Fundamental Physical Constants — Extensive Listing

Quantity	Symbol	Value	Unit	Relative std. uncert. u_r
		UNIVERSAL		
speed of light in vacuum	c, c_0	299 792 458	m s^{-1}	(exact)
magnetic constant	μ_0	$4\pi \times 10^{-7}$	N A^{-2}	
		$= 12.566\,370\,614... \times 10^{-7}$	N A^{-2}	(exact)
electric constant $1/\mu_0 c^2$	ϵ_0	$8.854\,187\,817... \times 10^{-12}$	F m^{-1}	(exact)
characteristic impedance of vacuum $\sqrt{\mu_0/\epsilon_0} = \mu_0 c$	Z_0	376.730 313 461...	Ω	(exact)
Newtonian constant of gravitation	G	$6.674\,28(67) \times 10^{-11}$	m^3 kg^{-1} s^{-2}	1.0×10^{-4}
	$G/\hbar c$	$6.708\,81(67) \times 10^{-39}$	$(\mathrm{GeV}/c^2)^{-2}$	1.0×10^{-4}
Planck constant	h	$6.626\,068\,96(33) \times 10^{-34}$	J s	5.0×10^{-8}
in eV s		$4.135\,667\,33(10) \times 10^{-15}$	eV s	2.5×10^{-8}
$h/2\pi$	$\hbar$	$1.054\,571\,628(53) \times 10^{-34}$	J s	5.0×10^{-8}
in eV s		$6.582\,118\,99(16) \times 10^{-16}$	eV s	2.5×10^{-8}
$\hbar c$ in MeV fm		197.326 9631(49)	MeV fm	2.5×10^{-8}
Planck mass $(\hbar c/G)^{1/2}$	m_P	$2.176\,44(11) \times 10^{-8}$	kg	5.0×10^{-5}
energy equivalent in GeV	$m_P c^2$	$1.220\,892(61) \times 10^{19}$	GeV	5.0×10^{-5}
Planck temperature $(\hbar c^5/G)^{1/2}/k$	T_P	$1.416\,785(71) \times 10^{32}$	K	5.0×10^{-5}
Planck length $\hbar/m_P c = (\hbar G/c^3)^{1/2}$	l_P	$1.616\,252(81) \times 10^{-35}$	m	5.0×10^{-5}
Planck time $l_P/c = (\hbar G/c^5)^{1/2}$	t_P	$5.391\,24(27) \times 10^{-44}$	s	5.0×10^{-5}
		ELECTROMAGNETIC		
elementary charge	e	$1.602\,176\,487(40) \times 10^{-19}$	C	2.5×10^{-8}
	e/h	$2.417\,989\,454(60) \times 10^{14}$	A J^{-1}	2.5×10^{-8}
magnetic flux quantum $h/2e$	Φ_0	$2.067\,833\,667(52) \times 10^{-15}$	Wb	2.5×10^{-8}
conductance quantum $2e^2/h$	G_0	$7.748\,091\,7004(53) \times 10^{-5}$	S	6.8×10^{-10}
inverse of conductance quantum	G_0^{-1}	12 906.403 7787(88)	Ω	6.8×10^{-10}
Josephson constant[1] $2e/h$	K_J	$483\,597.891(12) \times 10^9$	Hz V^{-1}	2.5×10^{-8}
von Klitzing constant[2] $h/e^2 = \mu_0 c/2\alpha$	R_K	25 812.807 557(18)	Ω	6.8×10^{-10}
Bohr magneton $e\hbar/2m_e$	μ_B	$927.400\,915(23) \times 10^{-26}$	J T^{-1}	2.5×10^{-8}
in eV T^{-1}		$5.788\,381\,7555(79) \times 10^{-5}$	eV T^{-1}	1.4×10^{-9}
	μ_B/h	$13.996\,246\,04(35) \times 10^9$	Hz T^{-1}	2.5×10^{-8}
	μ_B/hc	46.686 4515(12)	m^{-1} T^{-1}	2.5×10^{-8}
	μ_B/k	0.671 7131(12)	K T^{-1}	1.7×10^{-6}
nuclear magneton $e\hbar/2m_p$	μ_N	$5.050\,783\,24(13) \times 10^{-27}$	J T^{-1}	2.5×10^{-8}
in eV T^{-1}		$3.152\,451\,2326(45) \times 10^{-8}$	eV T^{-1}	1.4×10^{-9}
	μ_N/h	7.622 593 84(19)	MHz T^{-1}	2.5×10^{-8}
	μ_N/hc	$2.542\,623\,616(64) \times 10^{-2}$	m^{-1} T^{-1}	2.5×10^{-8}
	μ_N/k	$3.658\,2637(64) \times 10^{-4}$	K T^{-1}	1.7×10^{-6}
		ATOMIC AND NUCLEAR		
		General		
fine-structure constant $e^2/4\pi\epsilon_0\hbar c$	α	$7.297\,352\,5376(50) \times 10^{-3}$		6.8×10^{-10}
inverse fine-structure constant	α^{-1}	137.035 999 679(94)		6.8×10^{-10}

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Quantity	Symbol	Value	Unit	Relative std. uncert. u_r
Rydberg constant $\alpha^2 m_e c/2h$	R_∞	10 973 731.568 527(73)	m^{-1}	6.6×10^{-12}
	$R_\infty c$	$3.289\,841\,960\,361(22) \times 10^{15}$	Hz	6.6×10^{-12}
	$R_\infty hc$	$2.179\,871\,97(11) \times 10^{-18}$	J	5.0×10^{-8}
$R_\infty hc$ in eV		13.605 691 93(34)	eV	2.5×10^{-8}
Bohr radius $\alpha/4\pi R_\infty = 4\pi\epsilon_0\hbar^2/m_e e^2$	a_0	$0.529\,177\,208\,59(36) \times 10^{-10}$	m	6.8×10^{-10}
Hartree energy $e^2/4\pi\epsilon_0 a_0 = 2R_\infty hc$ $= \alpha^2 m_e c^2$	E_h	$4.359\,743\,94(22) \times 10^{-18}$	J	5.0×10^{-8}
in eV		27.211 383 86(68)	eV	2.5×10^{-8}
quantum of circulation	$h/2m_e$	$3.636\,947\,5199(50) \times 10^{-4}$	$m^2\ s^{-1}$	1.4×10^{-9}
	h/m_e	$7.273\,895\,040(10) \times 10^{-4}$	$m^2\ s^{-1}$	1.4×10^{-9}
		Electroweak		
Fermi coupling constant[3]	$G_F/(\hbar c)^3$	$1.166\,37(1) \times 10^{-5}$	GeV^{-2}	8.6×10^{-6}
weak mixing angle[4] θ_W (on-shell scheme) $\sin^2\theta_W = s_W^2 \equiv 1 - (m_W/m_Z)^2$	$\sin^2\theta_W$	0.222 55(56)		2.5×10^{-3}
		Electron, e^-		
electron mass	m_e	$9.109\,382\,15(45) \times 10^{-31}$	kg	5.0×10^{-8}
in u, $m_e = A_r(e)$ u (electron relative atomic mass times u)		$5.485\,799\,0943(23) \times 10^{-4}$	u	4.2×10^{-10}
energy equivalent	$m_e c^2$	$8.187\,104\,38(41) \times 10^{-14}$	J	5.0×10^{-8}
in MeV		0.510 998 910(13)	MeV	2.5×10^{-8}
electron-muon mass ratio	m_e/m_μ	$4.836\,331\,71(12) \times 10^{-3}$		2.5×10^{-8}
electron-tau mass ratio	m_e/m_τ	$2.875\,64(47) \times 10^{-4}$		1.6×10^{-4}
electron-proton mass ratio	m_e/m_p	$5.446\,170\,2177(24) \times 10^{-4}$		4.3×10^{-10}
electron-neutron mass ratio	m_e/m_n	$5.438\,673\,4459(33) \times 10^{-4}$		6.0×10^{-10}
electron-deuteron mass ratio	m_e/m_d	$2.724\,437\,1093(12) \times 10^{-4}$		4.3×10^{-10}
electron to alpha particle mass ratio	m_e/m_α	$1.370\,933\,555\,70(58) \times 10^{-4}$		4.2×10^{-10}
electron charge to mass quotient	$-e/m_e$	$-1.758\,820\,150(44) \times 10^{11}$	$C\ kg^{-1}$	2.5×10^{-8}
electron molar mass $N_A m_e$	$M(e), M_e$	$5.485\,799\,0943(23) \times 10^{-7}$	$kg\ mol^{-1}$	4.2×10^{-10}
Compton wavelength $h/m_e c$	λ_C	$2.426\,310\,2175(33) \times 10^{-12}$	m	1.4×10^{-9}
$\lambda_C/2\pi = \alpha a_0 = \alpha^2/4\pi R_\infty$	$\lambda\!\!\!^{-}_C$	$386.159\,264\,59(53) \times 10^{-15}$	m	1.4×10^{-9}
classical electron radius $\alpha^2 a_0$	r_e	$2.817\,940\,2894(58) \times 10^{-15}$	m	2.1×10^{-9}
Thomson cross section $(8\pi/3)r_e^2$	σ_e	$0.665\,245\,8558(27) \times 10^{-28}$	m^2	4.1×10^{-9}
electron magnetic moment	μ_e	$-928.476\,377(23) \times 10^{-26}$	$J\ T^{-1}$	2.5×10^{-8}
to Bohr magneton ratio	μ_e/μ_B	$-1.001\,159\,652\,181\,11(74)$		7.4×10^{-13}
to nuclear magneton ratio	μ_e/μ_N	$-1838.281\,970\,92(80)$		4.3×10^{-10}
electron magnetic moment anomaly $\lvert\mu_e\rvert/\mu_B - 1$	a_e	$1.159\,652\,181\,11(74) \times 10^{-3}$		6.4×10^{-10}
electron g-factor $-2(1 + a_e)$	g_e	$-2.002\,319\,304\,3622(15)$		7.4×10^{-13}
electron-muon magnetic moment ratio	μ_e/μ_μ	206.766 9877(52)		2.5×10^{-8}
electron-proton magnetic moment ratio	μ_e/μ_p	$-658.210\,6848(54)$		8.1×10^{-9}

Fundamental Physical Constants — Extensive Listing

Quantity	Symbol	Value	Unit	Relative std. uncert. u_r
electron to shielded proton magnetic moment ratio (H_2O, sphere, 25 °C)	μ_e/μ'_p	$-658.227\,5971(72)$		1.1×10^{-8}
electron-neutron magnetic moment ratio	μ_e/μ_n	$960.920\,50(23)$		2.4×10^{-7}
electron-deuteron magnetic moment ratio	μ_e/μ_d	$-2143.923\,498(18)$		8.4×10^{-9}
electron to shielded helion magnetic moment ratio (gas, sphere, 25 °C)	μ_e/μ'_h	$864.058\,257(10)$		1.2×10^{-8}
electron gyromagnetic ratio $2\|\mu_e\|/\hbar$	γ_e	$1.760\,859\,770(44) \times 10^{11}$	$s^{-1}\ T^{-1}$	2.5×10^{-8}
	$\gamma_e/2\pi$	$28\,024.953\,64(70)$	MHz T^{-1}	2.5×10^{-8}
		Muon, μ^-		
muon mass	m_μ	$1.883\,531\,30(11) \times 10^{-28}$	kg	5.6×10^{-8}
in u, $m_\mu = A_r(\mu)$ u (muon relative atomic mass times u)		$0.113\,428\,9256(29)$	u	2.5×10^{-8}
energy equivalent	$m_\mu c^2$	$1.692\,833\,510(95) \times 10^{-11}$	J	5.6×10^{-8}
in MeV		$105.658\,3668(38)$	MeV	3.6×10^{-8}
muon-electron mass ratio	m_μ/m_e	$206.768\,2823(52)$		2.5×10^{-8}
muon-tau mass ratio	m_μ/m_τ	$5.945\,92(97) \times 10^{-2}$		1.6×10^{-4}
muon-proton mass ratio	m_μ/m_p	$0.112\,609\,5261(29)$		2.5×10^{-8}
muon-neutron mass ratio	m_μ/m_n	$0.112\,454\,5167(29)$		2.5×10^{-8}
muon molar mass $N_A m_\mu$	$M(\mu), M_\mu$	$0.113\,428\,9256(29) \times 10^{-3}$	kg mol^{-1}	2.5×10^{-8}
muon Compton wavelength $h/m_\mu c$	$\lambda_{C,\mu}$	$11.734\,441\,04(30) \times 10^{-15}$	m	2.5×10^{-8}
$\lambda_{C,\mu}/2\pi$	$\lambda\!\!\!^{-}_{C,\mu}$	$1.867\,594\,295(47) \times 10^{-15}$	m	2.5×10^{-8}
muon magnetic moment	μ_μ	$-4.490\,447\,86(16) \times 10^{-26}$	J T^{-1}	3.6×10^{-8}
to Bohr magneton ratio	μ_μ/μ_B	$-4.841\,970\,49(12) \times 10^{-3}$		2.5×10^{-8}
to nuclear magneton ratio	μ_μ/μ_N	$-8.890\,597\,05(23)$		2.5×10^{-8}
muon magnetic moment anomaly $\|\mu_\mu\|/(e\hbar/2m_\mu) - 1$	a_μ	$1.165\,920\,69(60) \times 10^{-3}$		5.2×10^{-7}
muon g-factor $-2(1 + a_\mu)$	g_μ	$-2.002\,331\,8414(12)$		6.0×10^{-10}
muon-proton magnetic moment ratio	μ_μ/μ_p	$-3.183\,345\,137(85)$		2.7×10^{-8}
		Tau, τ^-		
tau mass[5]	m_τ	$3.167\,77(52) \times 10^{-27}$	kg	1.6×10^{-4}
in u, $m_\tau = A_r(\tau)$ u (tau relative atomic mass times u)		$1.907\,68(31)$	u	1.6×10^{-4}
energy equivalent	$m_\tau c^2$	$2.847\,05(46) \times 10^{-10}$	J	1.6×10^{-4}
in MeV		$1776.99(29)$	MeV	1.6×10^{-4}
tau-electron mass ratio	m_τ/m_e	$3477.48(57)$		1.6×10^{-4}
tau-muon mass ratio	m_τ/m_μ	$16.8183(27)$		1.6×10^{-4}
tau-proton mass ratio	m_τ/m_p	$1.893\,90(31)$		1.6×10^{-4}
tau-neutron mass ratio	m_τ/m_n	$1.891\,29(31)$		1.6×10^{-4}

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Quantity	Symbol	Value	Unit	Relative std. uncert. u_r
tau molar mass $N_A m_\tau$	$M(\tau), M_\tau$	$1.907\,68(31) \times 10^{-3}$	kg mol^{-1}	1.6×10^{-4}
tau Compton wavelength $h/m_\tau c$	$\lambda_{C,\tau}$	$0.697\,72(11) \times 10^{-15}$	m	1.6×10^{-4}
$\lambda_{C,\tau}/2\pi$	$\lambda\!\!\!^{-}_{C,\tau}$	$0.111\,046(18) \times 10^{-15}$	m	1.6×10^{-4}
		Proton, p		
proton mass	m_p	$1.672\,621\,637(83) \times 10^{-27}$	kg	5.0×10^{-8}
in u, $m_p = A_r(p)$ u (proton relative atomic mass times u)		$1.007\,276\,466\,77(10)$	u	1.0×10^{-10}
energy equivalent	$m_p c^2$	$1.503\,277\,359(75) \times 10^{-10}$	J	5.0×10^{-8}
in MeV		$938.272\,013(23)$	MeV	2.5×10^{-8}
proton-electron mass ratio	m_p/m_e	$1836.152\,672\,47(80)$		4.3×10^{-10}
proton-muon mass ratio	m_p/m_μ	$8.880\,243\,39(23)$		2.5×10^{-8}
proton-tau mass ratio	m_p/m_τ	$0.528\,012(86)$		1.6×10^{-4}
proton-neutron mass ratio	m_p/m_n	$0.998\,623\,478\,24(46)$		4.6×10^{-10}
proton charge to mass quotient	e/m_p	$9.578\,833\,92(24) \times 10^{7}$	C kg^{-1}	2.5×10^{-8}
proton molar mass $N_A m_p$	$M(p), M_p$	$1.007\,276\,466\,77(10) \times 10^{-3}$	kg mol^{-1}	1.0×10^{-10}
proton Compton wavelength $h/m_p c$	$\lambda_{C,p}$	$1.321\,409\,8446(19) \times 10^{-15}$	m	1.4×10^{-9}
$\lambda_{C,p}/2\pi$	$\lambda\!\!\!^{-}_{C,p}$	$0.210\,308\,908\,61(30) \times 10^{-15}$	m	1.4×10^{-9}
proton rms charge radius	R_p	$0.8768(69) \times 10^{-15}$	m	7.8×10^{-3}
proton magnetic moment	μ_p	$1.410\,606\,662(37) \times 10^{-26}$	J T^{-1}	2.6×10^{-8}
to Bohr magneton ratio	μ_p/μ_B	$1.521\,032\,209(12) \times 10^{-3}$		8.1×10^{-9}
to nuclear magneton ratio	μ_p/μ_N	$2.792\,847\,356(23)$		8.2×10^{-9}
proton g-factor $2\mu_p/\mu_N$	g_p	$5.585\,694\,713(46)$		8.2×10^{-9}
proton-neutron magnetic moment ratio	μ_p/μ_n	$-1.459\,898\,06(34)$		2.4×10^{-7}
shielded proton magnetic moment (H_2O, sphere, 25 °C)	μ'_p	$1.410\,570\,419(38) \times 10^{-26}$	J T^{-1}	2.7×10^{-8}
to Bohr magneton ratio	μ'_p/μ_B	$1.520\,993\,128(17) \times 10^{-3}$		1.1×10^{-8}
to nuclear magneton ratio	μ'_p/μ_N	$2.792\,775\,598(30)$		1.1×10^{-8}
proton magnetic shielding correction $1 - \mu'_p/\mu_p$ (H_2O, sphere, 25 °C)	σ'_p	$25.694(14) \times 10^{-6}$		5.3×10^{-4}
proton gyromagnetic ratio $2\mu_p/\hbar$	γ_p	$2.675\,222\,099(70) \times 10^{8}$	s^{-1} T^{-1}	2.6×10^{-8}
	$\gamma_p/2\pi$	$42.577\,4821(11)$	MHz T^{-1}	2.6×10^{-8}
shielded proton gyromagnetic ratio $2\mu'_p/\hbar$ (H_2O, sphere, 25 °C)	γ'_p	$2.675\,153\,362(73) \times 10^{8}$	s^{-1} T^{-1}	2.7×10^{-8}
	$\gamma'_p/2\pi$	$42.576\,3881(12)$	MHz T^{-1}	2.7×10^{-8}
		Neutron, n		
neutron mass	m_n	$1.674\,927\,211(84) \times 10^{-27}$	kg	5.0×10^{-8}
in u, $m_n = A_r(n)$ u (neutron relative atomic mass times u)		$1.008\,664\,915\,97(43)$	u	4.3×10^{-10}
energy equivalent	$m_n c^2$	$1.505\,349\,505(75) \times 10^{-10}$	J	5.0×10^{-8}
in MeV		$939.565\,346(23)$	MeV	2.5×10^{-8}

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Quantity	Symbol	Value	Unit	Relative std. uncert. u_r
neutron-electron mass ratio	m_n/m_e	1838.683 6605(11)		6.0×10^{-10}
neutron-muon mass ratio	m_n/m_μ	8.892 484 09(23)		2.5×10^{-8}
neutron-tau mass ratio	m_n/m_τ	0.528 740(86)		1.6×10^{-4}
neutron-proton mass ratio	m_n/m_p	1.001 378 419 18(46)		4.6×10^{-10}
neutron molar mass $N_A m_n$	$M(n), M_n$	$1.008\,664\,915\,97(43) \times 10^{-3}$	kg mol^{-1}	4.3×10^{-10}
neutron Compton wavelength $h/m_n c$	$\lambda_{C,n}$	$1.319\,590\,8951(20) \times 10^{-15}$	m	1.5×10^{-9}
$\lambda_{C,n}/2\pi$	$\lambda\!\!\!^{-}_{C,n}$	$0.210\,019\,413\,82(31) \times 10^{-15}$	m	1.5×10^{-9}
neutron magnetic moment	μ_n	$-0.966\,236\,41(23) \times 10^{-26}$	J T^{-1}	2.4×10^{-7}
to Bohr magneton ratio	μ_n/μ_B	$-1.041\,875\,63(25) \times 10^{-3}$		2.4×10^{-7}
to nuclear magneton ratio	μ_n/μ_N	$-1.913\,042\,73(45)$		2.4×10^{-7}
neutron g-factor $2\mu_n/\mu_N$	g_n	$-3.826\,085\,45(90)$		2.4×10^{-7}
neutron-electron magnetic moment ratio	μ_n/μ_e	$1.040\,668\,82(25) \times 10^{-3}$		2.4×10^{-7}
neutron-proton magnetic moment ratio	μ_n/μ_p	$-0.684\,979\,34(16)$		2.4×10^{-7}
neutron to shielded proton magnetic moment ratio (H_2O, sphere, 25 °C)	μ_n/μ'_p	$-0.684\,996\,94(16)$		2.4×10^{-7}
neutron gyromagnetic ratio $2\lvert\mu_n\rvert/\hbar$	γ_n	$1.832\,471\,85(43) \times 10^{8}$	s^{-1} T^{-1}	2.4×10^{-7}
	$\gamma_n/2\pi$	29.164 6954(69)	MHz T^{-1}	2.4×10^{-7}
		Deuteron, d		
deuteron mass	m_d	$3.343\,583\,20(17) \times 10^{-27}$	kg	5.0×10^{-8}
in u, $m_d = A_r(d)$ u (deuteron relative atomic mass times u)		2.013 553 212 724(78)	u	3.9×10^{-11}
energy equivalent	$m_d c^2$	$3.005\,062\,72(15) \times 10^{-10}$	J	5.0×10^{-8}
in MeV		1875.612 793(47)	MeV	2.5×10^{-8}
deuteron-electron mass ratio	m_d/m_e	3670.482 9654(16)		4.3×10^{-10}
deuteron-proton mass ratio	m_d/m_p	1.999 007 501 08(22)		1.1×10^{-10}
deuteron molar mass $N_A m_d$	$M(d), M_d$	$2.013\,553\,212\,724(78) \times 10^{-3}$	kg mol^{-1}	3.9×10^{-11}
deuteron rms charge radius	R_d	$2.1402(28) \times 10^{-15}$	m	1.3×10^{-3}
deuteron magnetic moment	μ_d	$0.433\,073\,465(11) \times 10^{-26}$	J T^{-1}	2.6×10^{-8}
to Bohr magneton ratio	μ_d/μ_B	$0.466\,975\,4556(39) \times 10^{-3}$		8.4×10^{-9}
to nuclear magneton ratio	μ_d/μ_N	0.857 438 2308(72)		8.4×10^{-9}
deuteron g-factor μ_d/μ_N	g_d	0.857 438 2308(72)		8.4×10^{-9}
deuteron-electron magnetic moment ratio	μ_d/μ_e	$-4.664\,345\,537(39) \times 10^{-4}$		8.4×10^{-9}
deuteron-proton magnetic moment ratio	μ_d/μ_p	0.307 012 2070(24)		7.7×10^{-9}
deuteron-neutron magnetic moment ratio	μ_d/μ_n	$-0.448\,206\,52(11)$		2.4×10^{-7}
		Triton, t		
triton mass	m_t	$5.007\,355\,88(25) \times 10^{-27}$	kg	5.0×10^{-8}

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Quantity	Symbol	Value	Unit	Relative std. uncert. u_r
in u, $m_t = A_r(t)$ u (triton relative atomic mass times u)		3.015 500 7134(25)	u	8.3×10^{-10}
energy equivalent	$m_t c^2$	$4.500\,387\,03(22) \times 10^{-10}$	J	5.0×10^{-8}
in MeV		2808.920 906(70)	MeV	2.5×10^{-8}
triton-electron mass ratio	m_t/m_e	5496.921 5269(51)		9.3×10^{-10}
triton-proton mass ratio	m_t/m_p	2.993 717 0309(25)		8.4×10^{-10}
triton molar mass $N_A m_t$	$M(t), M_t$	$3.015\,500\,7134(25) \times 10^{-3}$	kg mol^{-1}	8.3×10^{-10}
triton magnetic moment	μ_t	$1.504\,609\,361(42) \times 10^{-26}$	J T^{-1}	2.8×10^{-8}
to Bohr magneton ratio	μ_t/μ_B	$1.622\,393\,657(21) \times 10^{-3}$		1.3×10^{-8}
to nuclear magneton ratio	μ_t/μ_N	2.978 962 448(38)		1.3×10^{-8}
triton g-factor $2\mu_t/\mu_N$	g_t	5.957 924 896(76)		1.3×10^{-8}
triton-electron magnetic moment ratio	μ_t/μ_e	$-1.620\,514\,423(21) \times 10^{-3}$		1.3×10^{-8}
triton-proton magnetic moment ratio	μ_t/μ_p	1.066 639 908(10)		9.8×10^{-9}
triton-neutron magnetic moment ratio	μ_t/μ_n	−1.557 185 53(37)		2.4×10^{-7}
	Helion, h			
helion mass[6]	m_h	$5.006\,411\,92(25) \times 10^{-27}$	kg	5.0×10^{-8}
in u, $m_h = A_r(h)$ u (helion relative atomic mass times u)		3.014 932 2473(26)	u	8.6×10^{-10}
energy equivalent	$m_h c^2$	$4.499\,538\,64(22) \times 10^{-10}$	J	5.0×10^{-8}
in MeV		2808.391 383(70)	MeV	2.5×10^{-8}
helion-electron mass ratio	m_h/m_e	5495.885 2765(52)		9.5×10^{-10}
helion-proton mass ratio	m_h/m_p	2.993 152 6713(26)		8.7×10^{-10}
helion molar mass $N_A m_h$	$M(h), M_h$	$3.014\,932\,2473(26) \times 10^{-3}$	kg mol^{-1}	8.6×10^{-10}
shielded helion magnetic moment (gas, sphere, 25 °C)	μ'_h	$-1.074\,552\,982(30) \times 10^{-26}$	J T^{-1}	2.8×10^{-8}
to Bohr magneton ratio	μ'_h/μ_B	$-1.158\,671\,471(14) \times 10^{-3}$		1.2×10^{-8}
to nuclear magneton ratio	μ'_h/μ_N	−2.127 497 718(25)		1.2×10^{-8}
shielded helion to proton magnetic moment ratio (gas, sphere, 25 °C)	μ'_h/μ_p	−0.761 766 558(11)		1.4×10^{-8}
shielded helion to shielded proton magnetic moment ratio (gas/H_2O, spheres, 25 °C)	μ'_h/μ'_p	−0.761 786 1313(33)		4.3×10^{-9}
shielded helion gyromagnetic ratio $2\lvert\mu'_h\rvert/\hbar$ (gas, sphere, 25 °C)	γ'_h	$2.037\,894\,730(56) \times 10^{8}$	s^{-1} T^{-1}	2.8×10^{-8}
	$\gamma'_h/2\pi$	32.434 101 98(90)	MHz T^{-1}	2.8×10^{-8}
	Alpha particle, α			
alpha particle mass	m_α	$6.644\,656\,20(33) \times 10^{-27}$	kg	5.0×10^{-8}
in u, $m_\alpha = A_r(\alpha)$ u (alpha particle				

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Quantity	Symbol	Value	Unit	Relative std. uncert. u_r
relative atomic mass times u)		4.001 506 179 127(62)	u	1.5×10^{-11}
energy equivalent	$m_\alpha c^2$	$5.971\,919\,17(30) \times 10^{-10}$	J	5.0×10^{-8}
in MeV		3727.379 109(93)	MeV	2.5×10^{-8}
alpha particle to electron mass ratio	m_α/m_e	7294.299 5365(31)		4.2×10^{-10}
alpha particle to proton mass ratio	m_α/m_p	3.972 599 689 51(41)		1.0×10^{-10}
alpha particle molar mass $N_A m_\alpha$	$M(\alpha), M_\alpha$	$4.001\,506\,179\,127(62) \times 10^{-3}$	kg mol^{-1}	1.5×10^{-11}
	PHYSICOCHEMICAL			
Avogadro constant	N_A, L	$6.022\,141\,79(30) \times 10^{23}$	mol^{-1}	5.0×10^{-8}
atomic mass constant				
$m_u = \frac{1}{12}m(^{12}C) = 1$ u	m_u	$1.660\,538\,782(83) \times 10^{-27}$	kg	5.0×10^{-8}
$= 10^{-3}$ kg mol$^{-1}/N_A$				
energy equivalent	$m_u c^2$	$1.492\,417\,830(74) \times 10^{-10}$	J	5.0×10^{-8}
in MeV		931.494 028(23)	MeV	2.5×10^{-8}
Faraday constant[7] $N_A e$	F	96 485.3399(24)	C mol^{-1}	2.5×10^{-8}
molar Planck constant	$N_A h$	$3.990\,312\,6821(57) \times 10^{-10}$	J s mol^{-1}	1.4×10^{-9}
	$N_A hc$	0.119 626 564 72(17)	J m mol^{-1}	1.4×10^{-9}
molar gas constant	R	8.314 472(15)	J mol^{-1} K^{-1}	1.7×10^{-6}
Boltzmann constant R/N_A	k	$1.380\,6504(24) \times 10^{-23}$	J K^{-1}	1.7×10^{-6}
in eV K^{-1}		$8.617\,343(15) \times 10^{-5}$	eV K^{-1}	1.7×10^{-6}
	k/h	$2.083\,6644(36) \times 10^{10}$	Hz K^{-1}	1.7×10^{-6}
	k/hc	69.503 56(12)	m^{-1} K^{-1}	1.7×10^{-6}
molar volume of ideal gas RT/p				
$T = 273.15$ K, $p = 101.325$ kPa	V_m	$22.413\,996(39) \times 10^{-3}$	m^3 mol^{-1}	1.7×10^{-6}
Loschmidt constant N_A/V_m	n_0	$2.686\,7774(47) \times 10^{25}$	m^{-3}	1.7×10^{-6}
$T = 273.15$ K, $p = 100$ kPa	V_m	$22.710\,981(40) \times 10^{-3}$	m^3 mol^{-1}	1.7×10^{-6}
Sackur-Tetrode constant				
(absolute entropy constant)[8]				
$\frac{5}{2} + \ln[(2\pi m_u k T_1/h^2)^{3/2} k T_1/p_0]$				
$T_1 = 1$ K, $p_0 = 100$ kPa	S_0/R	$-1.151\,7047(44)$		3.8×10^{-6}
$T_1 = 1$ K, $p_0 = 101.325$ kPa		$-1.164\,8677(44)$		3.8×10^{-6}
Stefan-Boltzmann constant				
$(\pi^2/60)k^4/\hbar^3 c^2$	σ	$5.670\,400(40) \times 10^{-8}$	W m^{-2} K^{-4}	7.0×10^{-6}
first radiation constant $2\pi hc^2$	c_1	$3.741\,771\,18(19) \times 10^{-16}$	W m^2	5.0×10^{-8}
first radiation constant for spectral radiance $2hc^2$	c_{1L}	$1.191\,042\,759(59) \times 10^{-16}$	W m^2 sr^{-1}	5.0×10^{-8}
second radiation constant hc/k	c_2	$1.438\,7752(25) \times 10^{-2}$	m K	1.7×10^{-6}
Wien displacement law constants				
$b = \lambda_{max} T = c_2/4.965\,114\,231\ldots$	b	$2.897\,7685(51) \times 10^{-3}$	m K	1.7×10^{-6}
$b' = \nu_{max}/T = 2.821\,439\,372\ldots\, c/c_2$	b'	$5.878\,933(10) \times 10^{10}$	Hz K^{-1}	1.7×10^{-6}

[1] See the "Adopted values" table for the conventional value adopted internationally for realizing representations of the volt using the Josephson effect.

[2] See the "Adopted values" table for the conventional value adopted internationally for realizing representations of the ohm using the quantum Hall effect.

[3] Value recommended by the Particle Data Group (Yao, *et al.*, 2006).

[4] Based on the ratio of the masses of the W and Z bosons $m_{\mathrm{W}}/m_{\mathrm{Z}}$ recommended by the Particle Data Group (Yao, *et al.*, 2006). The value for $\sin^2\theta_{\mathrm{W}}$ they recommend, which is based on a particular variant of the modified minimal subtraction ($\overline{\mathrm{MS}}$) scheme, is $\sin^2\hat{\theta}_{\mathrm{W}}(M_{\mathrm{Z}}) = 0.231\,22(15)$.
[5] This and all other values involving m_τ are based on the value of $m_\tau c^2$ in MeV recommended by the Particle Data Group (Yao, *et al.*, 2006), but with a standard uncertainty of 0.29 MeV rather than the quoted uncertainty of -0.26 MeV, $+0.29$ MeV.
[6] The helion, symbol h, is the nucleus of the ^{3}He atom.
[7] The numerical value of F to be used in coulometric chemical measurements is $96\,485.3401(48)$ [5.0×10^{-8}] when the relevant current is measured in terms of representations of the volt and ohm based on the Josephson and quantum Hall effects and the internationally adopted conventional values of the Josephson and von Klitzing constants $K_{\mathrm{J}-90}$ and $R_{\mathrm{K}-90}$ given in the "Adopted values" table.
[8] The entropy of an ideal monoatomic gas of relative atomic mass A_{r} is given by $S = S_0 + \frac{3}{2}R\,\ln A_{\mathrm{r}} - R\,\ln(p/p_0) + \frac{5}{2}R\,\ln(T/\mathrm{K})$.