^{184}Hg ε decay 2005Sa40,1994Ib01,1978Ne10

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 111,275 (2010)	1-Oct-2009

Parent: ^{184}Hg: E=0.0; J$^{\pi}$=0^{+}; T$_{1/2}$=30.87 s *26*; Q(ε)=3970 *24*; %ε+%β^{+} decay=98.89 *6*

Additional information 1.

Others: 1975Ho03, 1971Hu02, 1969Ha03 (observed 157γ and 237γ).

2005Sa40: mass-separated ^{184}Hg source from fragmentation of molten Pb target by 600 MeV or 1 GeV protons; Ge(Li) and Si(Li) detectors, high resolution 180° magnetic spectrograph; measured Eγ, Iγ, E(ce), I(ce). additional sources from ^{148}Sm(^{40}Ar,X); planar Ge (FWHM =0.9 keV At 122 keV) for E$\gamma\leq$1 MeV; two HPGe detectors (FWHM$\approx$2.3 keV At 1.3 MeV) for E$\gamma\leq$1.3 MeV; measured x-γ-t and γ-γ-t events which were sorted to provide prompt-, total- and delayed- coincidence bidimensional matrices (60 ns or 100 ns time windows). Supersedes 2003IbZZ; see also 1994Ib01.

1994Ib01: mass separated source from bombardment of ^{148}Sm by 185 MeV ^{40}Ar ions; He-jet transport, iodine aerosol; two HPGe coaxial detectors, one HPGe x-ray detector; measured singles γ and x-ray spectra, $\gamma\gamma$(t), x-γ(t). See also 1994RoZY.

1975Ho03: β strength function deduced from total-absorption γ measurement.

1978Ne10: Mass-separated source; measured Eγ, Iγ, $\gamma\gamma$ coin, $\gamma\gamma$(t) (time resolution 6 ns *1*).

The decay scheme is adopted from 2005Sa40. it differs greatly from that proposed by 1978Ne10. although Eγ and Iγ data from 2005Sa40 and 1978Ne10 are In satisfactory agreement, there exist a number of transitions with Eγ<90 keV which 1978Ne10 could not detect. also, the lowest energy state reported In 1978Ne10 is actually a 68-keV 2^{+} isomer, not a 3^{+} g.s., and the presence of a state just 3.4 keV above the isomer was not recognized by 1978Ne10.

^{184}Au Levels

E(level)†	J$^{\pi}$‡	T$_{1/2}$#	Comments
0.0	5^{+}	20.6 s *9*	T$_{1/2}$: from Adopted Levels.
68.46 *4*	2^{+}	47.6 s *14*	T$_{1/2}$: from Adopted Levels.
71.87 *9*	2^{+},3^{+}		
86.50 *8*	(2,3)$^{+}$		
129.13 *8*	(1,2)$^{+}$		
146.50 *12*	4^{+}		
228.40 *7*	3^{-}	69 ns *6*	T$_{1/2}$: from 157γ-237γ(t) (1994Ib01). other T$_{1/2}$: 67 ns *8* (H. Haas (1978), private communication to authors of 1994Ib01); 36 ns *6* (1978Ne10).
242.87 *10*	($\leq$3)$^{+}$		
254.26 *7*	2^{-}		the intensity imbalance of 12% 7 At this level May arise from an incomplete decay scheme and/or the acute dependence of I(γ+ce) from this level on δ(26γ). %ε+%β^{+}<0.25 is expected for the possible 1U branch to this level, based on log $f^{1u}t$>8.5. Additional information 2.
301.86? *16*	(1^{-},2^{-},3^{-})		
306.90 *12*	(1)$^{+}$		
320.50 *10*	2^{+}	<2 ns	T$_{1/2}$: from γ delayed coin (1978Ne10).
331.40 *8*	1^{+},2^{+}		
364.19 *9*	1^{+}		
381.50 *9*	1^{+},2^{+}		
409.70 *22*			
477.34 *19*	($\leq$3)$^{+}$		
486.10 *22*	$\leq$3^{+}		
490.91 *7*	1^{+}	<2 ns	T$_{1/2}$: from γ delayed coin (1978Ne10).
600.60? *22*			

† From least-squares fit to Eγ.
‡ From Adopted Levels.
# From $\gamma\gamma$(t) (1978Ne10), except where noted.

^{184}Hg ε decay 2005Sa40,1994Ib01,1978Ne10 (continued)

ε,β^+ radiations

I(γ+ce),log *ft* I(γ+ce) is from intensity imbalance At each level. I(γ+ce) values<10% May not Be reliable due to existence of unplaced transitions, several of which are highly converted (Ti(30.3γ)≈6%).

E(decay)	E(level)	Iβ^+ †	Iε†	Log *ft*	I(ε+β^+)†	Comments
(3369‡ *24*)	600.60?	0.03 *3*	0.13 *13*	6.9 *5*	0.16 *16*	av Eβ=1060 *11*; εK=0.681 *4*; εL=0.1189 *7*; εM+=0.03807 *21*
(3479 *24*)	490.91	11 *1*	47 *6*	4.33 *6*	58 *7*	av Eβ=1109 *11*; εK=0.666 *4*; εL=0.1160 *7*; εM+=0.03713 *21*
(3484 *24*)	486.10	0.20 *9*	0.9 *4*	6.06 *20*	1.1 *5*	av Eβ=1111 *11*; εK=0.665 *4*; εL=0.1158 *7*; εM+=0.03709 *21*
(3493 *24*)	477.34	0.33 *7*	1.5 *3*	5.85 *10*	1.8 *4*	av Eβ=1115 *11*; εK=0.664 *4*; εL=0.1156 *7*; εM+=0.03701 *21*
(3560 *24*)	409.70	0.051 *22*	0.21 *9*	6.71 *19*	0.26 *11*	av Eβ=1145 *11*; εK=0.654 *4*; εL=0.1138 *7*; εM+=0.03642 *22*
(3606 *24*)	364.19	0.74 *21*	2.9 *8*	5.58 *12*	3.6 *10*	av Eβ=1166 *11*; εK=0.647 *4*; εL=0.1125 *7*; εM+=0.03601 *22*
(3663 *24*)	306.90	1.5 *4*	5.4 *15*	5.32 *12*	6.9 *19*	av Eβ=1191 *11*; εK=0.638 *4*; εL=0.1109 *7*; εM+=0.03550 *22*
(3841 *24*)	129.13	3.8 *25*	11 *7*	5.0 *3*	15 *10*	av Eβ=1271 *11*; εK=0.610 *4*; εL=0.1059 *7*; εM+=0.03387 *23*

† Absolute intensity per 100 decays.
‡ Existence of this branch is questionable.

$\gamma(^{184}Au)$

Iγ normalization: from Σ (I(γ+ce) to g.s.)=100, assuming No $\varepsilon+\beta^+$ feeding to the g.s. (ΔJ=5) or to the 68 or 72 levels (ΔJ=2 or 3, $\Delta\pi$=No).

E_γ[†]	I_γ[†&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#]	α[a]	$I_{(\gamma+ce)}$[&]	Comments
3.4 *2*		71.87	$2^+,3^+$	68.46	2^+	(M1)			1.55×10^3 *16*	$I_{(\gamma+ce)}$: from Σ (I(γ+ce) to 72 level); No $\varepsilon+\beta^+$ expected to level. Mult.: N1 and O conversion lines observed (2005Sa40).
18.1 *2*	2.3 *7*	86.50	$(2,3)^+$	68.46	2^+	M1		198 *8*		α(L)=152 *6*; α(M)=35.6 *13*; α(N+..)=10.6 *4* α(N)=8.9 *4*; α(O)=1.63 *6*; α(P)=0.110 *4* Mult.: α(L1)exp=130 *25*, L1:L2=1.00:0.11 *1* (2005Sa40).
25.86 *6*	19 *2*	254.26	2^-	228.40	3^-	M1+E2	0.041 *+11−15*	74 *4*		α(L)=57 *3*; α(M)=13.4 *7*; α(N+..)=3.96 *19* α(N)=3.32 *16*; α(O)=0.60 *3*; α(P)=0.0380 *6* Mult.: α(L1)exp=52 *10*, α(L2)exp=6.3 *10*, L2:L3=1.00:0.36 *10*, (M1+M2):M3=1.00:0.04 *1* (2005Sa40).
[x]29.4 *1*	1.5 *3*					M1		47.2 *9*		α(L)=36.3 *7*; α(M)=8.43 *15*; α(N+..)=2.51 *5* α(N)=2.10 *4*; α(O)=0.386 *7*; α(P)=0.0260 *5* Mult.: α(L1)exp=38 *18*, L1:L2=1.0:0.4, α(M1)exp=8.7 *2* (2005Sa40).
[x]30.3 *1*	1.7 *4*					M1+E2	≈0.20	≈98.1		α(L)≈74.5; α(M)≈18.4; α(N+..)≈5.31 α(N)≈4.53; α(O)≈0.764; α(P)≈0.0233 Mult.: α(L1)exp=35 *10*, α(L3)exp=21 *8* (2005Sa40).
42.7 *1*	1.9 *4*	129.13	$(1,2)^+$	86.50	$(2,3)^+$	M1(+E2)		1.4×10^2 *13*		α(L)=1.1×10^2 *10*; α(M)=28 *25*; α(N+..)=8 *7* α(N)=7 *7*; α(O)=1.1 *10*; α(P)=0.005 *4* Mult.: α(L1)exp≤22, α(L3)exp<1.8 (2005Sa40) allows E1 or M1.
[x]43.3 *3*	4.3 *6*									only weak, mixed electron lines observed (2005Sa40).
[x]45.8 *1*	2.0 *3*					M1(+E2)	≈0.10	≈14.54		α(L)≈11.14; α(M)≈2.62; α(N+..)≈0.777 α(N)≈0.652; α(O)≈0.1176; α(P)≈0.00698 Mult.: α(L1)exp=13 *3*, L1:L3≈1.00:0.12 (2005Sa40).
47.6[c] *2*	2.1 *5*	301.86?	$(1^-,2^-,3^-)$	254.26	2^-	M1		11.39 *22*		α(L)=8.75 *17*; α(M)=2.03 *4*; α(N+..)=0.605 *12* α(N)=0.506 *10*; α(O)=0.0930 *18*; α(P)=0.00628 *12* Mult.: α(L1)exp=8 *2*, α(M1)exp=1.9 *10* (2005Sa40).

γ(^{184}Au) (continued)

E_γ[†]	I_γ[†&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#]	α[a]	$I_{(\gamma+ce)}$[&]	Comments
50.1 *1*	7 *1*	381.50	1$^+$,2$^+$	331.40	1$^+$,2$^+$	M1		9.80		α(L)=7.53 *12*; α(M)=1.75 *3*; α(N+..)=0.521 *8* α(N)=0.435 *7*; α(O)=0.0800 *13*; α(P)=0.00540 *9* Mult.: α(L1)exp=8.5 *15*, α(L1)exp:α(L2)exp=1.00:0.13 *2* (2005Sa40).
57.3 *2*	4 *2*	129.13	(1,2)$^+$	71.87	2$^+$,3$^+$	E2+M1	≈1.2	≈40.9		α(L)≈30.7; α(M)≈7.91; α(N+..)≈2.26 α(N)≈1.94; α(O)≈0.312; α(P)≈0.00181 Mult.: α(L2)exp≈α(L3)exp=12 *6*, L1:L2:L3=1.0:7.2 *15*:6.9 *15* (2005Sa40).
59.0[c] *2*	5 *1*	301.86?	(1$^-$,2$^-$,3$^-$)	242.87	(≤3)$^+$	(E1)		0.346 *6*		α(L)=0.266 *5*; α(M)=0.0625 *11*; α(N+..)=0.0178 *3* α(N)=0.0152 *3*; α(O)=0.00252 *5*; α(P)=9.26×10^{-5} *15* Mult.: L1 and L3 conversion electrons not observed (2005Sa40).
60.6 *1*	26 *4*	129.13	(1,2)$^+$	68.46	2$^+$	M1		5.60		α(L)=4.31 *7*; α(M)=1.000 *15*; α(N+..)=0.298 *5* α(N)=0.249 *4*; α(O)=0.0458 *7*; α(P)=0.00309 *5* Mult.: α(L1)exp=4 *1*, L1:L2:L3=1.00:0.13 *3*:<0.04, α(M1)exp=0.9 *1* (2005Sa40).
68.46 *4*	0.90 *7*	68.46	2$^+$	0.0	5$^+$	M3		3.19×10^3	2.87×10^3 *23*	α(L)=2.29×10^3 *4*; α(M)=694 *10*; α(N+..)=208 *3* α(N)=178 *3*; α(O)=29.4 *5*; α(P)=0.774 *11* $I_{(\gamma+ce)}$: from Σ (I(γ+ce) to 68 level)=2870 *230*. I_γ: from I(γ+ce) and α. Mult.: L3/(L1+L2)=1.6 *4*, L2<<L1 (1990Ed01); (L1+L2):L3:M:N:O=232 *35*:397 *60*:197 *30*:45 *7*:18 *6* (2005Sa40). %Iγ=0.0303 *10* assuming recommended decay scheme normalization.
74.5[b] *2*	7[b] *4*	146.50	4$^+$	71.87	2$^+$,3$^+$	[M1,E2]		11 *8*		α(L)=8 *6*; α(M)=2.1 *15*; α(N+..)=0.6 *5* α(N)=0.5 *4*; α(O)=0.08 *6*; α(P)=0.0010 *8* I_γ: from γγ coin; Iγ=40 *4* for doublet (2005Sa40). Mult.: α(L1)exp=2.4 *4*, M1:M2:M3=1.00:0.21:0.09 (2005Sa40) for doublet.
74.5[b] *2*	33[b] *4*	381.50	1$^+$,2$^+$	306.90	(1)$^+$	M1		3.07		α(L)=2.36 *4*; α(M)=0.547 *9*; α(N+..)=0.163 *3* α(N)=0.1362 *22*; α(O)=0.0250 *4*; α(P)=0.00169 *3* I_γ: from γγ coin; Iγ=40 *4* for doublet (2005Sa40). Mult.: α(L1)exp=2.4 *4*, M1:M2:M3=1.00:0.21:0.09 (2005Sa40) for doublet dominated by this transition.
81.9 *1*	60 *8*	228.40	3$^-$	146.50	4$^+$	E1		0.670		α(K)=0.529 *8*; α(L)=0.1089 *16*; α(M)=0.0254 *4*;

γ(^{184}Au) (continued)

E_γ[†]	I_γ[†&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[#]	α[a]	Comments
									α(N+..)=0.00731 *11* α(N)=0.00621 *9*; α(O)=0.001054 *16*; α(P)=4.37×10^{-5} *7* Mult.: (α(L1)exp+α(L2)exp)≤0.3 (2005Sa40).
92.0 *1*	53 *6*	320.50	2$^+$	228.40	3$^-$	E1		0.511	α(K)=0.407 *6*; α(L)=0.0794 *12*; α(M)=0.0185 *3*; α(N+..)=0.00533 *8* α(N)=0.00453 *7*; α(O)=0.000774 *11*; α(P)=3.33×10^{-5} *5* Eγ=91.5 *5*, Iγ=47 *8* (1978Ne10). Mult.: α(L1)exp≤0.1, α(L3)exp≤0.05 (2005Sa40).
104.6 *2*	2.8 *6*	486.10	≤3$^+$	381.50	1$^+$,2$^+$	M1		6.38	α(K)=5.23 *8*; α(L)=0.880 *14*; α(M)=0.204 *3*; α(N+..)=0.0609 *10* α(N)=0.0509 *8*; α(O)=0.00936 *14*; α(P)=0.000632 *10* Mult.: α(K)exp=6.8 *20*, α(L1)exp=1.3 *6* (2005Sa40).
109.4 *1*	15 *3*	490.91	1$^+$	381.50	1$^+$,2$^+$	M1(+E0)		≈18	Mult.: α(K)exp=14 *4*, α(L1)exp=2.3 *5* (2005Sa40). α(K)=4.78 *15*α(L)=0.802 *24*α(M)=0.186 *6*α(N+..)=0.0593 *18* if pure M1. α: approximate value; from α(K)exp x 1.3.
^{x}110.8 *2*	5 *1*					(M1)		5.41	α(K)=4.44 *7*; α(L)=0.746 *12*; α(M)=0.173 *3*; α(N+..)=0.0516 *8* α(N)=0.0431 *7*; α(O)=0.00793 *12*; α(P)=0.000535 *8* Mult.: α(K)exp=7 *3* (2005Sa40).
^{x}112.6 *2*	4 *1*					(M1)		5.17	α(K)=4.24 *7*; α(L)=0.712 *11*; α(M)=0.1652 *25*; α(N+..)=0.0492 *8* α(N)=0.0412 *7*; α(O)=0.00757 *12*; α(P)=0.000511 *8* Mult.: α(K)exp=3.6 *10* (2005Sa40).
113.7 *1*	16 *3*	242.87	(≤3)$^+$	129.13	(1,2)$^+$	M1		5.02	α(K)=4.12 *6*; α(L)=0.692 *10*; α(M)=0.1607 *23*; α(N+..)=0.0479 *7* α(N)=0.0400 *6*; α(O)=0.00736 *11*; α(P)=0.000497 *7* Mult.: α(K)exp=4.6 *6*, α(L1)exp=1.0 *4* (2005Sa40).
126.7 *1*	13 *3*	490.91	1$^+$	364.19	1$^+$	M1(+E2)		2.8 *9*	α(K)=1.8 *13*; α(L)=0.8 *4*; α(M)=0.21 *9*; α(N+..)=0.060 *25* α(N)=0.051 *22*; α(O)=0.009 *4*; α(P)=0.00021 *16* Mult.: α(K)exp=2.0 *6*, (α(L1)exp+α(L2)exp)=0.62 *15*, α(L3)exp≤0.15 (2005Sa40). Eγ=126.5 *3*, Iγ=14 *4* (1978Ne10).
127.3 *2*	27 *4*	381.50	1$^+$,2$^+$	254.26	2$^-$	E1		0.225	α(K)=0.182 *3*; α(L)=0.0330 *5*; α(M)=0.00768 *12*; α(N+..)=0.00223 *4* α(N)=0.00188 *3*; α(O)=0.000327 *5*; α(P)=1.552×10^{-5} *23* Mult.: α(K)exp≤0.4, α(L3)exp≤0.1 (2005Sa40).
138.5 *2*	6 *2*	381.50	1$^+$,2$^+$	242.87	(≤3)$^+$	M1		2.86	α(K)=2.35 *4*; α(L)=0.393 *6*; α(M)=0.0912 *14*; α(N+..)=0.0272 *4* α(N)=0.0227 *4*; α(O)=0.00418 *7*; α(P)=0.000282 *5* Mult.: α(K)exp=2.9 *8* (2005Sa40).
141.8 *1*	32 *4*	228.40	3$^-$	86.50	(2,3)$^+$	(E1+M2)	0.39	2.42	α(K)=1.725 *25*; α(L)=0.526 *8*; α(M)=0.1314 *19*; α(N+..)=0.0394 *6* α(N)=0.0331 *5*; α(O)=0.00595 *9*; α(P)=0.000346 *5* Mult.: α(K)exp=1.8 *5*, (α(L1)exp+α(L2)exp)=0.45 *9*, α(L3)exp=0.09 *4* (2005Sa40). M1+E2 (δ=0.59) also possible, but Δπ=yes from level scheme. Eγ=141.6 *3*, Iγ=19 *3* (1978Ne10).
146.5 *4*	24 *8*	146.50	4$^+$	0.0	5$^+$	M1(+E2)		1.8 *7*	α(K)=1.2 *9*; α(L)=0.46 *13*; α(M)=0.12 *4*; α(N+..)=0.034 *11* α(N)=0.029 *10*; α(O)=0.0048 *13*; α(P)=0.00014 *11* Mult.: α(K)exp≤3.5, (α(L1)exp+α(L2)exp)=0.26 *10*, α(L3)exp≤0.08 (2005Sa40). Eγ=146.0 *3*, Iγ=48 *4*, unplaced γ In 1978Ne10.

^{184}Hg ε decay **2005Sa40,1994Ib01,1978Ne10** (continued)

γ(^{184}Au) (continued)

Eγ[†]	Iγ[†&]	Ei(level)	$J^π_i$	Ef	$J^π_f$	Mult.[‡]	α[a]	Comments
156.5 *1*	1.02×10^3 *10*	228.40	3⁻	71.87	2⁺,3⁺	E1	0.1335	α(K)=0.1087 *16*; α(L)=0.0191 *3*; α(M)=0.00442 *7*; α(N+..)=0.001288 *19* α(N)=0.001088 *16*; α(O)=0.000190 *3*; α(P)=9.53×10^{-6} *14* Mult.: α(K)exp=0.10 *2*, (α(L1)exp+α(L2)exp)=0.012 *4* (2005Sa40); α(K)exp≈0.10 (1970FiZZ). Eγ=156.2 *2*, Iγ=910 *90* In 1978Ne10.
159.4 *1*	60 *8*	490.91	1⁺	331.40	1⁺,2⁺	M1	1.92	α(K)=1.579 *23*; α(L)=0.264 *4*; α(M)=0.0611 *9*; α(N+..)=0.0182 *3* α(N)=0.01524 *22*; α(O)=0.00280 *4*; α(P)=0.000189 *3* Mult.: α(K)exp=1.4 *4*, (α(L1)exp+α(L2)exp)=0.27 *6* (2005Sa40). Eγ=159.1 *4*, Iγ=60 *10* (1978Ne10).
160.0 *1*	23 *5*	228.40	3⁻	68.46	2⁺	(E1)	0.1262	α(K)=0.1028 *15*; α(L)=0.0180 *3*; α(M)=0.00417 *6*; α(N+..)=0.001215 *18* α(N)=0.001026 *15*; α(O)=0.000180 *3*; α(P)=9.04×10^{-6} *13* Mult.: α(K)exp=0.3 *2* (2005Sa40). Eγ=159.2 *4*, Iγ=10 *3* (1978Ne10).
170.3 *1*	24 *4*	490.91	1⁺	320.50	2⁺	M1	1.595	α(K)=1.310 *19*; α(L)=0.219 *3*; α(M)=0.0507 *8*; α(N+..)=0.01511 *22* α(N)=0.01263 *18*; α(O)=0.00232 *4*; α(P)=0.0001569 *23* Mult.: α(K)exp=1.3 *3* (2005Sa40). Eγ=170.1 *2*, Iγ=21 *3* (1978Ne10).
[x]176.9[@] *3*	12 *5*							
[x]177.3 *2*	26 *4*					E1,E2	0.34 *24*	α(K)=0.16 *8*; α(L)=0.14 *13*; α(M)=0.04 *4*; α(N+..)=0.011 *10* Mult.: α(K)exp<0.3 (2005Sa40).
[x]178.1 *2*	6 *2*					E1,E2	0.33 *24*	α(K)=0.15 *8*; α(L)=0.13 *12*; α(M)=0.03 *4*; α(N+..)=0.011 *10* Mult.: α(K)exp≤0.4 (2005Sa40).
181.3 *2*	6 *2*	409.70		228.40	3⁻	E1,E2	0.31 *22*	α(K)=0.15 *8*; α(L)=0.12 *12*; α(M)=0.03 *3*; α(N+..)=0.010 *9* Mult.: α(K)exp<0.3 (2005Sa40) implies mult=E1,E2.
182.5 *2*	6 *2*	254.26	2⁻	71.87	2⁺,3⁺	E1	0.0906	α(K)=0.0741 *11*; α(L)=0.01273 *19*; α(M)=0.00295 *5*; α(N+..)=0.000861 *13* α(N)=0.000726 *11*; α(O)=0.0001279 *19*; α(P)=6.63×10^{-6} *10* Mult.: α(K)exp<0.15 (2005Sa40).
184.1[c] *2*	3 *1*	486.10	≤3⁺	301.86?	(1⁻,2⁻,3⁻)	M2	6.76	α(K)=4.94 *8*; α(L)=1.373 *20*; α(M)=0.340 *5*; α(N+..)=0.1019 *15* α(N)=0.0855 *13*; α(O)=0.01546 *23*; α(P)=0.000925 *14* Mult.: α(K)exp=6 *2*, (α(L1)exp+α(L2)exp)=1.7 *8* (2005Sa40).
185.8 *1*	12 *2*	254.26	2⁻	68.46	2⁺	(E1)	0.0866	α(K)=0.0709 *10*; α(L)=0.01215 *17*; α(M)=0.00282 *4*; α(N+..)=0.000822 *12* α(N)=0.000693 *10*; α(O)=0.0001221 *18*; α(P)=6.36×10^{-6} *9* Mult.: α(K)exp<0.17 (2005Sa40).
220.4 *1*	26 *3*	306.90	(1)⁺	86.50	(2,3)⁺	M1	0.775	α(K)=0.638 *9*; α(L)=0.1059 *15*; α(M)=0.0245 *4*; α(N+..)=0.00732 *11* α(N)=0.00612 *9*; α(O)=0.001125 *16*; α(P)=7.61×10^{-5} *11* Mult.: α(K)exp=0.54 *12*, (α(L1)exp+α(L2)exp)=0.11 *3* (2005Sa40).
234.5 *3*	22 *5*	477.34	(≤3)⁺	242.87	(≤3)⁺	(M1+E2)	0.44 *22*	α(K)=0.33 *22*; α(L)=0.084 *5*; α(M)=0.0205 *4*; α(N+..)=0.00600 *18* α(N)=0.00508 *10*; α(O)=0.00089 *7*; α(P)=4.E−5 *3* Mult.: α(K)exp=0.3 *2*, α(L)exp<0.1 (2005Sa40).

$^{184}_{79}$Au$_{105}$-6

γ(^{184}Au) (continued)

E_γ[†]	I_γ[†&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[a]	Comments
236.7 *1*	1.00×10^3 *10*	490.91	1$^+$	254.26	2$^-$	E1	0.0476	α(K)=0.0391 *6*; α(L)=0.00652 *10*; α(M)=0.001509 *22*; α(N+..)=0.000442 *7* α(N)=0.000372 *6*; α(O)=6.61×10^{-5} *10*; α(P)=3.62×10^{-6} *5* Mult.: α(K)exp=0.04 *1*, α(L)exp=0.05 *2* (2005Sa40); α(K)exp=0.07 *3* (1970FiZZ). Eγ=236.2 *2*, Iγ=1000 (1978Ne10).
238.4 *2*	180 *30*	306.90	(1)$^+$	68.46	2$^+$	M1	0.624	α(K)=0.513 *8*; α(L)=0.0851 *12*; α(M)=0.0197 *3*; α(N+..)=0.00588 *9* α(N)=0.00491 *7*; α(O)=0.000904 *13*; α(P)=6.11×10^{-5} *9* Mult.: α(K)exp=0.46 *11*, α(L)exp=0.08 *2*, α(M)exp=0.02 *1* (2005Sa40).
244.8 *2*	9 *2*	331.40	1$^+$,2$^+$	86.50	(2,3)$^+$	[M1,E2]	0.39 *20*	α(K)=0.29 *19*; α(L)=0.073 *6*; α(M)=0.0177 *7*; α(N+..)=0.0052 *3* α(N)=0.00439 *19*; α(O)=0.00077 *8*; α(P)=3.4×10^{-5} *23*
248.0 *2*	9 *3*	490.91	1$^+$	242.87	($\leq$3)$^+$	[M1,E2]	0.37 *19*	α(K)=0.28 *18*; α(L)=0.070 *7*; α(M)=0.0169 *8*; α(N+..)=0.0050 *3* α(N)=0.00420 *22*; α(O)=0.00073 *8*; α(P)=3.3×10^{-5} *23*
259.5 *1*	86 *10*	331.40	1$^+$,2$^+$	71.87	2$^+$,3$^+$	M1	0.494	α(K)=0.406 *6*; α(L)=0.0672 *10*; α(M)=0.01558 *22*; α(N+..)=0.00465 *7* α(N)=0.00388 *6*; α(O)=0.000714 *10*; α(P)=4.83×10^{-5} *7* Mult.: α(K)exp=0.39 *7*, (α(L1)exp+α(L2)exp)=0.06 *7* (2005Sa40); α(K)exp≈0.25 (1970FiZZ). Eγ=259.0 *1*, Iγ=84 *10* (1978Ne10).
262.9 *1*	62 *8*	331.40	1$^+$,2$^+$	68.46	2$^+$	M1	0.476	α(K)=0.392 *6*; α(L)=0.0649 *10*; α(M)=0.01503 *22*; α(N+..)=0.00448 *7* α(N)=0.00375 *6*; α(O)=0.000689 *10*; α(P)=4.66×10^{-5} *7* Mult.: α(K)exp=0.38 *7*, (α(L1)exp+α(L2)exp)=0.07 *2* (2005Sa40); α(K)exp≈0.25 (1970FiZZ). Eγ=262.3 *1*, Iγ=67 *8* (1978Ne10).
277.7 *2*	15 *3*	364.19	1$^+$	86.50	(2,3)$^+$	M1	0.410	α(K)=0.337 *5*; α(L)=0.0558 *8*; α(M)=0.01292 *19*; α(N+..)=0.00385 *6* α(N)=0.00322 *5*; α(O)=0.000592 *9*; α(P)=4.01×10^{-5} *6* Mult.: α(K)exp=0.37 *9*, (α(L1)exp+α(L2)exp)=0.04 *2* (2005Sa40).
^{x}291.5 *2*	17 *3*					M1	0.359	α(K)=0.296 *5*; α(L)=0.0488 *7*; α(M)=0.01131 *16*; α(N+..)=0.00337 *5* α(N)=0.00282 *4*; α(O)=0.000518 *8*; α(P)=3.51×10^{-5} *5* Mult.: α(K)exp=0.30 *9*, (α(L1)exp+α(L2)exp)=0.05 *2* (2005Sa40).
294.8 *3*	20 *6*	381.50	1$^+$,2$^+$	86.50	(2,3)$^+$	(M1)	0.348	α(K)=0.287 *4*; α(L)=0.0473 *7*; α(M)=0.01096 *16*; α(N+..)=0.00327 *5* α(N)=0.00273 *4*; α(O)=0.000502 *8*; α(P)=3.40×10^{-5} *5* Mult.: α(K)exp=0.30 *15* (2005Sa40). see comment on 295.7γ.
295.7 *1*	100 *15*	364.19	1$^+$	68.46	2$^+$	M1	0.345	α(K)=0.284 *4*; α(L)=0.0469 *7*; α(M)=0.01087 *16*; α(N+..)=0.00324 *5* α(N)=0.00271 *4*; α(O)=0.000498 *7*; α(P)=3.38×10^{-5} *5* Mult.: α(K)exp=0.28 *8*, (α(L1)exp+α(L2)exp)=0.08 *3* (2005Sa40). Eγ=295.1 *1*, Iγ=160 *20* (1978Ne10), α(K)exp=0.04 *2* (1970FiZZ) for line which May Be a 294.8γ+295.7γ doublet.
313.1 *2*	33 *5*	381.50	1$^+$,2$^+$	68.46	2$^+$	M1	0.296	α(K)=0.243 *4*; α(L)=0.0401 *6*; α(M)=0.00929 *14*; α(N+..)=0.00277 *4* α(N)=0.00231 *4*; α(O)=0.000426 *6*; α(P)=2.89×10^{-5} *4* Mult.: α(K)exp=0.22 *6*, (α(L1)exp+α(L2)exp)=0.05 *2* (2005Sa40).
^{x}331.5 *2*	10 *2*					(M1)	0.253	α(K)=0.209 *3*; α(L)=0.0343 *5*; α(M)=0.00795 *12*; α(N+..)=0.00237 *4* α(N)=0.00198 *3*; α(O)=0.000364 *6*; α(P)=2.47×10^{-5} *4* Mult.: α(K)exp=0.32 *13* (2005Sa40).

γ(^{184}Au) (continued)

E_γ[†]	I_γ[†&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	α[a]	Comments
348.2 *2*	18 *3*	477.34	(≤3)$^+$	129.13	(1,2)$^+$	M1	0.222	α(K)=0.183 *3*; α(L)=0.0300 *5*; α(M)=0.00695 *10*; α(N+..)=0.00207 *3* α(N)=0.001732 *25*; α(O)=0.000319 *5*; α(P)=2.16×10^{-5} *3* Mult.: α(K)exp=0.17 *5*, K/L≈5.6 (2005Sa40).
362.0 *2*	25 *10*	490.91	1$^+$	129.13	(1,2)$^+$	(M1)	0.200	α(K)=0.1645 *24*; α(L)=0.0270 *4*; α(M)=0.00626 *9*; α(N+..)=0.00186 *3* α(N)=0.001559 *22*; α(O)=0.000287 *4*; α(P)=1.95×10^{-5} *3* Mult.: α(K)exp=0.16 *8* (2005Sa40).
372.2[c] *2*	9 *2*	600.60?		228.40	3$^-$			
[x]392.4[@] *2*	110 *20*							
404.7 *2*	22 *3*	490.91	1$^+$	86.50	(2,3)$^+$			
419.6 *4*	5 *2*	490.91	1$^+$	71.87	2$^+$,3$^+$			
422.7 *2*	42 *6*	490.91	1$^+$	68.46	2$^+$			Eγ=421.8 *2*, Iγ=59 *7* (1978Ne10); May Be 419.6γ+422.7γ doublet.

[†] From 2005Sa40, except As noted.

[‡] From α(K)exp values given by 2005Sa40, except as noted.

[#] From analysis of ce data by 2005Sa40.

[@] From 1978Ne10.

[&] For absolute intensity per 100 decays, multiply by 0.034 *3*.

[a] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

[b] Multiply placed with intensity suitably divided.

[c] Placement of transition in the level scheme is uncertain.

[x] γ ray not placed in level scheme.

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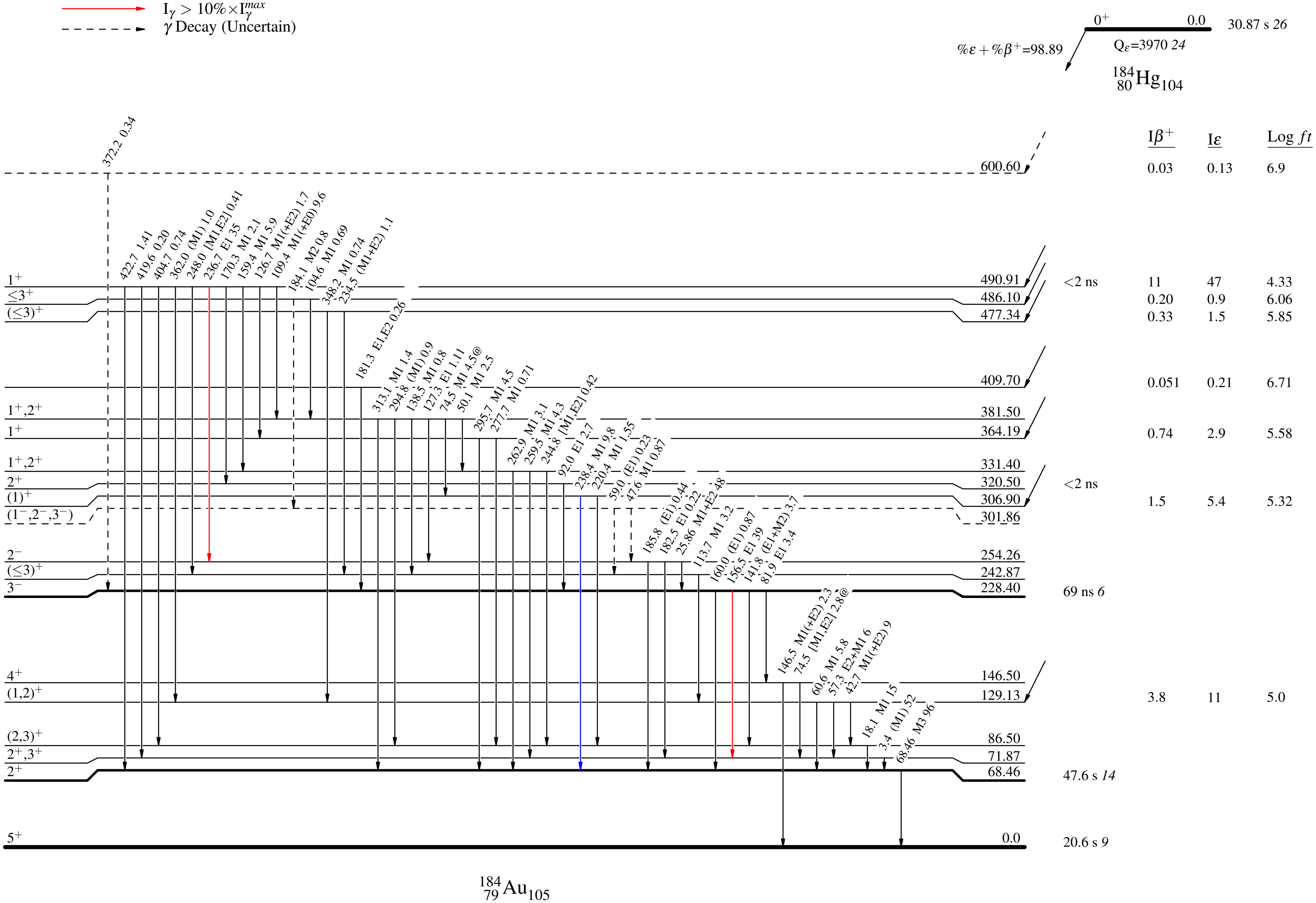
^{184}Hg ε decay 2005Sa40,1994Ib01,1978Ne10

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)



From ENSDF

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