2.5×10^{-8}
n.u. of length $(\hbar/m_e c)$	$\lambda\!\!\!^{-}_C$	$386.159\,264\,59(53) \times 10^{-15}$	m	1.4×10^{-9}
n.u. of time	$\hbar/m_e c^2$	$1.288\,088\,6570(18) \times 10^{-21}$	s	1.4×10^{-9}
Atomic units (a.u.)				
a.u. of charge: elementary charge	e	$1.602\,176\,487(40) \times 10^{-19}$	C	2.5×10^{-8}
a.u. of mass: electron mass	m_e	$9.109\,382\,15(45) \times 10^{-31}$	kg	5.0×10^{-8}
a.u. of action: reduced Planck constant $(h/2\pi)$	$\hbar$	$1.054\,571\,628(53) \times 10^{-34}$	J s	5.0×10^{-8}
a.u. of length: Bohr radius (bohr) $(\alpha/4\pi R_\infty)$	a_0	$0.529\,177\,208\,59(36) \times 10^{-10}$	m	6.8×10^{-10}
a.u. of energy: Hartree energy (hartree) $(e^2/4\pi\epsilon_0 a_0 = 2R_\infty hc = \alpha^2 m_e c^2)$	E_h	$4.359\,743\,94(22) \times 10^{-18}$	J	5.0×10^{-8}
a.u. of time	$\hbar/E_h$	$2.418\,884\,326\,505(16) \times 10^{-17}$	s	6.6×10^{-12}
a.u. of force	E_h/a_0	$8.238\,722\,06(41) \times 10^{-8}$	N	5.0×10^{-8}
a.u. of velocity (αc)	$a_0 E_h/\hbar$	$2.187\,691\,2541(15) \times 10^{6}$	m s^{-1}	6.8×10^{-10}
a.u. of momentum	$\hbar/a_0$	$1.992\,851\,565(99) \times 10^{-24}$	kg m s^{-1}	5.0×10^{-8}
a.u. of current	$eE_h/\hbar$	$6.623\,617\,63(17) \times 10^{-3}$	A	2.5×10^{-8}
a.u. of charge density	e/a_0^3	$1.081\,202\,300(27) \times 10^{12}$	C m^{-3}	2.5×10^{-8}
a.u. of electric potential	E_h/e	27.211 383 86(68)	V	2.5×10^{-8}
a.u. of electric field	E_h/ea_0	$5.142\,206\,32(13) \times 10^{11}$	V m^{-1}	2.5×10^{-8}
a.u. of electric field gradient	E_h/ea_0^2	$9.717\,361\,66(24) \times 10^{21}$	V m^{-2}	2.5×10^{-8}
a.u. of electric dipole moment	ea_0	$8.478\,352\,81(21) \times 10^{-30}$	C m	2.5×10^{-8}

Fundamental Physical Constants — Non-SI units

Quantity	Symbol	Value	Unit	Relative std. uncert. u_{r}
a.u. of electric quadrupole moment	ea_0^2	$4.486\,551\,07(11) \times 10^{-40}$	C m^2	2.5×10^{-8}
a.u. of electric polarizability	$e^2a_0^2/E_{\mathrm{h}}$	$1.648\,777\,2536(34) \times 10^{-41}$	C^2 m^2 J^{-1}	2.1×10^{-9}
a.u. of 1$^{\mathrm{st}}$ hyperpolarizability	$e^3a_0^3/E_{\mathrm{h}}^2$	$3.206\,361\,533(81) \times 10^{-53}$	C^3 m^3 J^{-2}	2.5×10^{-8}
a.u. of 2$^{\mathrm{nd}}$ hyperpolarizability	$e^4a_0^4/E_{\mathrm{h}}^3$	$6.235\,380\,95(31) \times 10^{-65}$	C^4 m^4 J^{-3}	5.0×10^{-8}
a.u. of magnetic flux density	$\hbar/ea_0^2$	$2.350\,517\,382(59) \times 10^{5}$	T	2.5×10^{-8}
a.u. of magnetic dipole moment ($2\mu_{\mathrm{B}}$)	$\hbar e/m_{\mathrm{e}}$	$1.854\,801\,830(46) \times 10^{-23}$	J T^{-1}	2.5×10^{-8}
a.u. of magnetizability	$e^2a_0^2/m_{\mathrm{e}}$	$7.891\,036\,433(27) \times 10^{-29}$	J T^{-2}	3.4×10^{-9}
a.u. of permittivity $(10^7/c^2)$	e^2/a_0E_{h}	$1.112\,650\,056\ldots \times 10^{-10}$	F m^{-1}	(exact)