Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 166, 1 (2020)	20-Apr-2020

Q(β^-)=1533 *4*; S(n)=5669 *4*; S(p)=8.93×10^3 *SY*; Q(α)=−9.7×10^2 *5* 2017Wa10

^{205}Hg Levels

Cross Reference (XREF) Flags

A	^{205}Hg IT decay (1.09 ms)	E	^{204}Hg(t,dγ)
B	^{205}Au β^- decay	F	^{204}Hg(^{9}Be,2$\alpha\gamma$)
C	^{204}Hg(d,p)	G	^{9}Be(^{208}Pb,Xγ)
D	^{204}Hg(d,pγ)		

E(level)†	J$^\pi$‡	T$_{1/2}$	XREF	Comments
0.0	1/2$^-$	5.14 min *9*	ABCDEFG	%β^-=100 μ=+0.60089 *10* J$^\pi$: From 1975Ro10 using the optical pumping technique; π from L(d,p)=1. T$_{1/2}$: Weighted average of 5.1 min *1* (1953Bu88) and 5.5 min *3* (1960Po01). Other: 31.2 min *25* for a fully-ionized ^{205}Hg^{80+} atom (2010Ku02). μ: From 1975Ro10,2014StZZ using the Nuclear Magnetic Resonance technique. configuration: $\nu(p^{-1}_{1/2})$.
379.46 *10*	5/2$^-$		ABCDEFG	J$^\pi$: L(d,p)=(1,3); 379.42γ E2 to 1/2$^-$. configuration: $\nu(f^{-1}_{5/2})$.
467.51 *11*	3/2$^-$		ABCDEF	J$^\pi$: L(d,p)=3, (1); 467.58γ M1 to 1/2$^-$. configuration: $\nu(p^{-1}_{3/2})$.
1280.7 *3*	1/2$^-$,3/2,5/2$^-$		B	J$^\pi$: 813.1γ to 3/2$^-$, 901.6γ to 5/2$^-$ and 1280.5γ to 1/2$^-$ levels.
1325.2 *4*	1/2$^-$,3/2,5/2$^-$		B F	J$^\pi$: 858γ to 3/2$^-$, 946.0γ to 5/2$^-$ and 1346.12γ to 1/2$^-$ levels.
1346.12 *13*	7/2$^-$		ABCDEFG	XREF: C(1352). J$^\pi$: 501.28γ (E1) from 9/2$^+$, 210.3γ E3 from 13/2$^+$, 966.62γ (M1) to 5/2$^-$ and 878.83γ to 3/2$^-$. configuration: $\nu(f^{-1}_{5/2})\otimes\pi(s^{-1}_{1/2},d^{-1}_{3/2})_{1^+}$.
1395.08 *21*	9/2$^-$		AB DEFG	J$^\pi$: 161.4γ M2 from 13/2$^+$; 1015.63γ to 5/2$^-$. configuration: $\nu(f^{-1}_{5/2})\otimes\pi(s^{-1}_{1/2},d^{-1}_{3/2})_{2^+}$.
1447.5 *4*	1/2$^-$,3/2,5/2		B	J$^\pi$: 1068.0γ to 5/2$^-$; direct feeding in ^{205}Au β^- decay (J$^\pi$=(3/2$^+$)).
1556.4 *3*	13/2$^+$	1.09 ms *4*	A DEFG	%IT=100 J$^\pi$: 161.4γ M2 to 9/2$^-$, 210.3γ E3 to 7/2$^-$; systematics of similar isomers in neighboring nuclei. T$_{1/2}$: Weighted average of 1.04 ms *10* in ^{204}Hg(d,pγ) (1986Ze03) and 1.10 ms *4* in ^{204}Hg(t,dγ) (1985Ma48). configuration: $\nu(i^{-1}_{13/2})$.
1818.2 *5*			F	
1847.3 *3*	9/2$^+$		CDEF	XREF: C(1855). J$^\pi$: L(d,p)=4; 290.8γ to 13/2$^+$ and 501.2γ (E1) to 7/2$^-$. configuration: $\nu(g^{+1}_{9/2})$.
2011.4 *3*	(11/2$^+$)		D F	J$^\pi$: 164.1γ (M1) to 9/2$^+$ level; 455.1γ to 13/2$^+$. configuration: Suggested in 1994Po21 (based on a shell-model predictions) as the $\nu(i^{+1}_{11/2})$ single-particle state.
2205.9 *6*			F	
2337#			C	
2350.7 *5*			F	
2366.4 *6*	(17/2$^+$)		G	J$^\pi$: 810.0γ to 13/2$^+$.

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Adopted Levels, Gammas (continued)

^{205}Hg Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
				configuration: $\nu(i^{-1}_{13/2})\otimes 2^+$.
2368.9 *5*			F	
2540[#]			C	
2566[#]	+		C	Jπ: L(d,p)=(4). configuration: $\nu(g^{+1}_{9/2})$.
2579.5 *6*			F	
2591[#]	+		C	Jπ: L(d,p)=4. configuration: $\nu(g^{+1}_{9/2})$.
2594.0 *8*	(19/2+)		G	Jπ: 227.6γ to (17/2+). configuration: $\nu(f^{-1}_{5/2})\otimes\pi(d^{-1}_{3/2},h^{-1}_{11/2})_{7^-}$.
2668[#]			C	
2920[#]	+		C	Jπ: L(d,p)=2, (4).
2956[#]	+		C	Jπ: L(d,p)=2, (4).
3026[#]			C	
3070[#]			C	
3095[#]			C	
3163[#]			C	
3187[#]			C	
3316.6 *8*	(23/2−)	5.89 μs *18*	G	Jπ: 722.6γ to (19/2+), 950.2γ to (17/2+); proposed configuration. $T_{1/2}$: From (810.0γ+950.2γ)(t) in ^{9}Be(^{208}Pb,xγ) (2011St21). configuration: $\nu(i^{-1}_{13/2})\otimes\pi(s^{-1}_{1/2},h^{-1}_{11/2})_{5^-}$.
3332[#]	+		C	Jπ: L(d,p)=(2). configuration: $\nu(d^{-1}_{5/2})$.
3366[#]			C	
3488[#]	+		C	Jπ: L(d,p)=(2). configuration: $\nu(d^{-1}_{5/2})$.
3593[#]	+		C	Jπ: L(d,p)=2. configuration: $\nu(d^{-1}_{5/2})$.
3693[#]			C	
3720[#]			C	
3838[#]	1/2+		C	Jπ: L(d,p)=0. configuration: $\nu(s^{-1}_{1/2})$.
3912[#]			C	
3942[#]			C	
3989[#]			C	
4022[#]			C	
4037[#]	1/2+		C	Jπ: L(d,p)=0. configuration: $\nu(s^{-1}_{1/2})$.
4101[#]			C	
4140[#]	+		C	Jπ: L(d,p)=2, (4).
4170[#]	+		C	Jπ: L(d,p)=2, 4.
4198[#]	+		C	Jπ: L(d,p)=2, (4).
4238[#]			C	
4313[#]			C	
4375[#]	+		C	Jπ: L(d,p)=2, (4).
4436[#]	+		C	Jπ: L(d,p)=2, 4.
4453[#]	+		C	Jπ: L(d,p)=2, (4).

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Adopted Levels, Gammas (continued)

^{205}Hg Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
4475[#]	+	C	Jπ: L(d,p)=4, 2.
4507[#]		C	
4551[#]		C	
4627[#]	+	C	Jπ: L(d,p)=4, 2.
4660[#]		C	
4725[#]		C	
4779[#]		C	
4853?[#]		C	
4915[#]		C	
4978[#]		C	
4994[#]		C	

[†] From a least-squares fit to Eγ, unless otherwise stated.
[‡] From the deduced transition multipolarities, L values in transfer reactions and γ-ray de-excitation pattern. Specific arguments are given with most levels.
[#] From ^{204}Hg(d,p). ΔE=0.4% for well-resolved peaks.

γ(^{205}Hg)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	α[a]	Comments
379.46	5/2−	379.42[‡] *11*	100[‡]	0.0	1/2−	E2	0.0546	α(K)=0.0362 *5*; α(L)=0.01395 *20*; α(M)=0.00349 *5* α(N)=0.000870 *13*; α(O)=0.0001522 *22*; α(P)=4.74×10^{-6} *7* Mult.: α(K)exp≤0.05 in ^{205}Au β− decay (1994We02); A_2=+0.18 *1* in ^{204}Hg(t,dγ) (1985Ma48).
467.51	3/2−	467.58[‡] *12*	100[‡]	0.0	1/2−	M1	0.1095	α(K)=0.0901 *13*; α(L)=0.01486 *21*; α(M)=0.00345 *5* α(N)=0.000865 *13*; α(O)=0.0001638 *23*; α(P)=1.261×10^{-5} *18* Mult.: α(K)exp=0.08 *2* in ^{205}Au β− decay (1994We02); A_2=−0.11 *4* in ^{204}Hg(t,dγ) (1985Ma48).
1280.7	1/2−,3/2,5/2−	813.1[#] *5*	100[#] *6*	467.51	3/2−			
		901.6[#] *5*	29[#] *6*	379.46	5/2−			
		1280.5[#] *5*	62[#] *3*	0.0	1/2−			
1325.2	1/2−,3/2,5/2−	858[#b] *1*	≤7[#]	467.51	3/2−			
		946.0[#] *5*	100[#] *5*	379.46	5/2−			
		1325.0[#] *5*	31.8[#] *23*	0.0	1/2−			
1346.12	7/2−	878.83[‡] *21*	6.4[‡] *11*	467.51	3/2−	[E2]	0.00780	α(K)=0.00620 *9*; α(L)=0.001226 *18*; α(M)=0.000291 *4* α(N)=7.27×10^{-5} *11*; α(O)=1.340×10^{-5} *19*; α(P)=8.17×10^{-7} *12*
		966.62[‡] *10*	100.0[‡] *20*	379.46	5/2−	(M1)	0.01663	α(K)=0.01374 *20*; α(L)=0.00222 *4*;

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Adopted Levels, Gammas (continued)

$\gamma(^{205}Hg)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	α[a]	Comments
								α(M)=0.000513 *8* α(N)=0.0001286 *18*; α(O)=2.44×10^{-5} *4*; α(P)=1.90×10^{-6} *3* Mult.: A_2=−0.22 *4* in ^{204}Hg(t,dγ) (1985Ma48).
1395.08	9/2$^-$	(49.0[‡] *3*)	1.89[‡] *11*	1346.12	7/2$^-$	[M1]	11.5 *3*	α(L)=8.82 *21*; α(M)=2.06 *5* α(N)=0.516 *12*; α(O)=0.0975 *23*; α(P)=0.00746 *18*
		1015.63[‡] *25*	100.0[‡] *11*	379.46	5/2$^-$	[E2]	0.00586	α(K)=0.00471 *7*; α(L)=0.000876 *13*; α(M)=0.000206 *3* α(N)=5.16×10^{-5} *8*; α(O)=9.57×10^{-6} *14*; α(P)=6.18×10^{-7} *9*
1447.5	1/2$^-$,3/2,5/2	1068.0[#] *3*	100[#]	379.46	5/2$^-$			
1556.4	13/2$^+$	161.4 *5*	100	1395.08	9/2$^-$	M2	11.63 *21*	α(K)=8.30 *15*; α(L)=2.51 *5*; α(M)=0.628 *12* α(N)=0.159 *3*; α(O)=0.0296 *6*; α(P)=0.00198 *4* B(M2)(W.u.)=0.000487 *23* I_γ: From ^{205}Hg IT decay (1.09 ms). Mult.: From intensity balance considerations in ^{204}Hg(^{9}Be,2$\alpha\gamma$) (1994Po21), and α(K)exp and α(L)exp in ^{204}Hg(d,pγ) (1986Ze03).
		210.3 *5*	73 *7*	1346.12	7/2$^-$	E3	2.73 *5*	α(K)=0.407 *7*; α(L)=1.72 *4*; α(M)=0.466 *9* α(N)=0.1167 *22*; α(O)=0.0196 *4*; α(P)=0.0001193 *20* B(E3)(W.u.)=1.17 *11* I_γ: From ^{205}Hg IT decay (1.09 ms). Mult.: From intensity balance considerations in ^{204}Hg(^{9}Be,2$\alpha\gamma$) (1994Po21).
1818.2		1438.7 *5*	100	379.46	5/2$^-$			
1847.3	9/2$^+$	290.8 *5*	7.5	1556.4	13/2$^+$			
		501.2 *5*	100	1346.12	7/2$^-$	(E1)	0.00885	α(K)=0.00735 *11*; α(L)=0.001156 *17*; α(M)=0.000267 *4* α(N)=6.65×10^{-5} *10*; α(O)=1.238×10^{-5} *18*; α(P)=8.63×10^{-7} *13* Mult.: A_2=−0.22 *3* in ^{204}Hg(t,dγ) (1985Ma48).
		1467.6 *5*	2.7	379.46	5/2$^-$			
2011.4	(11/2$^+$)	164.1[@] *2*	100[@] *20*	1847.3	9/2$^+$	(M1)	1.93	α(K)=1.579 *23*; α(L)=0.266 *4*; α(M)=0.0620 *9* α(N)=0.01556 *23*; α(O)=0.00294 *5*; α(P)=0.000225 *4* Mult.: From α_T(exp)=4.3 *10* in ^{204}Hg(^{9}Be,2$\alpha\gamma$) (1994Po21), deduced from intensity balance considerations.
		455.1[@] *2*	50[@] *10*	1556.4	13/2$^+$			
2205.9		358.6 *5*	100	1847.3	9/2$^+$			

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Adopted Levels, Gammas (continued)

$\gamma(^{205}Hg)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	α[a]	Comments
2350.7		1971.2 *5*	100	379.46	$5/2^-$			
2366.4	$(17/2^+)$	810.0[&] *5*	100[&]	1556.4	$13/2^+$			
2368.9		1989.4 *5*	100	379.46	$5/2^-$			
2579.5		568.1 *5*	100	2011.4	$(11/2^+)$			
2594.0	$(19/2^+)$	227.6[&] *5*	100[&]	2366.4	$(17/2^+)$			
3316.6	$(23/2^-)$	722.6 *5*	12.6 *12*	2594.0	$(19/2^+)$	[M2]	0.0921	α(K)=0.0738 *11*; α(L)=0.01398 *20*; α(M)=0.00331 *5* α(N)=0.000834 *12*; α(O)=0.0001572 *23*; α(P)=1.166×10^{-5} *17* B(M2)(W.u.)=8.4×10^{-5} *8*
		950.2 *5*	100 *4*	2366.4	$(17/2^+)$	[E3]	0.01560	α(K)=0.01157 *17*; α(L)=0.00306 *5*; α(M)=0.000748 *11* α(N)=0.000187 *3*; α(O)=3.41×10^{-5} *5*; α(P)=1.749×10^{-6} *25* B(E3)(W.u.)=0.102 *4*

[†] From ^{204}Hg(^{9}Be,2$\alpha\gamma$), unless otherwise stated.
[‡] From ^{204}Hg(t,dγ).
[#] From ^{205}Au β^- decay.
[@] From ^{204}Hg(d,pγ).
[&] From ^{9}Be(^{208}Pb,Xγ).
[a] Additional information 1.
[b] Placement of transition in the level scheme is uncertain.

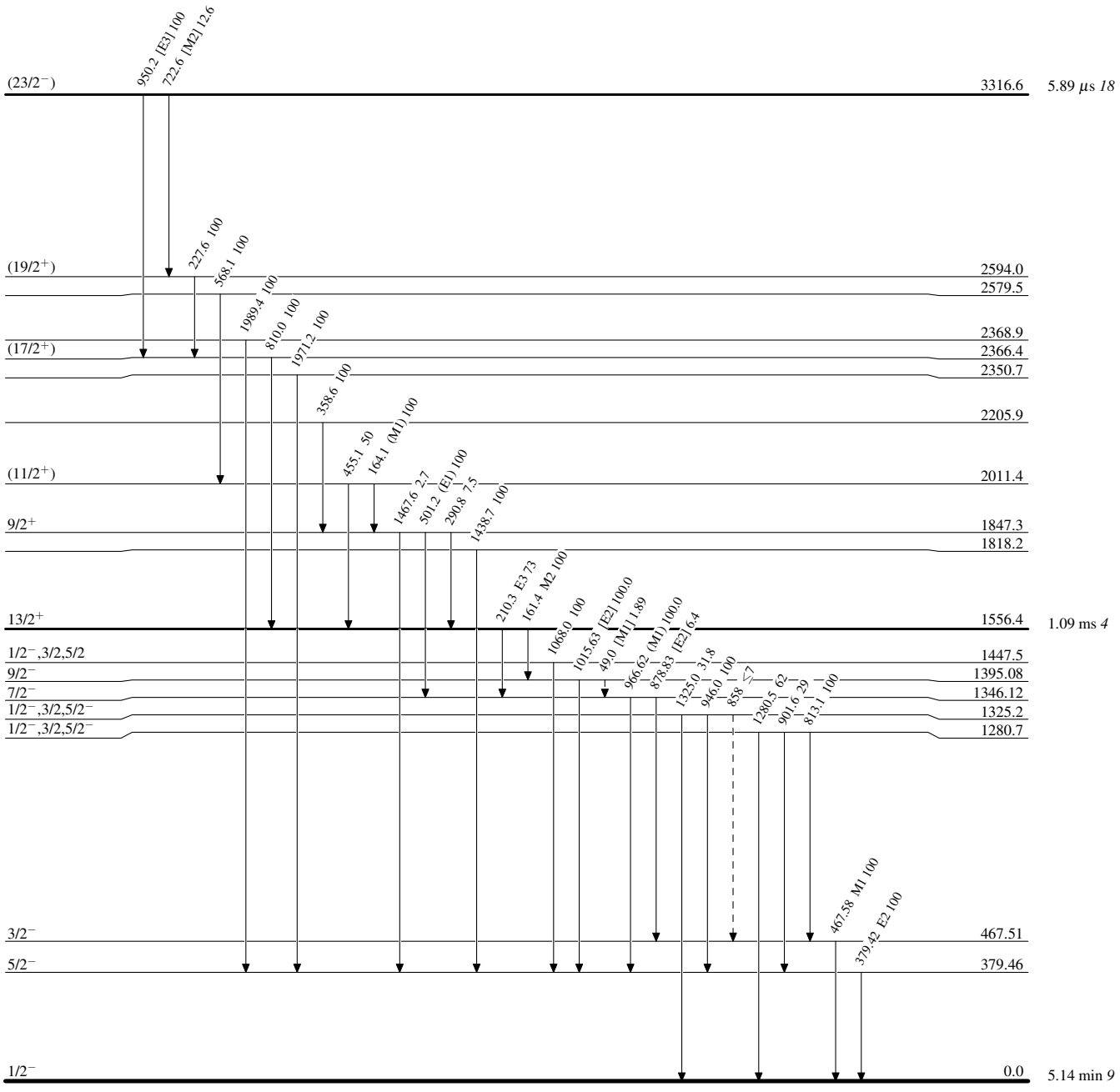
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{205}_{80}Hg_{125}$