Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 126, 151 (2015)	1-Feb-2015

Q(β^-)=−10990 *60*; S(n)=11400 *30*; S(p)=2551 *17*; Q(α)=6258.4 *24* 2012Wa38
S(2n)=20077 *17*; S(2p)=2831 *16*; Q(εp)=4729 *15* (2012Wa38).
α: Additional information 1.

^{180}Hg Levels

Cross Reference (XREF) Flags

A	^{180}Tl ε decay (1.09 s)	E	^{144}Sm(^{39}K,p2nγ)
B	^{184}Pb α decay (490 ms)	F	^{147}Sm(^{36}Ar,3nγ)
C	^{92}Zr(^{90}Zr,2nγ)	G	^{90}Zr(^{90}Zr,γ)
D	^{94}Mo(^{88}Sr,2nγ)		

E(level)†	J$^\pi$	T$_{1/2}$&	XREF	Comments
0.0‡	0$^+$	2.59 s *1*	ABCDEF	%ε+%β^+=52 *2*; %α=48 *2* T$_{1/2}$: weighted average of 2.60 s *1* (2013KoZR), 2.59 s *2* (2000Ko48), 2.6 s *8* (1996Pa01), 2.56 s *2* (1993Wa03), 2.6 s *3* (1986Si19), 3.0 s *3* (1977Hu05), and 2.9 s *3* (1970Hu18). Other: 5.9 s *8* (1968De01). %α: weighted average of 48 *2* (1999To11), 47 *5* (1986Si19), and 49 *5* (1982HeZM).
419.8 *4*	0$^+$		A F	J$^\pi$: E0 420 transition to 0$^+$.
434.24‡ *11*	2$^+$	12 ps *2*	A CDEF	J$^\pi$: E2 434γ to 0$^+$, band member. T$_{1/2}$: from range of 10 ps<T$_{1/2}$<14 ps in ^{94}Mo(^{88}Sr,2nγ).
601.60 *13*	2$^+$		A F	J$^\pi$: large E0 component in 167γ to 2$^+$. E(level): The relative order of the 602γ-797γ cascade is reversed in ^{92}Zr(^{90}Zr,2nγ) giving a level at 797.2 rather than at 601.6. The evaluator adopts the ε decay ordering since Iγ(602γ)>Iγ(797γ) in that decay. The Iγ data from ^{92}Zr(^{90}Zr,2nγ) are consistent with this order.
706.27‡ *14*	4$^+$	19.5 ps *8*	A CDEF	J$^\pi$: E2 272γ to 2$^+$, band member.
1032.21‡ *17*	6$^+$	8.8 ps *4*	A CDEF	J$^\pi$: E2 326γ to 4$^+$, band member.
1091.5 *4*	(2$^+$,1)		A	J$^\pi$: 672γ to 0$^+$; systematics and non observation of a transition to the g.s. favor J^π=2$^+$.
1175.6 *10*			C	
1204.00 *20*			A	
1223.77 *15*	(3$^-$,4$^+$)		A	J$^\pi$: 622γ to 2$^+$, 573γ from 5$^{(-)}$.
1399.38 *16*	(3$^-$)		A C	J$^\pi$: 798γ to 2$^+$, E2 398γ from 5$^{(-)}$.
1437.2‡ *6*	8$^+$	2.29 ps *21*	CDEF	J$^\pi$: E2 404.5γ to 6$^+$, band member.
1468.79 *15*	(3$^-$,4$^+$)		A	J$^\pi$: 1035γ to 2$^+$, 329γ from 5$^{(-)}$.
1504.34 *22*	(6$^+$)		A C	J$^\pi$: (E2) 798γ to 4$^+$.
1663.1 *5*			A	
1797.48# *16*	5$^{(-)}$		A CD	J$^\pi$: ΔJ=1, D 765γ to 6$^+$, ΔJ=1, D 1091γ to 4$^+$; π=− is suggested by 2000Ko48 based on decay pattern and theoretical comparisons.
1840.5 *5*			A	
1869.3 *4*			C	
1914.0‡ *6*	10$^+$		CDEF	J$^\pi$: E2 477γ to 8$^+$, band member.
2022.10 *17*			A	
2041.89# *25*	7$^{(-)}$		CD	J$^\pi$: E2 244γ to 5$^{(-)}$, D 605γ to 8$^+$, band member.
2057.3 *7*	(6$^+$)		C	J$^\pi$: (E2) 620γ to 8$^+$, population intensity.
2068.7@ *5*	(6)		C	J$^\pi$: ΔJ=0, D+Q 1036γ to 6$^+$.
2322.9 *5*	(8$^+$)		C	J$^\pi$: E2 819γ to (6$^+$).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{180}Hg Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[&]	XREF	Comments
2348.74 *16*	(4,5$^-$)		A	Jπ: 551γ to 5$^{(-)}$, 949γ to (3$^-$), direct ε+β$^+$ feeding from (5$^-$) parent.
2359.1[#] *3*	9$^{(-)}$	7.1 ps *8*	CD	Jπ: E2 317γ to 7$^{(-)}$, band member.
2368.8 *9*			C	
2371.5[@] *4*	(8)		C	Jπ: E2 302γ to (6), band member.
2456.3[‡] *6*	12$^+$		C E	Jπ: E2 542γ to 10$^+$, band member.
2487.76 *24*			A	
2524.0 *8*	(8$^+$)		C	Jπ: 466γ to (6$^+$), 610γ to 10$^+$.
2741.3[@] *6*	(10)		C	Jπ: E2 370γ to (8), band member.
2748.8[#] *4*	11$^{(-)}$		CD	Jπ: E2 390γ to 9$^{(-)}$, band member.
3041.2 *12*	(10$^+$)		C	Jπ: 517γ to (8$^+$).
3055.7[‡] *6*	14$^+$		C E	Jπ: E2 599γ to 12$^+$, band member.
3161.6[@] *7*	(12)		C	Jπ: E2 420γ to (10), band member.
3199.6[#] *11*	13$^{(-)}$		C	Jπ: E2 451γ to 11$^{(-)}$, band member.
3616.5[@] *8*	(14)		C	Jπ: E2 455γ to (12), band member.
3688.6[#] *11*	15$^{(-)}$		C	Jπ: E2 489γ to 13$^{(-)}$, band member.
3704.5[‡] *7*	16$^+$		C E	Jπ: E2 645γ to 14$^+$, band member.
4106.5[@] *11*	(16)		C	Jπ: 490γ to (14), band member.
4194.7[#] *12*	17$^{(-)}$		C	Jπ: E2 506γ to 15$^{(-)}$, band member.
4388.5[‡] *8*	18$^+$		C	Jπ: E2 684γ to 16$^+$, band member.
4627.4?[@] *14*	(18)		C	Jπ: 521γ to (16), band member.
4733.9[#] *14*	(19$^-$)		C	Jπ: 539γ to 17$^{(-)}$, band member.
5091.5[‡] *12*	(20$^+$)		C	Jπ: 703γ to 18$^+$, band member.
5309.6?[#] *17*	(21$^-$)		C	Jπ: 576γ to (19$^-$), band member.
5803.4?[‡] *14*	(22$^+$)		C	Jπ: 712γ to (20$^+$), band member.

[†] From a least squares fit to Eγ by evaluator.
[‡] Band(A): g.s. band.
[#] Band(B): 5$^{(-)}$ band.
[@] Band(C): (6) band.
[&] From Recoil Distance Doppler-Shift measurements in ^{94}Mo(^{88}Sr,2nγ).

Adopted Levels, Gammas (continued)

γ(^{180}Hg)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α	$I_{(\gamma+ce)}$	Comments
419.8	0^+	420 *3*		0.0	0^+	E0[#]		100	Mult.: K/L=5.8 *25* (2011Pa24).
434.24	2^+	434.24[@] *12*	100	0.0	0^+	E2[#]	0.0383		α(K)=0.0266 *4*; α(L)=0.00885 *13*; α(M)=0.00220 *3*; α(N)=0.000547 *8*; α(O)=9.66×10^{-5} *14* α(P)=3.51×10^{-6} *5* B(E2)(W.u.)=49 *9* Mult.: K/L=3.0 *8* (2011Pa24).
601.60	2^+	167.0[&] *2*	13.6[&] *8*	434.24	2^+	E0(+M1,E2)[#]	3.5 *4*		α(K)=0.9 *7*; α(L)=0.31 *6*; α(M)=0.076 *18*; α(N)=0.019 *5*; α(O)=0.0034 *6*; α(P)=0.00012 *9* α: deduced from I(γ+ce) in ^{180}Tl ε decay (1.09 s). Mult.: K/L=6.6 *20* (2011Pa24).
		181.8[&] *5*	0.66[&] *4*	419.8	0^+	[E2]	0.545 *10*		α(K)=0.213 *4*; α(L)=0.249 *5*; α(M)=0.0646 *12*; α(N)=0.0160 *3*; α(O)=0.00270 *5* α(P)=2.66×10^{-5} *5*
		601.6[&] *2*	100[&] *5*	0.0	0^+	[E2]	0.01748		α(K)=0.01317 *19*; α(L)=0.00328 *5*; α(M)=0.000796 *12*; α(N)=0.000199 *3*; α(O)=3.58×10^{-5} *5* α(P)=1.748×10^{-6} *25*
706.27	4^+	104.7[&] *5*	2.6[&] *7*	601.60	2^+	[E2]	4.57 *12*		α(K)=0.597 *9*; α(L)=2.97 *8*; α(M)=0.778 *21*; α(N)=0.193 *6*; α(O)=0.0320 *9* α(P)=0.0001041 *20* B(E2)(W.u.)=7.7×10^2 *22* I_γ: calculated in ^{180}Tl ε decay from relative branching of 105γ and 272γ and conversion coefficient. Iγ leads to rather large B(E2) strength.
		272.32[@] *16*	100[&] *6*	434.24	2^+	E2[#]	0.1427		α(K)=0.0798 *12*; α(L)=0.0474 *7*; α(M)=0.01208 *18*; α(N)=0.00300 *5*; α(O)=0.000515 *8* α(P)=1.018×10^{-5} *15* B(E2)(W.u.)=249 *24* Mult.: K/L=2.0 *3* (2011Pa24).
1032.21	6^+	325.96[@] *9*	100	706.27	4^+	E2[#]	0.0835		α(K)=0.0517 *8*; α(L)=0.0240 *4*; α(M)=0.00606 *9*; α(N)=0.001508 *22*; α(O)=0.000261 *4* α(P)=6.70×10^{-6} *10* B(E2)(W.u.)=267 *13* Mult.: K/L=2.5 *4* (2011Pa24).
1091.5	$(2^+,1)$	657.3[&] *5*	100[&] *20*	434.24	2^+				
		671.6[&] *5*	79[&] *4*	419.8	0^+				
1175.6		741.4 *8*	100	434.24	2^+				
1204.00		498.1[&] *5*	37[&] *6*	706.27	4^+				
		602.4[&] *5*	43[&] *6*	601.60	2^+				
		769.7[&] *2*	100[&] *6*	434.24	2^+				

$^{180}_{80}Hg_{100}$-3

Adopted Levels, Gammas (continued)

γ(^{180}Hg) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	α	Comments
1223.77	(3⁻,4⁺)	517.4& *2*	18.4& *22*	706.27	4⁺			
		622.0& *2*	100& *5*	601.60	2⁺			
		789.4& *2*	56& *6*	434.24	2⁺			
1399.38	(3⁻)	692.9@ *2*	53& *4*	706.27	4⁺	[E1]	0.00459	α(K)=0.00383 *6*; α(L)=0.000587 *9*; α(M)=0.0001349 *19*; α(N)=3.37×10⁻⁵ *5*; α(O)=6.30×10⁻⁶ *9* α(P)=4.58×10⁻⁷ *7*
		797.7& *2*	100& *40*	601.60	2⁺	[E1]	0.00350	α(K)=0.00292 *4*; α(L)=0.000444 *7*; α(M)=0.0001019 *15*; α(N)=2.54×10⁻⁵ *4*; α(O)=4.77×10⁻⁶ *7* α(P)=3.52×10⁻⁷ *5*
1437.2	8⁺	404.5 *1*	100	1032.21	6⁺	E2	0.0460	α(K)=0.0312 *5*; α(L)=0.01121 *16*; α(M)=0.00279 *4*; α(N)=0.000696 *10*; α(O)=0.0001223 *18* α(P)=4.11×10⁻⁶ *6* B(E2)(W.u.)=3.6×10² *4*
1468.79	(3⁻,4⁺)	867.1& *2*	25 *3*	601.60	2⁺			
		1034.6& *2*	100 *11*	434.24	2⁺			
1504.34	(6⁺)	472.5& *5*	22& *4*	1032.21	6⁺			
		797.98@ *18*	100& *40*	706.27	4⁺	(E2)	0.00950	α(K)=0.00747 *11*; α(L)=0.001551 *22*; α(M)=0.000370 *6*; α(N)=9.25×10⁻⁵ *13* α(O)=1.695×10⁻⁵ *24*; α(P)=9.87×10⁻⁷ *14*
1663.1		1228.9& *5*	100	434.24	2⁺			
1797.48	5(−)	328.6& *2*	90& *60*	1468.79	(3⁻,4⁺)			
		398.24@ *18*	100& *7*	1399.38	(3⁻)	E2	0.0480	α(K)=0.0323 *5*; α(L)=0.01181 *17*; α(M)=0.00295 *5*; α(N)=0.000734 *11*; α(O)=0.0001289 *19* α(P)=4.25×10⁻⁶ *6*
		573.4& *2*	55& *7*	1223.77	(3⁻,4⁺)			
		765.3@ *4*	52 *3*	1032.21	6⁺	[E1]	0.00379	α(K)=0.00316 *5*; α(L)=0.000481 *7*; α(M)=0.0001106 *16*; α(N)=2.76×10⁻⁵ *4*; α(O)=5.18×10⁻⁶ *8* α(P)=3.80×10⁻⁷ *6*
		1091.22@ *18*	79 *3*	706.27	4⁺	[E1]	0.00197	α(K)=0.001650 *24*; α(L)=0.000246 *4*; α(M)=5.63×10⁻⁵ *8*; α(N)=1.405×10⁻⁵ *20*; α(O)=2.65×10⁻⁶ *4* α(P)=2.00×10⁻⁷ *3*
1840.5		1134.2& *5*	100	706.27	4⁺			
1869.3		837.5 *4*	100	1032.21	6⁺	(D)		
1914.0	10⁺	476.8 *1*	100	1437.2	8⁺	E2	0.0303	α(K)=0.0216 *3*; α(L)=0.00656 *10*; α(M)=0.001616 *23*; α(N)=0.000403 *6*; α(O)=7.16×10⁻⁵ *10* α(P)=2.86×10⁻⁶ *4*
2022.10		553.0& *2*	32& *4*	1468.79	(3⁻,4⁺)			
		798.1& *2*	100& *7*	1223.77	(3⁻,4⁺)			

$^{180}_{80}Hg_{100}$-4

Adopted Levels, Gammas (continued)

γ(^{180}Hg) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α	Comments
2022.10		1316.5[&] *2*	42.4[&] *22*	706.27	4^+			
2041.89	$7^{(-)}$	244.4 *2*	100 *5*	1797.48	$5^{(-)}$	E2	0.201	α(K)=0.1039 *15*; α(L)=0.0727 *11*; α(M)=0.0186 *3*; α(N)=0.00463 *7*; α(O)=0.000790 *12* α(P)=1.314×10^{-5} *19*
		604.7 *4*	81 *7*	1437.2	8^+	[E1]	0.00601	α(K)=0.00501 *7*; α(L)=0.000776 *11*; α(M)=0.000179 *3*; α(N)=4.45×10^{-5} *7*; α(O)=8.32×10^{-6} *12* α(P)=5.95×10^{-7} *9*
		1010[a] *1*	<28	1032.21	6^+	[E1]	0.00226	α(K)=0.00189 *3*; α(L)=0.000283 *4*; α(M)=6.49×10^{-5} *10*; α(N)=1.621×10^{-5} *23*; α(O)=3.05×10^{-6} *5* α(P)=2.30×10^{-7} *4*
2057.3	(6^+)	620.1 *4*	100	1437.2	8^+	(E2)	0.01633	α(K)=0.01237 *18*; α(L)=0.00301 *5*; α(M)=0.000729 *11*; α(N)=0.000182 *3*; α(O)=3.29×10^{-5} *5* α(P)=1.642×10^{-6} *23*
2068.7	(6)	563.6 *8*	83 *22*	1504.34	(6^+)			
		1036.0 *8*	100 *22*	1032.21	6^+	D+Q		
2322.9	(8^+)	818.6 *4*	100	1504.34	(6^+)	E2	0.00902	α(K)=0.00711 *10*; α(L)=0.001457 *21*; α(M)=0.000347 *5*; α(N)=8.67×10^{-5} *13* α(O)=1.592×10^{-5} *23*; α(P)=9.39×10^{-7} *14*
2348.74	$(4,5^-)$	326.8[&] *2*	58[&] *9*	2022.10				
		551.1[&] *2*	31[&] *4*	1797.48	$5^{(-)}$			
		880.3[&] *2*	52[&] *4*	1468.79	$(3^-,4^+)$			
		948.9[&] *2*	36[&] *11*	1399.38	(3^-)			
		1125.1[&] *2*	100[&] *5*	1223.77	$(3^-,4^+)$			
2359.1	$9^{(-)}$	317.2 *2*	100	2041.89	$7^{(-)}$	E2	0.0903	α(K)=0.0551 *8*; α(L)=0.0265 *4*; α(M)=0.00671 *10*; α(N)=0.001670 *24*; α(O)=0.000289 *5* α(P)=7.13×10^{-6} *10* B(E2)(W.u.)=3.8×10^2 *5*
2368.8		499.5 *8*	100	1869.3				
2371.5	(8)	302.4 *4*	83 *14*	2068.7	(6)	E2	0.1040	α(K)=0.0619 *9*; α(L)=0.0317 *5*; α(M)=0.00804 *12*; α(N)=0.00200 *3*; α(O)=0.000345 *6* α(P)=7.97×10^{-6} *12*
		502.6 *4*	100 *17*	1869.3				
		934.0[a] *8*	<34	1437.2	8^+			
2456.3	12^+	542.3 *1*	100	1914.0	10^+	E2	0.0222	α(K)=0.01637 *23*; α(L)=0.00443 *7*; α(M)=0.001082 *16*; α(N)=0.000270 *4*; α(O)=4.84×10^{-5} *7* α(P)=2.17×10^{-6} *3*
2487.76		1455.4[&] *5*	38 *6*	1032.21	6^+			
		1781.5[&] *2*	100 *19*	706.27	4^+			
2524.0	(8^+)	466.4 *8*	100 *35*	2057.3	(6^+)			
		610.2 *8*	75 *15*	1914.0	10^+			
2741.3	(10)	369.8 *4*	100	2371.5	(8)	E2	0.0586	α(K)=0.0384 *6*; α(L)=0.01526 *23*; α(M)=0.00382 *6*; α(N)=0.000952 *14*;

$^{180}_{80}Hg_{100}$-5

Adopted Levels, Gammas (continued)

γ(^{180}Hg) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α	Comments
								α(O)=0.0001664 *25* α(P)=5.02×10^{-6} *8*
2748.8	11$^{(-)}$	389.7 *2*	100	2359.1	9$^{(-)}$	E2	0.0508	α(K)=0.0340 *5*; α(L)=0.01272 *18*; α(M)=0.00318 *5*; α(N)=0.000792 *12*; α(O)=0.0001388 *20* α(P)=4.46×10^{-6} *7*
3041.2	(10$^+$)	517.2 *8*	100	2524.0	(8$^+$)			
3055.7	14$^+$	599.4 *2*	100	2456.3	12$^+$	E2	0.01762	α(K)=0.01327 *19*; α(L)=0.00331 *5*; α(M)=0.000804 *12*; α(N)=0.000201 *3*; α(O)=3.62×10^{-5} *5* α(P)=1.761×10^{-6} *25*
3161.6	(12)	420.3 *4*	100	2741.3	(10)	E2	0.0416	α(K)=0.0286 *4*; α(L)=0.00986 *15*; α(M)=0.00245 *4*; α(N)=0.000611 *9*; α(O)=0.0001076 *16* α(P)=3.77×10^{-6} *6*
3199.6	13$^{(-)}$	450.8	100	2748.8	11$^{(-)}$	E2	0.0348	α(K)=0.0245 *4*; α(L)=0.00784 *11*; α(M)=0.00194 *3*; α(N)=0.000483 *7*; α(O)=8.56×10^{-5} *12* α(P)=3.23×10^{-6} *5*
3616.5	(14)	454.9 *4*	100	3161.6	(12)	E2	0.0340	α(K)=0.0240 *4*; α(L)=0.00761 *11*; α(M)=0.00188 *3*; α(N)=0.000469 *7*; α(O)=8.31×10^{-5} *12* α(P)=3.17×10^{-6} *5*
3688.6	15$^{(-)}$	489.0 *4*	100	3199.6	13$^{(-)}$	E2	0.0284	α(K)=0.0204 *3*; α(L)=0.00606 *9*; α(M)=0.001491 *22*; α(N)=0.000372 *6*; α(O)=6.62×10^{-5} *10* α(P)=2.71×10^{-6} *4*
3704.5	16$^+$	648.8 *4*	100	3055.7	14$^+$	E2	0.01477	α(K)=0.01128 *16*; α(L)=0.00266 *4*; α(M)=0.000642 *9*; α(N)=0.0001604 *23*; α(O)=2.91×10^{-5} *4* α(P)=1.496×10^{-6} *21*
4106.5	(16)	490.0 *8*	100	3616.5	(14)			
4194.7	17$^{(-)}$	506.1 *4*	100	3688.6	15$^{(-)}$	E2	0.0262	α(K)=0.0190 *3*; α(L)=0.00545 *8*; α(M)=0.001338 *19*; α(N)=0.000334 *5*; α(O)=5.95×10^{-5} *9* α(P)=2.52×10^{-6} *4*
4388.5	18$^+$	684.0 *4*	100	3704.5	16$^+$	E2	0.01316	α(K)=0.01014 *15*; α(L)=0.00231 *4*; α(M)=0.000555 *8*; α(N)=0.0001387 *20*; α(O)=2.52×10^{-5} *4* α(P)=1.343×10^{-6} *19*
4627.4?	(18)	520.9[a] *8*	100	4106.5	(16)			
4733.9	(19$^-$)	539.2 *8*	100	4194.7	17$^{(-)}$			
5091.5	(20$^+$)	703.0 *8*	100	4388.5	18$^+$			
5309.6?	(21$^-$)	575.7[a] *8*	100	4733.9	(19$^-$)			
5803.4?	(22$^+$)	711.9[a] *8*	100	5091.5	(20$^+$)			

[†] From ^{92}Zr(^{90}Zr,2nγ), except where noted.

[‡] From angular distribution coefficients and/or angular anisotropy coefficients in ^{92}Zr(^{90}Zr,2nγ), except where noted. Q transitions are taken as stretched E2.

$^{180}_{80}Hg_{100}$-6

Adopted Levels, Gammas (continued)

$\gamma(^{180}Hg)$ (continued)

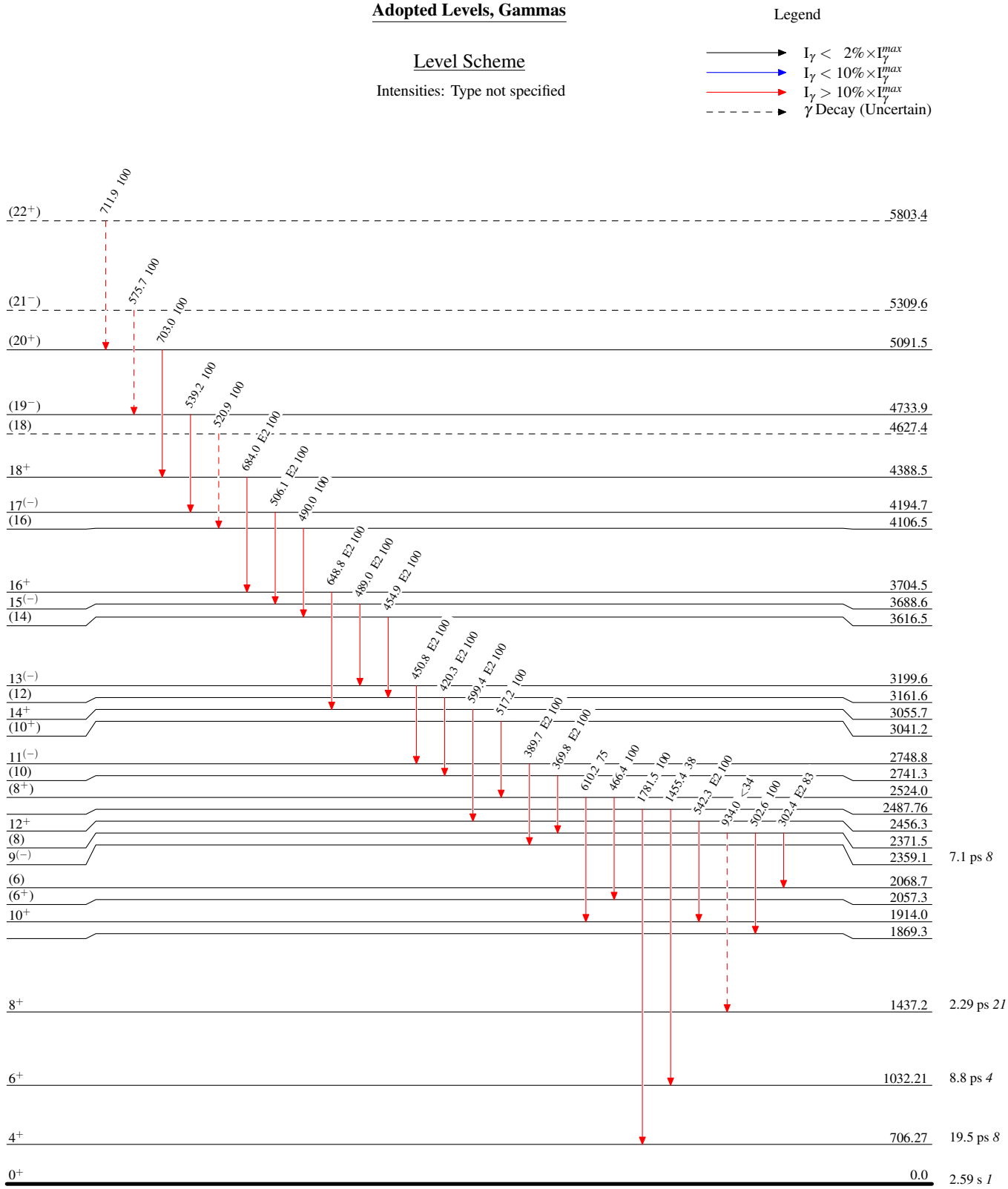
[#] From K/L ratio in $^{147}Sm(^{36}Ar,3n\gamma)$.
[@] Weighted average of ^{180}Tl ε decay (1.09 s) and $^{92}Zr(^{90}Zr,2n\gamma)$.
[&] From ^{180}Tl ε decay (1.09 s).
[a] Placement of transition in the level scheme is uncertain.

$^{180}_{80}Hg_{100}$-7

Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified

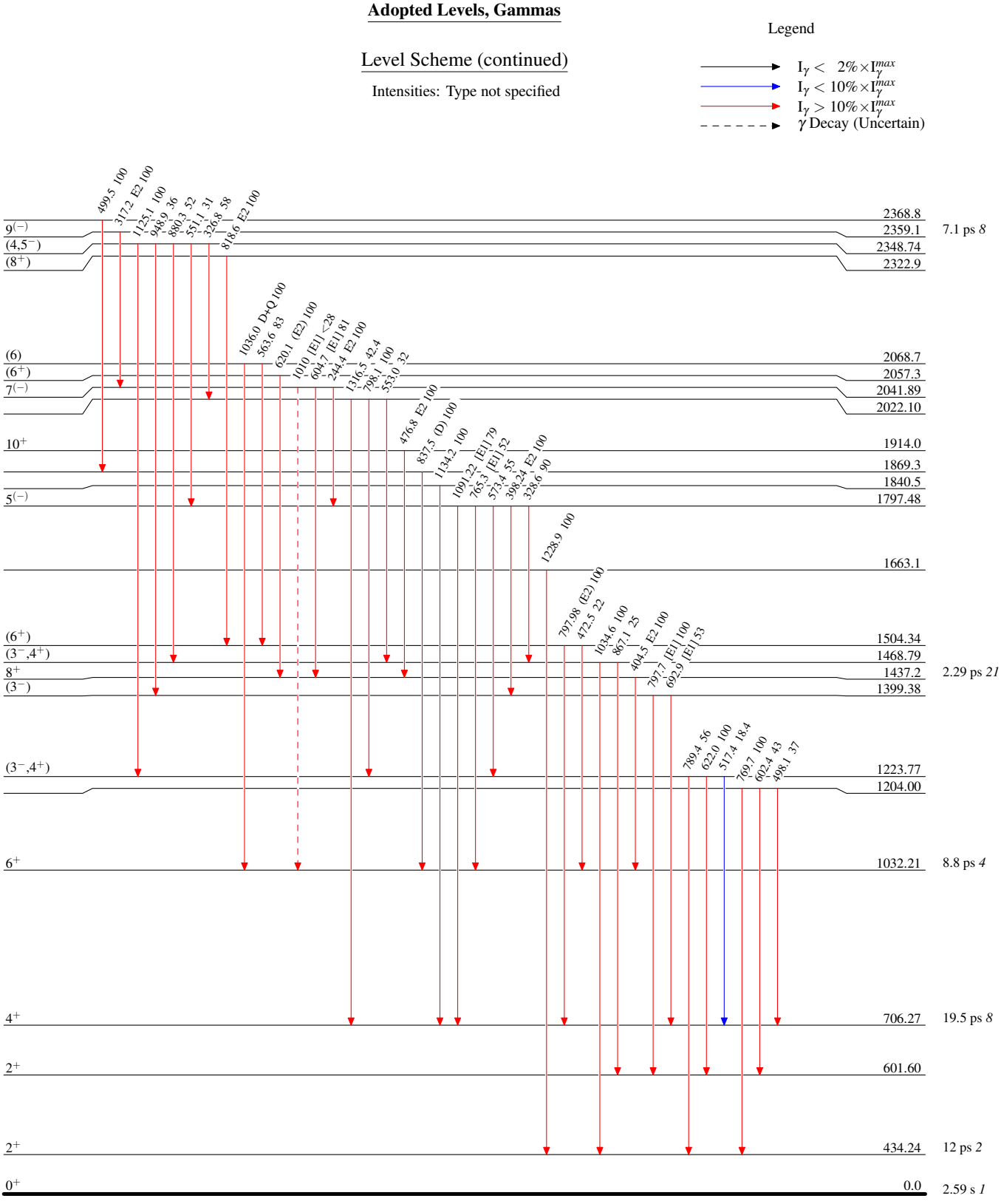


$^{180}_{80}Hg_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

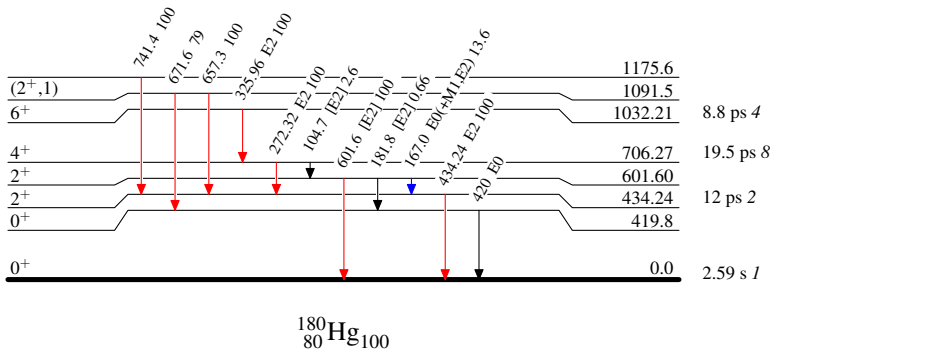


$^{180}_{80}Hg_{100}$

Adopted Levels, Gammas

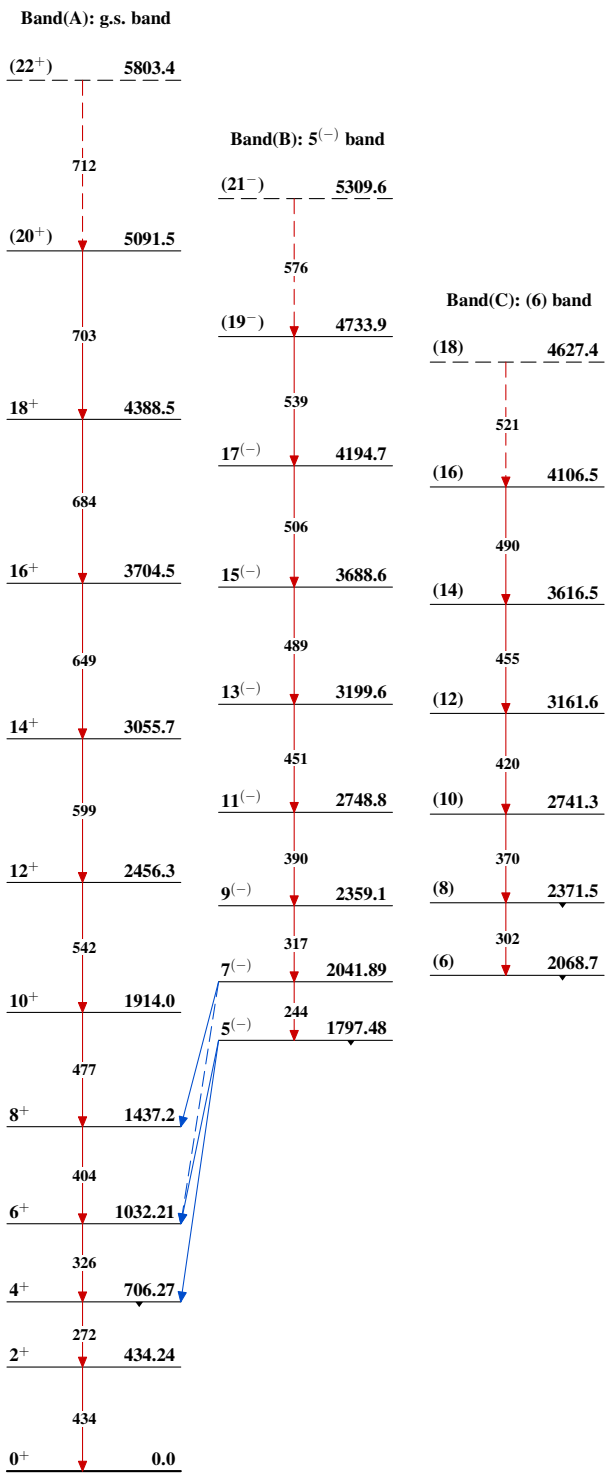
Level Scheme (continued)

Intensities: Type not specified



$^{180}_{80}Hg_{100}$

Adopted Levels, Gammas



$^{180}_{80}Hg_{100}$