

2002 CODATA Recommended Values for Fundamental Physical Constants (79th ed. CRC 1998-1999)

Symbol	Meaning	Value	Units	Exact
c	Speed of light in vacuum	2.997924580000E+08	m sec ⁻¹	exact
μ_0	permeability of vacuum	1.256637061438E-06	NA ²	exact
ϵ_0	permittivity of vacuum	8.854187817620E-12	Fm ⁻¹	exact
h	Planck constant	6.626069300000E-34	J s	
\hbar	rationalized Planck Constant	1.054571800000E-34	J s	
e	Elementary charge of an electron	1.602176530000E-19	C	
m_e	Rest mass of the electron	9.109382680000E-31	kg	
m_p	Rest mass of the proton	1.672621710000E-27	kg	
α	fine structure constant	7.297352568000E-03		
R_∞	Rydberg constant	1.097373156853E+07	m ⁻¹	
R_∞	Rydberg constant		eV	
eV	electron volt	1.602176530000E-19	J	
μ_B	Bohr magneton	9.274009480000E-24	JT ⁻¹	
a_0	Bohr radius	5.291772108000E-11	m	
g_e	electron g-factor	2.002319304372E+00		
N_A	Avogadro's number	6.022141500000E+23	mole ⁻¹	
k	Boltzmann's constant	1.380650500000E-23	J K ⁻¹	
R	Gas constant	8.314472000000E+00	J K ⁻¹ mole ⁻¹	
	Joule/eV	1.602176530000E-19		
	eV/J	6.2415094738E+18		
m_p	Rest mass of the proton	1.672621710000E-27	kg	
	Compton Wavelength	2.4263102380E-12		

Configuration	n_1	n_2	l	m	S	J	Term	Z	Reduced Mass of Electron in He	a_{00}	r_1 ex Eq. (7.19)	$r_1(a_{00})$	r_1 ex Eq. (7.19) with relativistic correction using Eq. (1.251)	F_2 (singlet excited states with $l=0$ from Eq. (9.11); triplet excited states with $l=0$ from Eq. (9.32); singlet excited states with l not 0 from Eq. (9.53); triplet excited states with l not 0 from Eq. (9.64), and 1S from Eq. (7.19))	r_2 in units of a_{00}	$E_{n,l}$ (eV) ex Eq. (7.29) or (9.12)	$E_{n,l}$ ex Eq. (7.28-7.30)	$E_{n,l}$ ex Eq. (9.70)	Term Symbol
1s ²	1	1	0	0	0	0	1s ² S	2	9.1081424887E-31	5.2924925541E-11	3.0008E-11	0.5669873	3.0007E-11			-23.996966	0.590536		1s ² S
1s2s	1	2	0	1	1	1	1s2s S	2	9.1081424887E-31	5.2924925541E-11				7.52936E-11	1.42264973	-4.781163			1s2s S
1s2s	1	2	0	0	0	0	1s2s S	2	9.1081424887E-31	5.2924925541E-11				9.05717E-11	1.71132487	-3.974652			1s2s S
1s2p	1	2	1	1	2	1	1s2p P ^o	2	9.1081424887E-31	5.2924925541E-11				9.9457E-11	1.87920919	-3.619565	0.000054		1s2p P ^o
1s2p	1	2	1	1	1	1	1s2p P ^o	2	9.1081424887E-31	5.2924925541E-11				9.9457E-11	1.87920919	-3.619565	0.000054		1s2p P ^o
1s2p	1	2	1	0	1	0	1s2p P ^o	2	9.1081424887E-31	5.2924925541E-11				9.9457E-11	1.87920919	-3.619565	0.000054		1s2p P ^o
1s2p	1	2	1	0	0	0	1s2p P ^o	2	9.1081424887E-31	5.2924925541E-11				1.06841E-10	2.01872874	-3.369408	0.000044		1s2p P ^o
1s3s	1	3	0	1	1	1	1s3s S	2	9.1081424887E-31	5.2924925541E-11				1.28219E-10	2.42264973	-1.871758			1s3s S
1s3s	1	3	0	0	0	0	1s3s S	2	9.1081424887E-31	5.2924925541E-11				1.43497E-10	2.71132487	-1.672471			1s3s S
1s3p	1	3	1	1	2	1	1s3p P ^o	2	9.1081424887E-31	5.2924925541E-11				1.52382E-10	2.87920919	-1.574951	0.000015		1s3p P ^o
1s3p	1	3	1	1	1	1	1s3p P ^o	2	9.1081424887E-31	5.2924925541E-11				1.52382E-10	2.87920919	-1.574951	0.000015		1s3p P ^o
1s3p	1	3	1	0	1	0	1s3p P ^o	2	9.1081424887E-31	5.2924925541E-11				1.52382E-10	2.87920919	-1.574951	0.000015		1s3p P ^o
1s3d	1	3	2	1	3	2	1s3d D ₃	2	9.1081424887E-31	5.2924925541E-11				1.58033E-10	2.9859835	-1.518633			1s3d D ₃
1s3d	1	3	2	1	2	1	1s3d D ₃	2	9.1081424887E-31	5.2924925541E-11				1.58033E-10	2.9859835	-1.518633			1s3d D ₃
1s3d	1	3	2	1	1	1	1s3d D ₃	2	9.1081424887E-31	5.2924925541E-11				1.58033E-10	2.9859835	-1.518633			1s3d D ₃
1s3d	1	3	2	0	2	1	1s3d D	2	9.1081424887E-31	5.2924925541E-11				1.58815E-10	3.00075825	-1.511156	0.000013		1s3d D
1s4s	1	4	0	1	1	1	1s4s S	2	9.1081424887E-31	5.2924925541E-11				1.81143E-10	3.42264973	-0.993963			1s4s S
1s4s	1	4	0	0	0	0	1s4s S	2	9.1081424887E-31	5.2924925541E-11				1.96422E-10	3.71132487	-0.916374			1s4s S
1s4p	1	4	1	1	2	1	1s4p P ^o	2	9.1081424887E-31	5.2924925541E-11				2.05307E-10	3.87920919	-0.876715	0.000008		1s4p P ^o
1s4p	1	4	1	1	1	1	1s4p P ^o	2	9.1081424887E-31	5.2924925541E-11				2.05307E-10	3.87920919	-0.876715	0.000008		1s4p P ^o
1s4p	1	4	1	0	1	0	1s4p P ^o	2	9.1081424887E-31	5.2924925541E-11				2.05307E-10	3.87920919	-0.876715	0.000008		1s4p P ^o
1s4d	1	4	2	1	3	2	1s4d D ₃	2	9.1081424887E-31	5.2924925541E-11				2.10958E-10	3.9859835	-0.853230			1s4d D ₃
1s4d	1	4	2	1	2	1	1s4d D ₃	2	9.1081424887E-31	5.2924925541E-11				2.10958E-10	3.9859835	-0.853230			1s4d D ₃
1s4d	1	4	2	1	1	1	1s4d D ₃	2	9.1081424887E-31	5.2924925541E-11				2.10958E-10	3.9859835	-0.853230			1s4d D ₃
1s4d	1	4	2	0	2	1	1s4d D	2	9.1081424887E-31	5.2924925541E-11				2.1174E-10	4.00075825	-0.850079			1s4d D
1s4f	1	4	3	1	3	3	1s4f F ₄	2	9.1081424887E-31	5.2924925541E-11				2.11624E-10	3.99857143	-0.850544			1s4f F ₄
1s4f	1	4	3	1	2	2	1s4f F ₄	2	9.1081424887E-31	5.2924925541E-11				2.11624E-10	3.99857143	-0.850544			1s4f F ₄
1s4f	1	4	3	1	1	1	1s4f F ₄	2	9.1081424887E-31	5.2924925541E-11				2.11624E-10	3.99857143	-0.850544			1s4f F ₄
1s4f	1	4	3	0	3	3	1s4f F ₄	2	9.1081424887E-31	5.2924925541E-11				2.117E-10	4	-0.850240			1s4f F ₄
1s4p	1	4	1	1	1	1	1s4p P ^o	2	9.1081424887E-31	5.2924925541E-11				2.12691E-10	4.01872874	-0.846278	0.000006		1s4p P ^o

l=0 singlet terms				l=0 triplet terms				l not =0 singlet terms				l not =0 triplet terms					
NIST Levels (eV) - with IP as Zero	COM-NIST	Relative Difference (COM-NIST)	Term Symbol	COM Ionization Potentials for He I Levels (eV) with neg sign	NIST Levels (eV) - with IP as Zero	Difference (COM-NIST)	Relative Difference (COM-NIST)	Term Symbol	COM Ionization Potentials for He I Levels (eV) with neg sign	NIST Levels (eV) - with IP as Zero	Difference (COM-NIST)	Relative Difference (COM-NIST)	Term Symbol	COM Ionization Potentials for He I Levels (eV) with neg sign	NIST Levels (eV) - with IP as Zero	Difference (COM-NIST)	Relative Difference (COM-NIST)
-24.5874	-0.000102	0.000004	1s2s ³ S	-4.781163	-4.76777	-0.013393	0.002809										
-3.97161	-0.003042	0.000766											1s2p ³ P ₂	-3.619565	-3.6233	0.003735	-0.001031
													1s2p ³ P ₁	-3.619565	-3.62329	0.003725	-0.001028
													1s2p ³ P ₀	-3.619565	-3.62317	0.003605	-0.000995
			1s3s ³ S	-1.871758	-1.86892	-0.002838	0.001518	1s2p ¹ P ^o	-3.369408	-3.36936	-0.000048	0.000014					
-1.66707	-0.005401	0.003240											1s3p ³ P ₂	-1.574951	-1.58031	0.005359	-0.003391
													1s3p ³ P ₁	-1.574951	-1.58031	0.005359	-0.003391
													1s3p ³ P ₀	-1.574951	-1.58027	0.005319	-0.003366
													1s3d ³ D ₃	-1.518633	-1.51373	-0.004903	0.003239
													1s3d ³ D ₁	-1.518633	-1.51373	-0.004903	0.003239
													1s3d ³ D ₂	-1.518633	-1.51373	-0.004903	0.003239
								1s3d ¹ D	-0.851195	-1.51331	0.002154	-0.001423					
								1s3p ¹ P ^o	-1.502160	-1.50036	-0.001800	0.001200					
-0.91381	-0.002564	0.002805	1s4s ³ S	-0.993663	-0.99342	-0.000243	0.000245						1s4p ³ P ₂	-0.876715	-0.87949	0.002775	-0.003155
													1s4p ³ P ₁	-0.876715	-0.87949	0.002775	-0.003155
													1s4p ³ P ₀	-0.876715	-0.87948	0.002765	-0.003144
													1s4d ³ D ₃	-0.853230	-0.85129	-0.001940	0.002279
													1s4d ³ D ₁	-0.853230	-0.85129	-0.001940	0.002279
								1s4d ¹ D	-0.850079	-0.85105	0.000971	-0.001141					
													1s4f ³ F ₄	-0.850544	-0.85038	-0.000164	0.000193
													1s4f ³ F ₃	-0.850544	-0.85038	-0.000164	0.000193
													1s4f ³ F ₂	-0.850544	-0.85038	-0.000164	0.000193
								1s4f ¹ F ^o	-0.850240	-0.85037	0.000130	-0.000153					
								1s4p ¹ P ^o	-0.846278	-0.84531	-0.000968	0.001145					

