^{189}Hg ε decay (8.6 min) 1996Wo04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson, Balraj Singh	NDS 142, 1 (2017)	15-Apr-2017

Parent: ^{189}Hg: E=0.0+x; J$^{\pi}$=13/2^{+}; T$_{1/2}$=8.6 min *2*; Q(ε)=3960 *40*; %ε+%β^{+} decay=100.0

^{189}Hg-E,J$^{\pi}$,T$_{1/2}$: From ^{189}Hg Adopted Levels. From mass doublet, energy of the isomer is 80 *30* (2017Au03), which is used in obtaining log *ft* values.

^{189}Hg-Q(ε): From 2017Wa10.

1996Wo04: ^{180}Hf(^{16}O,7n), mass separated ^{189m}Hg samples. Measured Eγ, Iγ, Ice, $\gamma\gamma$, ceγ, γ(x ray) and e(x ray coincidences. Deduced levels, J^{π}. Ge(Li) and Si(Li) detectors. See also, 1976Wo10 from several of the same authors as in 1996Wo04.

1988Ko22: ^{189}Au structure from ε decay of ^{189g}Hg and ^{189m}Hg produced by heavy ion induced reaction. Measured $\gamma\gamma$, γ(x ray), γ(ce), and ce(x ray) coincidences. Ge(Li), Si(Li) detectors. Deduced band structure. Several authors on this paper are the same as in 1996Wo04.

1975Be17: ^{189g}Hg, ^{189m}Hg from Pb(p,xn3p), mass separated. Measured Eγ, Iγ, Ice, $\gamma\gamma$, ce-γ. Deduced levels, J^{π}, T$_{1/2}$. Ge(Li), Si(Li) and magnetic spectrometer.

^{189}Au Levels

E(level)†	J$^{\pi}$‡	T$_{1/2}$‡	Comments
0.0#	1/2^{+}	28.7 min *4*	
9.95# *12*	3/2^{+}	30 ns *4*	T$_{1/2}$: from ce(x ray)(t) and ce-ce(t) (1975Be17).
203.81# *14*	3/2^{+}		
247.25@ *16*	11/2^{-}	4.59 min *11*	%ε+%$\beta^{+}\approx$100; %IT=? Additional information 1. E(level): from Adopted Levels.
248.57# *12*	5/2^{+}		
307.78# *13*	5/2^{+}		
325.13& *10*	9/2^{-}	190 ns *15*	T$_{1/2}$: from ce(x ray)(t) (1975Be17).
484.04@ *15*	7/2^{-}	0.15 ns *5*	T$_{1/2}$: from ce(γ)(t) (1975Be17).
491.58& *17*	5/2^{-}	0.30 ns *3*	T$_{1/2}$: from ce(Compton continuum in 120-300 keV region)(t) (1975Be17).
512.39# *14*	7/2^{+}		
646.18& *10*	13/2^{-}		
647.29# *14*	7/2^{+}		
681.89@ *11*	15/2^{-}		
712.73& *11*	11/2^{-}		
760.70# *14*	9/2^{+}		
770.72& *17*	7/2^{-}		
812.3 *4*	(5/2,3/2,1/2)$^{+}$		
812.67@ *10*	13/2^{-}		
847.94# *18*	9/2^{+}		
862.06@ *12*	9/2^{-}		
880.46 *20*	9/2^{-}		
911.02 *21*	7/2^{-}		
961.28 *19*	(5/2,3/2)$^{+}$		
1097.04 *16*	13/2^{-}		
1105.28& *20*	17/2^{-}		
1106.60 *24*	(5/2^{+},3/2^{+})		
1112.51# *17*	11/2^{+}		
1130.11 *13*	11/2^{-}		
1133.58 *21*	9/2^{-}		
1145.71& *16*	13/2^{-},15/2^{-}		

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^{189}Hg ε decay (8.6 min) 1996Wo04 (continued)

^{189}Au Levels (continued)

E(level)[†]	J^{π}[‡]	Comments
1188.60[@] *14*	11/2$^-$	
1193.56 *20*	$^-$	
1247.2 *3*	(9/2,7/2)$^+$	
1273.21 *20*	11/2$^-$	
1295.52 *21*	11/2$^-$	
1298.92[#] *14*	11/2$^+$	
1312.98 *21*	13/2$^-$	
1352.6 *3*	(15/2,13/2,11/2)$^-$	
1365.3 *5*		
1368.08[@] *22*	(17/2,13/2,15/2)$^-$	
1376.2 *10*	$^-$	
1383.25[&] *13*	13/2$^+$	
1411.9[@] *10*	19/2$^-$	
1419.83[#] *18*	(13/2,11/2)$^+$	
1456.3 *10*	$^+$	
1460.00 *17*	11/2$^+$	
1463.9 *5*	$^-$	
1481.6 *3*	13/2$^-$	
1483.4 *3*	(7/2)$^+$	
1488.9 *3*	(7/2,11/2)$^-$	
1516.7 *10*	$^-$	
1523.4 *3*	($^-$)	J^{π}: in Figure 10 of 1996Wo04, the association of the decay of this level with the 11/2$^-$ isomeric level, indirectly fed via the 841 keV γ leads the authors to assign a negative parity.
1523.8 *8*	$^+$	
1525.0 *4*	$^-$	
1534.79 *12*	13/2$^+$	
1559.1 *3*	$^-$	
1559.85 *17*	$^-$	
1580.4 *5*	$^-$	
1595.4 *10*		
1597.2 *10*		
1601.20 *14*	13/2$^+$,15/2$^+$	
1654.20 *21*	13/2$^-$,15/2$^-$	
1730.6 *4*		
1739.4 *3*	13/2$^+$,15/2$^+$	
1745.6 *11*		
1756.7 *4*	$^-$	
1760.2 *4*		
1764.3 *4*		
1774.5 *6*		
1788.3 *8*	($^+$)	
1800.5 *5*	15/2$^+$	
1822.2 *4*	$^-$	
1835.1 *3*	(13/2$^+$,15/2$^+$)	
1877.1 *5*	$^-$	
1905.2 *10*		
1935.02 *14*	$^+$	
1939.01 *15*	$^+$	
2045.8 *4*	$^+$	
2094.0 *4*		
2113.8 *3*		
2145.0 *3*		
2163.4 *6*	$^+$	
2165.21 *19*	$^+$	

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^{189}Hg ε decay (8.6 min) 1996Wo04 (continued)

^{189}Au Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†
2169.19 *15*	(+)	2264.0 *11*		2281.9 *8*		2338.6 *10*
2169.6 *3*	(+)	2264.81 *16*	(+)	2293.9 *3*		2339.7 *4*
2176.2 *8*	+	2268.0 *11*		2295.00 *18*	+	2349.2 *10*
2176.8 *3*		2268.98 *18*		2295.7 *6*		2370.2 *5*
2178.0 *11*		2269.7 *4*		2311.3 *3*		2384.7 *3*
2200.9 *10*		2271.0 *3*	+	2316.0 *3*		2405.9 *10*
2211.01 *19*	+	2272.17 *12*	+	2317.14 *23*	+	2417.1 *4*
2239.9 *11*		2273.1 *7*		2317.51 *21*	+	2417.9 *10*
2240.96 *14*	(+)	2274.1 *3*		2325.0 *11*		2436.3 *4*
2251.9 *5*		2274.6 *5*		2330.9 *10*		2483.7 *10*
2255.1 *10*		2275.7 *3*	+	2335.14 *25*	(+)	2492.1 *5*
2257.20 *16*	(−)	2276.62 *16*	+	2335.7 *10*		2608.9 *5*
2257.55 *16*	(+)	2281.00 *19*		2336.1 *11*		

† From least-squares fit to Eγ values.
‡ From Adopted Levels unless otherwise stated.
# $\pi(s_{1/2},d_{3/2},d_{5/2})$ structure.
@ $\pi h^{-1}_{11/2}$ structure.
& $\pi(h_{9/2},i_{13/2})$ structure.

ε,β^+ radiations

ε and β^+ branching ratios are not available experimentally. The evaluators use a similar case of ^{191}Hg ε decay to estimate the decay branching ratios and log*ft* values. The branching ratio for ^{191}Hg ε decay to the ^{191}Au isomeric state of J^π=11/2$^-$ at 266 keV is 9% *5*. It is assumed that the $\varepsilon+\beta^+$ feeding to the 247.4 keV state is ≈10%. Other $\varepsilon+\beta^+$ feedings are from intensity balances.

The γ transition intensity balance gives following apparent $\varepsilon+\beta^+$ feedings for low-spin (J≤7/2) levels in ^{189}Au, but ΔJ^π implied for β transitions does not allow any such feedings: ≈0.7% for 203.8, 3/2$^+$; ≈1.3% for 248.6, 5/2$^+$; ≈1.0% for 307.8, 5/2$^+$; ≈0.7% for 484.0, 7/2$^-$; ≈1.4% for 491.6, 5/2$^-$; ≈1.7% for 512.4, 7/2$^+$; ≈0.8% for 770.7, 7/2$^-$; ≈0.2% for 812.3, <5/2; ≈0.3% for 911.0, 7/2$^-$; ≈0.6% for 961.3, (5/2,7/2); ≈0.3% for 1106.6, (3/2$^+$,5/2$^+$). All these feedings, which add to a total of ≈9%, are set to zero in the decay scheme. Note that there are still 25 unplaced γ rays with a total absolute intensity of ≈3% which may be responsible for some of the above imbalances.

E(decay)	E(level)	Iβ⁺ †	Iε†	Log *ft*	I(ε+β⁺)†	Comments
(1.35×10³ *4*)	2608.9		≈0.06	≈7.7	≈0.06	εK=0.8035 *5*; εL=0.1482 *5*; εM+=0.04790 *18*
(1.47×10³ *4*)	2492.1	≈0.0001	≈0.10	≈7.5	≈0.1	av Eβ=257 *23*; εK=0.8042 *3*; εL=0.1473 *5*; εM+=0.04753 *16*
(1.48×10³ *4*)	2483.7	≈7.×10⁻⁵	≈0.06	≈7.7	≈0.06	av Eβ=261 *23*; εK=0.8042 *2*; εL=0.1472 *4*; εM+=0.04750 *16*
(1.52×10³ *4*)	2436.3	≈9.×10⁻⁵	≈0.06	≈7.8	≈0.06	av Eβ=282 *23*; εK=0.80428 *9*; εL=0.1468 *4*; εM+=0.04736 *15*
(1.54×10³ *4*)	2417.9	≈9.×10⁻⁵	≈0.05	≈7.9	≈0.05	av Eβ=290 *23*; εK=0.8043 *1*; εL=0.1467 *4*; εM+=0.04730 *15*
(1.54×10³ *4*)	2417.1	≈0.0002	≈0.10	≈7.6	≈0.1	av Eβ=291 *23*; εK=0.8043 *1*; εL=0.1467 *4*; εM+=0.04730 *15*
(1.55×10³ *4*)	2405.9	≈8.×10⁻⁵	≈0.04	≈8.0	≈0.04	av Eβ=296 *23*; εK=0.8043 *2*; εL=0.1466 *4*; εM+=0.04727 *15*
(1.58×10³ *4*)	2384.7	≈0.0004	≈0.2	≈7.3	≈0.2	av Eβ=305 *23*; εK=0.8042 *2*; εL=0.1464 *4*; εM+=0.04720 *15*
(1.59×10³ *4*)	2370.2	≈0.0001	≈0.06	≈7.8	≈0.06	av Eβ=312 *23*; εK=0.8042 *3*; εL=0.1463 *4*; εM+=0.04716 *15*
(1.61×10³ *4*)	2349.2	≈0.0003	≈0.10	≈7.6	≈0.1	av Eβ=321 *23*; εK=0.8041 *3*; εL=0.1461 *4*; εM+=0.04710 *15*
(1.62×10³ *4*)	2339.7	≈0.0003	≈0.10	≈7.6	≈0.1	av Eβ=325 *23*; εK=0.8041 *4*; εL=0.1460 *4*; εM+=0.04707 *15*
(1.62×10³ *4*)	2338.6	≈0.0002	≈0.07	≈7.7	≈0.07	av Eβ=326 *23*; εK=0.8041 *4*; εL=0.1460 *4*; εM+=0.04707 *15*
(1.62×10³ *4*)	2336.1	≈0.0003	≈0.10	≈7.6	≈0.1	av Eβ=327 *23*; εK=0.8041 *4*; εL=0.1460 *4*; εM+=0.04706 *15*
(1.62×10³ *4*)	2335.7	≈0.0003	≈0.10	≈7.6	≈0.1	av Eβ=327 *23*; εK=0.8041 *4*; εL=0.1460 *4*; εM+=0.04706 *15*

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^{189}Hg ε decay (8.6 min) 1996Wo04 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ †	Iε†	Log *ft*	I(ε+β^+)†	Comments
(1.62×10^3 *4*)	2335.14	≈0.002	≈0.8	≈6.7	≈0.8	av Eβ=327 *23*; εK=0.8040 *4*; εL=0.1460 *4*; εM+=0.04706 *15*
(1.63×10^3 *4*)	2330.9	≈0.0002	≈0.06	≈7.8	≈0.06	av Eβ=329 *23*; εK=0.8040 *4*; εL=0.1460 *4*; εM+=0.04705 *15*
(1.64×10^3 *4*)	2325.0	≈0.0003	≈0.10	≈7.6	≈0.1	av Eβ=332 *23*; εK=0.8040 *4*; εL=0.1459 *4*; εM+=0.04703 *15*
(1.64×10^3 *4*)	2317.51	≈0.0038	≈1.2	≈6.5	≈1.2	av Eβ=335 *22*; εK=0.8039 *4*; εL=0.1459 *4*; εM+=0.04701 *15*
(1.64×10^3 *4*)	2317.14	≈0.003	≈0.8	≈6.7	≈0.8	av Eβ=335 *22*; εK=0.8039 *4*; εL=0.1459 *4*; εM+=0.04701 *15*
(1.64×10^3 *4*)	2316.0	≈0.0010	≈0.3	≈7.1	≈0.3	av Eβ=335 *22*; εK=0.8039 *4*; εL=0.1459 *4*; εM+=0.04700 *15*
(1.65×10^3 *4*)	2311.3	≈0.0010	≈0.3	≈7.1	≈0.3	av Eβ=338 *22*; εK=0.8039 *5*; εL=0.1458 *4*; εM+=0.04699 *15*
(1.66×10^3 *4*)	2295.7	≈0.0002	≈0.06	≈7.8	≈0.06	av Eβ=345 *23*; εK=0.8038 *5*; εL=0.1457 *5*; εM+=0.04694 *15*
(1.67×10^3 *4*)	2295.00	≈0.0079	≈2.2	≈6.3	≈2.2	av Eβ=345 *23*; εK=0.8038 *5*; εL=0.1457 *5*; εM+=0.04694 *15*
(1.67×10^3 *4*)	2293.9	≈0.0007	≈0.2	≈7.3	≈0.2	av Eβ=345 *23*; εK=0.8038 *5*; εL=0.1457 *5*; εM+=0.04694 *15*
(1.68×10^3 *4*)	2281.9	≈0.0008	≈0.2	≈7.3	≈0.2	av Eβ=351 *23*; εK=0.8037 *5*; εL=0.1456 *5*; εM+=0.04690 *15*
(1.68×10^3 *4*)	2281.00	≈0.0077	≈2.0	≈6.3	≈2.0	av Eβ=351 *23*; εK=0.8037 *6*; εL=0.1456 *5*; εM+=0.04690 *15*
(1.68×10^3 *4*)	2276.62	≈0.0039	≈1.00	≈6.6	≈1.0	av Eβ=353 *23*; εK=0.8036 *6*; εL=0.1455 *5*; εM+=0.04689 *15*
(1.68×10^3 *4*)	2275.7	≈0.001	≈0.3	≈7.2	≈0.3	av Eβ=353 *22*; εK=0.8036 *6*; εL=0.1455 *5*; εM+=0.04688 *15*
(1.69×10^3 *4*)	2274.6	≈0.0004	≈0.10	≈7.6	≈0.1	av Eβ=354 *22*; εK=0.8036 *6*; εL=0.1455 *5*; εM+=0.04688 *15*
(1.69×10^3 *4*)	2274.1	≈0.001	≈0.3	≈7.2	≈0.3	av Eβ=354 *22*; εK=0.8036 *6*; εL=0.1455 *5*; εM+=0.04688 *15*
(1.69×10^3 *4*)	2273.1	≈0.001	≈0.3	≈7.2	≈0.3	av Eβ=354 *22*; εK=0.8036 *6*; εL=0.1455 *5*; εM+=0.04688 *15*
(1.69×10^3 *4*)	2272.17	≈0.017	≈4.1	≈6.0	≈4.1	av Eβ=355 *22*; εK=0.8036 *6*; εL=0.1455 *5*; εM+=0.04687 *15*
(1.69×10^3 *4*)	2271.0	≈0.0008	≈0.2	≈7.3	≈0.2	av Eβ=355 *22*; εK=0.8036 *6*; εL=0.1455 *5*; εM+=0.04687 *15*
(1.69×10^3 *4*)	2269.7	≈0.0004	≈0.10	≈7.6	≈0.1	av Eβ=356 *22*; εK=0.8036 *6*; εL=0.1455 *5*; εM+=0.04687 *15*
(1.69×10^3 *4*)	2268.98	≈0.0090	≈2.2	≈6.3	≈2.2	av Eβ=356 *22*; εK=0.8036 *6*; εL=0.1455 *5*; εM+=0.04686 *15*
(1.69×10^3 *4*)	2268.0	≈0.0003	≈0.07	≈7.8	≈0.07	av Eβ=357 *22*; εK=0.8036 *6*; εL=0.1455 *5*; εM+=0.04686 *15*
(1.70×10^3 *4*)	2264.81	≈0.0075	≈1.8	≈6.4	≈1.8	av Eβ=358 *22*; εK=0.8035 *6*; εL=0.1454 *5*; εM+=0.04685 *15*
(1.70×10^3 *4*)	2264.0	≈0.0008	≈0.2	≈7.3	≈0.2	av Eβ=358 *22*; εK=0.8035 *6*; εL=0.1454 *5*; εM+=0.04685 *15*
(1.70×10^3 *4*)	2257.55	≈0.0043	≈1.00	≈6.6	≈1.0	av Eβ=361 *23*; εK=0.8035 *6*; εL=0.1454 *5*; εM+=0.04683 *15*
(1.70×10^3 *4*)	2257.20	≈0.0069	≈1.6	≈6.4	≈1.6	av Eβ=361 *23*; εK=0.8035 *6*; εL=0.1454 *5*; εM+=0.04683 *15*
(1.70×10^3 *4*)	2255.1	≈0.0002	≈0.05	≈7.9	≈0.05	av Eβ=362 *23*; εK=0.8034 *6*; εL=0.1454 *5*; εM+=0.04682 *15*
(1.71×10^3 *4*)	2251.9	≈0.0004	≈0.10	≈7.6	≈0.1	av Eβ=364 *23*; εK=0.8034 *6*; εL=0.1453 *5*; εM+=0.04681 *15*
(1.72×10^3 *4*)	2240.96	≈0.0047	≈1.00	≈6.6	≈1.0	av Eβ=368 *23*; εK=0.8033 *7*; εL=0.1452 *5*; εM+=0.04678 *16*
(1.72×10^3 *4*)	2239.9	≈0.0005	≈0.10	≈7.6	≈0.1	av Eβ=369 *23*; εK=0.8033 *7*; εL=0.1452 *5*; εM+=0.04678 *16*
(1.75×10^3 *4*)	2211.01	≈0.002	≈0.4	≈7.1	≈0.4	av Eβ=382 *22*; εK=0.8029 *8*; εL=0.1450 *5*; εM+=0.04669 *16*
(1.76×10^3 *4*)	2200.9	≈0.0003	≈0.05	≈8.0	≈0.05	av Eβ=386 *23*; εK=0.8028 *8*; εL=0.1449 *5*; εM+=0.04666 *16*
(1.78×10^3 *4*)	2178.0	≈0.0006	≈0.10	≈7.7	≈0.1	av Eβ=396 *23*; εK=0.8024 *9*; εL=0.1447 *5*; εM+=0.04659 *16*
(1.78×10^3 *4*)	2176.8	≈0.005	≈0.8	≈6.8	≈0.8	av Eβ=397 *23*; εK=0.8024 *9*; εL=0.1447 *5*; εM+=0.04659 *16*
(1.78×10^3 *4*)	2176.2	≈0.0006	≈0.10	≈7.7	≈0.1	av Eβ=397 *23*; εK=0.8024 *9*; εL=0.1447 *5*; εM+=0.04658 *16*
(1.79×10^3 *4*)	2169.6	≈0.003	≈0.4	≈7.1	≈0.4	av Eβ=400 *23*; εK=0.8023 *9*; εL=0.1446 *5*; εM+=0.04656 *16*
(1.79×10^3 *4*)	2169.19	≈0.010	≈1.6	≈6.5	≈1.6	av Eβ=400 *23*; εK=0.8023 *9*; εL=0.1446 *5*; εM+=0.04656 *16*
(1.79×10^3 *4*)	2165.21	≈0.003	≈0.5	≈7.0	≈0.5	av Eβ=402 *23*; εK=0.8022 *10*; εL=0.1446 *5*; εM+=0.04655 *16*
(1.80×10^3 *4*)	2163.4	≈0.0007	≈0.10	≈7.7	≈0.1	av Eβ=403 *23*; εK=0.8022 *10*; εL=0.1446 *5*; εM+=0.04654 *16*
(1.82×10^3 *4*)	2145.0	≈0.003	≈0.4	≈7.1	≈0.4	av Eβ=411 *22*; εK=0.8019 *10*; εL=0.1444 *5*; εM+=0.04649 *16*
(1.85×10^3 *4*)	2113.8	≈0.002	≈0.3	≈7.2	≈0.3	av Eβ=424 *22*; εK=0.8013 *11*; εL=0.1441 *5*; εM+=0.04639 *17*
(1.87×10^3 *4*)	2094.0	≈0.003	≈0.3	≈7.2	≈0.3	av Eβ=433 *22*; εK=0.8009 *12*; εL=0.1440 *5*; εM+=0.04632 *17*
(1.91×10^3 *4*)	2045.8	≈0.003	≈0.3	≈7.3	≈0.3	av Eβ=454 *22*; εK=0.7997 *14*; εL=0.1435 *5*; εM+=0.04617 *17*
(2.02×10^3 *4*)	1939.01	≈0.003	≈0.2	≈7.5	≈0.2	av Eβ=501 *22*; εK=0.7966 *19*; εL=0.1424 *6*; εM+=0.04579 *19*
(2.02×10^3 *4*)	1935.02	≈0.01	≈0.7	≈6.9	≈0.7	av Eβ=503 *22*; εK=0.7964 *19*; εL=0.1424 *6*; εM+=0.04578 *19*
(2.05×10^3 *4*)	1905.2	≈0.002	≈0.10	≈7.8	≈0.1	av Eβ=516 *22*; εK=0.7954 *20*; εL=0.1421 *6*; εM+=0.04567 *20*
(2.08×10^3 *4*)	1877.1	≈0.002	≈0.10	≈7.8	≈0.1	av Eβ=528 *22*; εK=0.7943 *21*; εL=0.1418 *6*; εM+=0.04556 *20*
(2.12×10^3 *4*)	1835.1	≈0.01	≈0.6	≈7.1	≈0.6	av Eβ=546 *22*; εK=0.7925 *23*; εL=0.1413 *6*; εM+=0.04540 *21*
(2.14×10^3 *4*)	1822.2	≈0.002	≈0.10	≈7.8	≈0.1	av Eβ=552 *22*; εK=0.7920 *24*; εL=0.1411 *6*; εM+=0.04535 *21*
(2.16×10^3 *4*)	1800.5	≈0.009	≈0.4	≈7.2	≈0.4	av Eβ=562 *22*; εK=0.7910 *25*; εL=0.1409 *7*; εM+=0.04526 *21*
(2.17×10^3 *4*)	1788.3	≈0.005	≈0.2	≈7.6	≈0.2	av Eβ=567 *22*; εK=0.7904 *25*; εL=0.1407 *7*; εM+=0.04521 *22*
(2.19×10^3 *4*)	1774.5	≈0.002	≈0.10	≈7.9	≈0.1	av Eβ=573 *22*; εK=0.790 *3*; εL=0.1405 *7*; εM+=0.04515 *22*
(2.20×10^3 *4*)	1764.3	≈0.002	≈0.06	≈8.1	≈0.06	av Eβ=577 *22*; εK=0.789 *3*; εL=0.1404 *7*; εM+=0.04511 *22*

^{189}Hg ε decay (8.6 min) 1996Wo04 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	$I\beta^+$ †	$I\varepsilon$†	Log *ft*	$I(\varepsilon+\beta^+)$†	Comments
(2.20×10^3 *4*)	1760.2	≈0.003	≈0.10	≈7.9	≈0.1	av Eβ=579 *22*; εK=0.789 *3*; εL=0.1404 *7*; εM+=0.04509 *22*

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^{189}Hg ε decay (8.6 min) 1996Wo04 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ †	Iε†	Log *ft*	I(ε+β^+)†	Comments
(2.20×10^3 *4*)	1756.7	≈0.005	≈0.2	≈7.6	≈0.2	av Eβ=581 *22*; εK=0.789 *3*; εL=0.1403 *7*; εM+=0.04508 *22*
(2.21×10^3 *4*)	1745.6	≈0.002	≈0.08	≈8.0	≈0.08	av Eβ=586 *22*; εK=0.788 *3*; εL=0.1402 *7*; εM+=0.04503 *22*
(2.22×10^3 *4*)	1739.4	≈0.027	≈0.97	≈6.9	≈1.0	av Eβ=588 *22*; εK=0.788 *3*; εL=0.1401 *7*; εM+=0.04500 *22*
(2.23×10^3 *4*)	1730.6	≈0.006	≈0.2	≈7.6	≈0.2	av Eβ=592 *22*; εK=0.788 *3*; εL=0.1400 *7*; εM+=0.04496 *23*
(2.31×10^3 *4*)	1654.20	≈0.02	≈0.5	≈7.2	≈0.5	av Eβ=626 *22*; εK=0.783 *4*; εL=0.1390 *8*; εM+=0.04462 *24*
(2.36×10^3 *4*)	1601.20	≈0.041	≈1.1	≈6.9	≈1.1	av Eβ=649 *22*; εK=0.780 *4*; εL=0.1382 *8*; εM+=0.04437 *25*
(2.36×10^3 *4*)	1597.2	≈0.004	≈0.10	≈7.9	≈0.1	av Eβ=651 *22*; εK=0.780 *4*; εL=0.1381 *8*; εM+=0.04435 *25*
(2.36×10^3 *4*)	1595.4	≈0.004	≈0.10	≈7.9	≈0.1	av Eβ=651 *22*; εK=0.780 *4*; εL=0.1381 *8*; εM+=0.04434 *25*
(2.38×10^3 *4*)	1580.4	≈0.02	≈0.4	≈7.3	≈0.4	av Eβ=658 *22*; εK=0.779 *4*; εL=0.1379 *8*; εM+=0.0443 *3*
(2.40×10^3 *4*)	1559.85	≈0.004	≈0.10	≈7.9	≈0.1	av Eβ=667 *22*; εK=0.777 *4*; εL=0.1376 *8*; εM+=0.0442 *3*
(2.40×10^3 *4*)	1559.1	≈0.02	≈0.4	≈7.3	≈0.4	av Eβ=667 *22*; εK=0.777 *4*; εL=0.1376 *8*; εM+=0.0442 *3*
(2.43×10^3 *4*)	1534.79	≈0.03	≈0.8	≈7.1	≈0.8	av Eβ=678 *22*; εK=0.775 *4*; εL=0.1372 *8*; εM+=0.0440 *3*
(2.44×10^3 *4*)	1525.0	≈0.01	≈0.3	≈7.5	≈0.3	av Eβ=682 *22*; εK=0.775 *4*; εL=0.1370 *8*; εM+=0.0440 *3*
(2.44×10^3 *4*)	1523.8	≈0.02	≈0.4	≈7.4	≈0.4	av Eβ=683 *22*; εK=0.775 *4*; εL=0.1370 *8*; εM+=0.0440 *3*
(2.44×10^3 *4*)	1523.4	≈0.01	≈0.3	≈7.5	≈0.3	av Eβ=683 *22*; εK=0.775 *4*; εL=0.1370 *8*; εM+=0.0440 *3*
(2.44×10^3 *4*)	1516.7	≈0.004	≈0.10	≈8.0	≈0.1	av Eβ=686 *22*; εK=0.774 *4*; εL=0.1369 *8*; εM+=0.0439 *3*
(2.47×10^3 *4*)	1488.9	≈0.02	≈0.4	≈7.4	≈0.4	av Eβ=698 *22*; εK=0.772 *4*; εL=0.1365 *9*; εM+=0.0438 *3*
(2.48×10^3 *4*)	1483.4	≈0.03	≈0.6	≈7.2	≈0.6	av Eβ=701 *22*; εK=0.772 *4*; εL=0.1364 *9*; εM+=0.0438 *3*
(2.48×10^3 *4*)	1481.6	≈0.03	≈0.6	≈7.2	≈0.6	av Eβ=701 *22*; εK=0.772 *4*; εL=0.1363 *9*; εM+=0.0438 *3*
(2.50×10^3 *4*)	1463.9	≈0.01	≈0.2	≈7.7	≈0.2	av Eβ=709 *22*; εK=0.770 *4*; εL=0.1361 *9*; εM+=0.0437 *3*
(2.50×10^3 *4*)	1460.00	≈0.04	≈0.7	≈7.1	≈0.7	av Eβ=711 *22*; εK=0.770 *4*; εL=0.1360 *9*; εM+=0.0436 *3*
(2.50×10^3 *4*)	1456.3	≈0.01	≈0.2	≈7.7	≈0.2	av Eβ=712 *22*; εK=0.770 *4*; εL=0.1359 *9*; εM+=0.0436 *3*
(2.54×10^3 *4*)	1419.83	≈0.03	≈0.5	≈7.3	≈0.5	av Eβ=729 *22*; εK=0.767 *5*; εL=0.1353 *9*; εM+=0.0434 *3*
(2.55×10^3 *4*)	1411.9	≈0.006	≈0.09	≈8.0	≈0.1	av Eβ=732 *22*; εK=0.766 *5*; εL=0.1352 *9*; εM+=0.0434 *3*
(2.58×10^3 *4*)	1383.25	≈0.070	≈1.1	≈6.9	≈1.2	av Eβ=745 *22*; εK=0.764 *5*; εL=0.1347 *9*; εM+=0.0432 *3*
(2.58×10^3 *4*)	1376.2	≈0.006	≈0.09	≈8.0	≈0.1	av Eβ=748 *22*; εK=0.763 *5*; εL=0.1346 *9*; εM+=0.0432 *3*
(2.59×10^3 *4*)	1368.08	≈0.02	≈0.4	≈7.4	≈0.4	av Eβ=751 *22*; εK=0.762 *5*; εL=0.1344 *9*; εM+=0.0431 *3*
(2.59×10^3 *4*)	1365.3	≈0.006	≈0.09	≈8.0	≈0.1	av Eβ=753 *22*; εK=0.762 *5*; εL=0.1344 *10*; εM+=0.0431 *3*
(2.61×10^3 *4*)	1352.6	≈0.04	≈0.7	≈7.2	≈0.7	av Eβ=758 *22*; εK=0.761 *5*; εL=0.1341 *10*; εM+=0.0430 *3*
(2.65×10^3 *4*)	1312.98	≈0.093	≈1.3	≈6.9	≈1.4	av Eβ=776 *22*; εK=0.757 *5*; εL=0.1334 *10*; εM+=0.0428 *3*
(2.66×10^3 *4*)	1298.92	≈0.095	≈1.3	≈6.9	≈1.4	av Eβ=782 *22*; εK=0.756 *5*; εL=0.1331 *10*; εM+=0.0427 *4*
(2.66×10^3 *4*)	1295.52	≈0.068	≈0.93	≈7.1	≈1.0	av Eβ=783 *22*; εK=0.756 *5*; εL=0.1331 *10*; εM+=0.0427 *4*
(2.69×10^3 *4*)	1273.21	≈0.04	≈0.6	≈7.3	≈0.6	av Eβ=793 *22*; εK=0.754 *5*; εL=0.1327 *10*; εM+=0.0425 *4*
(2.71×10^3 *4*)	1247.2	≈0.05	≈0.6	≈7.2	≈0.7	av Eβ=805 *22*; εK=0.751 *5*; εL=0.1322 *10*; εM+=0.0424 *4*
(2.77×10^3 *4*)	1193.56	≈0.06	≈0.7	≈7.2	≈0.8	av Eβ=828 *22*; εK=0.746 *6*; εL=0.1311 *11*; εM+=0.0420 *4*
(2.77×10^3 *4*)	1188.60	≈0.098	≈1.1	≈7.0	≈1.2	av Eβ=831 *22*; εK=0.745 *6*; εL=0.1310 *11*; εM+=0.0420 *4*
(2.81×10^3 *4*)	1145.71	≈0.15	≈1.6	≈6.9	≈1.7	av Eβ=849 *23*; εK=0.741 *6*; εL=0.1301 *11*; εM+=0.0417 *4*
(2.83×10^3 *4*)	1133.58	≈0.02	≈0.8	≈8.7^{1u}	≈0.8	av Eβ=851 *22*; εK=0.7814 *19*; εL=0.1441 *6*; εM+=0.04658 *21*
(2.83×10^3 *4*)	1130.11	≈0.07	≈0.7	≈7.2	≈0.8	av Eβ=856 *23*; εK=0.739 *6*; εL=0.1298 *11*; εM+=0.0416 *4*
(2.85×10^3 *4*)	1112.51	≈0.17	≈1.7	≈6.8	≈1.9	av Eβ=864 *23*; εK=0.737 *6*; εL=0.1294 *11*; εM+=0.0415 *4*
(2.85×10^3 *4*)	1105.28	≈0.029	≈0.97	≈8.6^{1u}	≈1.0	av Eβ=863 *22*; εK=0.7804 *20*; εL=0.1438 *6*; εM+=0.04646 *21*
(2.86×10^3 *4*)	1097.04	≈0.21	≈2.0	≈6.8	≈2.2	av Eβ=871 *23*; εK=0.736 *6*; εL=0.1291 *11*; εM+=0.0414 *4*
(3.08×10^3 *4*)	880.46	≈0.03	≈0.7	≈8.9^{1u}	≈0.7	av Eβ=958 *22*; εK=0.771 *3*; εL=0.1410 *7*; εM+=0.04550 *23*
(3.10×10^3 *4*)	862.06	≈0.03	≈0.7	≈8.9^{1u}	≈0.7	av Eβ=966 *22*; εK=0.770 *3*; εL=0.1407 *7*; εM+=0.04542 *23*
(3.11×10^3‡ *4*)	847.94	≈0.20	≈1.3	≈7.0	≈1.5	av Eβ=981 *23*; εK=0.706 *7*; εL=0.1234 *13*; εM+=0.0395 *4*
(3.15×10^3 *4*)	812.67	≈0.55	≈3.5	≈6.6	≈4.0	av Eβ=997 *23*; εK=0.701 *7*; εL=0.1225 *13*; εM+=0.0392 *4*
(3.25×10^3 *4*)	712.73	≈0.48	≈2.6	≈6.8	≈3.1	av Eβ=1041 *23*; εK=0.688 *7*; εL=0.1200 *13*; εM+=0.0384 *5*
(3.28×10^3 *4*)	681.89	≈0.76	≈4.0	≈6.6	≈4.8	av Eβ=1055 *23*; εK=0.683 *7*; εL=0.1192 *13*; εM+=0.0382 *5*
(3.31×10^3 *4*)	646.18	≈0.94	≈4.8	≈6.5	≈5.7	av Eβ=1071 *23*; εK=0.678 *8*; εL=0.1183 *14*; εM+=0.0379 *5*
(3.71×10^3 *4*)	247.25	≈2.4	≈7.6	≈6.4	≈10	av Eβ=1250 *23*; εK=0.618 *8*; εL=0.1073 *15*; εM+=0.0343 *5* I(ε+β^+): assumed as ≈10% based on branching ratio for ^{191}Hg ε decay to the ^{191}Au isomeric state of J^{π}=11/2$^-$ at 266 keV, which is 9% *5*.

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^{189}Hg ε decay (8.6 min) 1996Wo04 (continued)

ε,β^+ radiations (continued)

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

$\gamma(^{189}Au)$

Iγ normalization, I(γ+ce) normalization: From summed gamma transition intensity to the g.s. (except the 9.9-keV transition), 9.9-keV level, and the 247.25, 11/2$^-$ isomer of ^{189}Au $\approx$90, assuming $\approx$10% $\varepsilon+\beta^+$ feeding to the 247.25, 11/2$^-$ isomer, the latter based on branching ratio for ^{191}Hg ε decay to the ^{191}Au isomeric state of J^π=11/2$^-$ at 266 keV, which is 9% *5*.

Annihilation intensity I$\gamma(\gamma^\pm)$=70 *10* (1996Wo04). This value seems too high in comparison to the deduced value of $\approx$14 from the present decay scheme.

The experimental subshell ratios and conversion coefficients are from 1996Wo04. When specified as 'other', those values are from 1975Be17.

E_γ †	I_γ †@	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	δ‡	α#	$I_{(\gamma+ce)}$ @	Comments
9.9 *2*		9.95	3/2$^+$	0.0	1/2$^+$	[M1]		278 *18*	>150	ce(M)/(γ+ce)=0.77 *4* ce(N)/(γ+ce)=0.191 *16*; ce(O)/(γ+ce)=0.035 *4*; ce(P)/(γ+ce)=0.00237 *22* α(M)=214 *14* α(N)=53 *4*; α(O)=9.8 *7*; α(P)=0.66 *5* E_γ: observed as M-conversion line in singles and ce-γ coin by 1975Be17. $I_{(\gamma+ce)}$: deduced by evaluators from intensity balance argument.
44.7 *2*		248.57	5/2$^+$	203.81	3/2$^+$	M1+E2	0.15 *2*	18.2 *13*	5	ce(L)/(γ+ce)=0.72 *6*; ce(M)/(γ+ce)=0.174 *25* ce(N)/(γ+ce)=0.043 *7*; ce(O)/(γ+ce)=0.0076 *11*; ce(P)/(γ+ce)=0.00037 *4* α(L)=14.3 *16*; α(M)=3.4 *4* α(N)=0.85 *10*; α(O)=0.150 *16*; α(P)=0.00740 *16* L3/L12=0.16 *5*; M/L12=0.37 *6* $I_{(\gamma+ce)}$: from intensity balance (1996Wo04). δ=0.16 *3* from ce data in the present experiment.
59.2 *2*		307.78	5/2$^+$	248.57	5/2$^+$				1	$I_{(\gamma+ce)}$: from 1996Wo04.
77.9 *2*		325.13	9/2$^-$	247.25	11/2$^-$	M1+E2	0.3 *2*	3.7 *15*	500	ce(L)/(γ+ce)=0.60 *15*; ce(M)/(γ+ce)=0.145 *67* ce(N)/(γ+ce)=0.036 *18*; ce(O)/(γ+ce)=0.0063 *30*; ce(P)/(γ+ce)=2.94$\times10^{-4}$ *95* α(L)=2.8 *11*; α(M)=0.68 *29* α(N)=0.168 *69*; α(O)=0.029 *11*; α(P)=0.00138 *16* M/L12=0.28 *4*; L/M=4.2 *4*; L3/L12$\le$0.15 $I_{(\gamma+ce)}$: from intensity balance (1996Wo04).
(104)		307.78	5/2$^+$	203.81	3/2$^+$				<2	$I_{(\gamma+ce)}$: from 1996Wo04.
113 *1*	0.8 *2*	760.70	9/2$^+$	647.29	7/2$^+$	M1+E2	1.2 *3*	4.0 *4*		α(K)=2.06 *52*; α(L)=1.43 *19*; α(M)=0.36 *5* α(N)=0.090 *13*; α(O)=0.0148 *19*; α(P)=2.48$\times10^{-4}$ *63* α(K)exp=1.8 *6*; L12/K=0.41 *12*; M/K=0.21 *7*; L3/K$\le$0.09
135 *1*		647.29	7/2$^+$	512.39	7/2$^+$	M1+E2	0.7 *+4−5*	2.6 *5*		α(K)=1.83 *62*; α(L)=0.57 *13*; α(M)=0.139 *37* α(N)=0.0344 *89*; α(O)=0.0059 *13*; α(P)=2.18$\times10^{-4}$ *76* L12/K=0.25 *6*; L3/K$\le$0.06 δ=1.8 *+15−14* from ce data in the present experiment.

γ(^{189}Au) (continued)

E_γ†	I_γ†@	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	δ‡	α#	Comments
151.4 *2*	2.0 *2*	1534.79	$13/2^+$	1383.25	$13/2^+$	M1(+E2)	<0.4	2.14 *9*	α(K)=1.72 *11*; α(L)=0.319 *15*; α(M)=0.075 *5* α(N)=0.0187 *11*; α(O)=0.00338 *15*; α(P)=0.000206 *14* α(K)exp=2.3 *3*; L3/K≤0.03; M/K=0.10 *3*
166.5 *2*	25 *3*	491.58	$5/2^-$	325.13	$9/2^-$	E2		0.714	α(K)=0.264 *4*; α(L)=0.338 *5*; α(M)=0.0872 *13* α(N)=0.0215 *4*; α(O)=0.00348 *6*; α(P)=2.70×10^{-5} *4* α(K)exp=0.22 *4*; L12/K=1.25 *32*; L3/K=0.77 *25*; M/K=0.52 *18*; N/K=0.12 *4*
176.3 *2*	3.9 *10*	484.04	$7/2^-$	307.78	$5/2^+$	E1		0.0988	α(K)=0.0807 *12*; α(L)=0.01393 *20*; α(M)=0.00323 *5* α(N)=0.000795 *12*; α(O)=0.0001398 *20*; α(P)=7.19×10^{-6} *11* α(K)exp=0.12 *4*
186.6 *3*	0.8 *2*	1298.92	$11/2^+$	1112.51	$11/2^+$	E2		0.476	α(K)=0.201 *3*; α(L)=0.206 *4*; α(M)=0.0531 *9* α(N)=0.01309 *21*; α(O)=0.00213 *4*; α(P)=2.05×10^{-5} *3* α(K)exp=0.23 *6*
(194)	<0.2	203.81	$3/2^+$	9.95	$3/2^+$				
200.7 *2*	5.0 *5*	847.94	$9/2^+$	647.29	$7/2^+$	M1+E2	1.1 *+3−2*	0.66 *8*	α(K)=0.47 *8*; α(L)=0.145 *3*; α(M)=0.0357 *10* α(N)=0.00885 *23*; α(O)=0.00152 *3*; α(P)=5.4×10^{-5} *10* α(K)exp=0.38 *6*; L12/K=0.19 *3*; M/K=0.11 *4*
203.9 *2*	16.4 *17*	203.81	$3/2^+$	0.0	$1/2^+$	M1+E2	0.63 *+14−15*	0.79 *6*	α(K)=0.61 *7*; α(L)=0.1345 *22*; α(M)=0.0322 *8* α(N)=0.00799 *18*; α(O)=0.001418 *22*; α(P)=7.2×10^{-5} *8* α(K)exp=0.63 *9*; L12/K=0.20 *3*; L3/K=0.042 *4*; M/K=0.045 *6*
(205.0)	<0.2	512.39	$7/2^+$	307.78	$5/2^+$				
218.1 *2*	9.9 *10*	1601.20	$13/2^+,15/2^+$	1383.25	$13/2^+$	E2(+M1)	>1.1	0.40 *12*	α(K)=0.25 *12*; α(L)=0.1076 *16*; α(M)=0.0269 *7* α(N)=0.00666 *15*; α(O)=0.001121 *20*; α(P)=2.9×10^{-5} *15* α(K)exp=0.079 *11*; M/L12=0.37 *12*; L3/L12≤0.13 The α(K)exp obscured in this measurement.
235 *1*	6.0 *10*	484.04	$7/2^-$	248.57	$5/2^+$	E1		0.0484 *9*	α(K)=0.0398 *7*; α(L)=0.00664 *12*; α(M)=0.00154 *3* α(N)=0.000379 *7*; α(O)=6.73×10^{-5} *12*; α(P)=3.68×10^{-6} *7* αK(exp)≤0.04 from ^{189m}Hg ε decay; ≈0.03 from ^{189g}Hg ε decay (1996Wo04).
236 *1*	19 *3*	484.04	$7/2^-$	247.25	$11/2^-$	E2		0.216 *5*	α(K)=0.1125 *20*; α(L)=0.0777 *18*; α(M)=0.0198 *5* α(N)=0.00489 *11*; α(O)=0.000805 *18*; α(P)=1.168×10^{-5} *21* α(K)exp=0.14 *3*; L12/K=0.46 *8*; L3/K=0.26 *4*; M/K=0.28 *9*
238.7 *2*	54 *6*	248.57	$5/2^+$	9.95	$3/2^+$	M1+E2	2.3 *3*	0.274 *18*	α(K)=0.173 *17*; α(L)=0.0759 *12*; α(M)=0.0190 *3* α(N)=0.00470 *7*; α(O)=0.000790 *13*; α(P)=1.92×10^{-5} *21* α(K)exp=0.20 *3*; L12/K=0.33 *3*; L3/K=0.11 *1*
239 *1*	1.8 *5*	2178.0		1939.01	$^+$				
(248)	<0.7	760.70	$9/2^+$	512.39	$7/2^+$				
248.7 *2*	53 *6*	248.57	$5/2^+$	0.0	$1/2^+$	E2		0.182	α(K)=0.0987 *14*; α(L)=0.0629 *9*; α(M)=0.01601 *23* α(N)=0.00395 *6*; α(O)=0.000653 *10*; α(P)=1.031×10^{-5} *15* α(K)exp=0.113 *15*; L3/K=0.20 *6*; M/K=0.23 *6*
249 *1*	5.6 *10*	1130.11	$11/2^-$	880.46	$9/2^-$	M1+E2	1.4 *+8−4*	0.31 *7*	α(K)=0.219 *60*; α(L)=0.067 *3*; α(M)=0.0165 *5*

γ(^{189}Au) (continued)

E_γ[†]	I_γ[†@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
									α(N)=0.00407 11; α(O)=0.00070 3; α(P)=2.51×10^{-5} 74 α(K)exp=0.22 6
253.2 2	13.4 13	1383.25	13/2$^+$	1130.11	11/2$^-$	E1		0.0404	α(K)=0.0332 5; α(L)=0.00550 8; α(M)=0.001273 18 α(N)=0.000314 5; α(O)=5.59×10^{-5} 8; α(P)=3.10×10^{-6} 5 α(K)exp=0.027 4
264.0 2	14.5 15	512.39	7/2$^+$	248.57	5/2$^+$	M1+E2	0.4 +2−3	0.43 5	α(K)=0.35 4; α(L)=0.0621 21; α(M)=0.0145 4 α(N)=0.00362 10; α(O)=0.000658 24; α(P)=4.1×10^{-5} 5 α(K)exp=0.36 5; L12/K=0.20 3; L3/K<0.02; M/K=0.031 4 δ<0.4 from ce data in the present experiment.
279.3 2	9.6 10	770.72	7/2$^-$	491.58	5/2$^-$	M1+E2	0.9 2	0.28 4	α(K)=0.22 3; α(L)=0.0482 19; α(M)=0.0115 4 α(N)=0.00287 9; α(O)=0.000508 22; α(P)=2.5×10^{-5} 4 α(K)exp=0.21 3; L12/K=0.20 2
282.6 3	3.1 4	1193.56	$^-$	911.02	7/2$^-$	M1+E2	1.1 +14−6	0.244 94	α(K)=0.185 87; α(L)=0.045 6; α(M)=0.0109 10 α(N)=0.00269 25; α(O)=0.00047 6; α(P)=2.1×10^{-5} 11 α(K)exp=0.22 7; L12/K=0.37 12 Additional information 2.
286 1	0.5 2	1654.20	13/2$^-$,15/2$^-$	1368.08	(17/2,13/2,15/2)$^-$				
293.0 3	2.0 3	1481.6	13/2$^-$	1188.60	11/2$^-$	M1		0.354	α(K)=0.291 5; α(L)=0.0481 7; α(M)=0.01115 16 α(N)=0.00278 4; α(O)=0.000511 8; α(P)=3.46×10^{-5} 5 α(K)exp=0.37 7
297.9 2	28 3	307.78	5/2$^+$	9.95	3/2$^+$	M1(+E2)	<0.8	0.29 5	α(K)=0.24 5; α(L)=0.043 3; α(M)=0.0101 6 α(N)=0.00252 15; α(O)=0.00046 4; α(P)=2.8×10^{-5} 6 α(K)exp=0.26 4; L12/K=0.20 3; M/K=0.056 11; L3/K<0.03 δ<1.0 from ce data in the present experiment.
(308)	<0.9	307.78	5/2$^+$	0.0	1/2$^+$				
308 1	3.0 10	512.39	7/2$^+$	203.81	3/2$^+$	E2		0.0947 16	α(K)=0.0582 10; α(L)=0.0275 6; α(M)=0.00693 13 α(N)=0.00171 4; α(O)=0.000286 6; α(P)=6.23×10^{-6} 10 α(K)exp≤0.17 Mult.: E2(+M1) (δ>0.9) from 1996Wo04 is unlikely for a Δ=2 transition.
318 1	2.2 8	2257.20	($^-$)	1939.01	$^+$	(E1)		0.0235	α(K)=0.0194 3; α(L)=0.00314 5; α(M)=0.000726

γ(^{189}Au) (continued)

E_γ [†]	I_γ [†@]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡]	α [#]	Comments
									12 α(N)=0.000179 3; α(O)=3.21×10^{-5} 6; α(P)=1.86×10^{-6} 3 α(K)exp≤0.05
321.1 2	240 20	646.18	13/2$^-$	325.13	9/2$^-$	E2		0.0838	α(K)=0.0526 8; α(L)=0.0236 4; α(M)=0.00593 9 α(N)=0.001464 21; α(O)=0.000246 4; α(P)=5.65×10^{-6} 8 α(K)exp=0.046 6; L12/K=0.42 7; L3/K=0.13 2; M/K=0.20 6
326 1	2.6 6	2264.81	($^+$)	1939.01	$^+$	M1+E2	1.2 +16−6	0.156 61	α(K)=0.119 55; α(L)=0.028 5; α(M)=0.0067 9 α(N)=0.00167 23; α(O)=0.00029 5; α(P)=1.38×10^{-5} 67 α(K)exp=0.12 5
326.4 3	4.3 6	1188.60	11/2$^-$	862.06	9/2$^-$	M1+E2	1.3 +14−6	0.148 56	α(K)=0.113 50; α(L)=0.027 4; α(M)=0.0066 9 α(N)=0.00163 21; α(O)=0.00029 5; α(P)=1.30×10^{-5} 61 α(K)exp=0.11 4
333.3 4	2.9 7	2272.17	$^+$	1939.01	$^+$	M1(+E2)	<1.1	0.20 5	α(K)=0.162 44; α(L)=0.030 4; α(M)=0.0071 8 α(N)=0.00177 19; α(O)=0.00032 4; α(P)=1.91×10^{-5} 53 α(K)exp=0.19 7
335.5 4	2.6 8	847.94	9/2$^+$	512.39	7/2$^+$	M1		0.245	α(K)=0.202 3; α(L)=0.0332 5; α(M)=0.00769 11 α(N)=0.00192 3; α(O)=0.000353 5; α(P)=2.39×10^{-5} 4 α(K)exp=0.27 10
339.7 3	1.3 2	647.29	7/2$^+$	307.78	5/2$^+$	E2(+M1)	>1.3	0.102 31	α(K)=0.074 28; α(L)=0.0216 25; α(M)=0.0053 5 α(N)=0.00131 13; α(O)=0.00023 3; α(P)=8.3×10^{-6} 34 α(K)exp≤0.1 Mult.: α(K)exp allows E1 also, but inconsistent with ΔJ^π.
351.9 2	9.8 10	1112.51	11/2$^+$	760.70	9/2$^+$	M1		0.215	α(K)=0.178 3; α(L)=0.0292 5; α(M)=0.00676 10 α(N)=0.001683 24; α(O)=0.000310 5; α(P)=2.10×10^{-5} 3 α(K)exp=0.18 3; L12/K=0.12 3
356[&] 1	6.5[&] 10	1739.4	13/2$^+$,15/2$^+$	1383.25	13/2$^+$	M1+E2	0.9 +6−4	0.143 37	α(K)=0.113 33; α(L)=0.023 3; α(M)=0.0054 7 α(N)=0.00135 16; α(O)=0.00024 4; α(P)=1.32×10^{-5} 40 α(K)exp=0.11 3
356[&] 1	3.8[&] 10	2295.00	$^+$	1939.01	$^+$	M1(+E2)	<1.3	0.163 46	α(K)=0.131 42; α(L)=0.024 4; α(M)=0.0058 8 α(N)=0.00143 20; α(O)=0.00026 5; α(P)=1.54×10^{-5} 50 α(K)exp=0.16 7
360[&] 1	5.5[&] 10	1130.11	11/2$^-$	770.72	7/2$^-$	E2		0.0606 10	α(K)=0.0400 7; α(L)=0.0156 3; α(M)=0.00390 7 α(N)=0.000963 17; α(O)=0.000163 3; α(P)=4.34×10^{-6} 7 α(K)exp=0.036 12
360[&] 1	4.1[&] 10	2295.00	$^+$	1935.02	$^+$	M1(+E2)	<1.1	0.16 4	α(K)=0.132 35; α(L)=0.024 4; α(M)=0.0057 7 α(N)=0.00141 17; α(O)=0.00026 4; α(P)=1.55×10^{-5} 43 α(K)exp=0.15 5
363.0 2	5.9 6	1133.58	9/2$^-$	770.72	7/2$^-$	M1+E2	2.5 +16−6	0.078 12	α(K)=0.056 11; α(L)=0.0168 10; α(M)=0.00412 21 α(N)=0.00102 6; α(O)=0.000176 11; α(P)=6.3×10^{-6} 13 α(K)exp=0.058 10; L12/K=0.5 2
376.1 4	1.7 4	1188.60	11/2$^-$	812.67	13/2$^-$	M1(+E2)	<1.3	0.140 40	α(K)=0.113 36; α(L)=0.021 4; α(M)=0.0049 8

γ(^{189}Au) (continued)

E_γ [†]	I_γ [†@]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡]	α [#]	Comments
									α(N)=0.00122 19; α(O)=0.00022 4; α(P)=1.33×10^{-5} 43 α(K)exp=0.12 4; L12/K≤0.1
378.3 2	14.9 15	862.06	9/2$^-$	484.04	7/2$^-$	M1(+E2)	<0.5	0.165 13	α(K)=0.135 12; α(L)=0.0229 12; α(M)=0.00532 25 α(N)=0.00132 7; α(O)=0.000242 13; α(P)=1.59×10^{-5} 14 α(K)exp=0.13 2; L12/K=0.22 4; M/K=0.058 20; L3/K<0.007 δ<1.0 from ce data in the present experiment.
382.5 3	2.7 4	2317.51	+	1935.02	+	M1		0.1722	α(K)=0.1419 20; α(L)=0.0233 4; α(M)=0.00539 8 α(N)=0.001342 19; α(O)=0.000247 4; α(P)=1.677×10^{-5} 24 α(K)exp=0.25 6
384.4 3	25 2	1097.04	13/2$^-$	712.73	11/2$^-$	M1+E2	0.7 3	0.131 23	α(K)=0.105 21; α(L)=0.0195 21; α(M)=0.0046 5 α(N)=0.00114 11; α(O)=0.000206 22; α(P)=1.23×10^{-5} 25 α(K)exp=0.096 12; L12/K=0.23 5; L3/K<0.06; M/K=0.025 8
386 1	1.5 5	2325.0		1939.01	+				
387.7 2	103 10	712.73	11/2$^-$	325.13	9/2$^-$	M1+E2	2.0 +14−6	0.073 17	α(K)=0.054 15; α(L)=0.0141 15; α(M)=0.0034 3 α(N)=0.00085 8; α(O)=0.000148 16; α(P)=6.2×10^{-6} 18 α(K)exp=0.056 10; L12/K=0.19 5; L3/K<0.03; M/K=0.09 2
389 1	4.1 13	880.46	9/2$^-$	491.58	5/2$^-$	E2		0.0491 8	α(K)=0.0333 5; α(L)=0.01193 20; α(M)=0.00296 5 α(N)=0.000733 13; α(O)=0.0001245 21; α(P)=3.64×10^{-6} 6 α(K)exp=0.052 30
393[a] 1	1.0 5	1273.21	11/2$^-$	880.46	9/2$^-$				
393 1	1.0 5	1745.6		1352.6	(15/2,13/2,11/2)$^-$				
395.8 3	3.3 4	880.46	9/2$^-$	484.04	7/2$^-$	M1(+E2)	<0.4	0.150 8	α(K)=0.123 7; α(L)=0.0205 8; α(M)=0.00477 17 α(N)=0.00119 4; α(O)=0.000218 8; α(P)=1.45×10^{-5} 9 α(K)exp=0.16 3; L12/K=0.31 11
398.9 3	20 5	647.29	7/2$^+$	248.57	5/2$^+$	M1		0.1539	α(K)=0.1269 18; α(L)=0.0208 3; α(M)=0.00481 7 α(N)=0.001198 17; α(O)=0.000221 4; α(P)=1.498×10^{-5} 22 α(K)exp=0.140 22; L12/K=0.18 3; L3/K<0.03; M/K=0.04 2
(399)	<3	646.18	13/2$^-$	247.25	11/2$^-$				
400 1	2.7 4	1935.02	+	1534.79	13/2$^+$				
401 1	2.5 5	2335.14	($^+$)	1935.02	+				
404.5 3	1.4 5	1534.79	13/2$^+$	1130.11	11/2$^-$	E1		0.01358	α(K)=0.01126 16; α(L)=0.00179 3; α(M)=0.000411 6 α(N)=0.0001018 15; α(O)=1.83×10^{-5} 3; α(P)=1.100×10^{-6} 16 α(K)exp≤0.007

$^{189}_{79}$Au$_{110}$-12

γ(^{189}Au) (continued)

E_γ [†]	I_γ [†@]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡]	α [#]	$I_{(\gamma+ce)}$ [@]	Comments
411.4 *3*	2.5 *3*	1273.21	11/2⁻	862.06	9/2⁻	M1+E2	0.6 *3*	0.115 *19*		α(K)=0.094 *16*; α(L)=0.0167 *17*; α(M)=0.0039 *4* α(N)=0.00097 *10*; α(O)=0.000177 *19*; α(P)=1.10×10^{-5} *20* α(K)exp=0.095 *16*
417 *1*	2.2 *4*	1800.5	15/2⁺	1383.25	13/2⁺					
417.6 *3*	1.7 *2*	1130.11	11/2⁻	712.73	11/2⁻	M1		0.1362		α(K)=0.1123 *16*; α(L)=0.0184 *3*; α(M)=0.00425 *6* α(N)=0.001059 *15*; α(O)=0.000195 *3*; α(P)=1.325×10^{-5} *19* α(K)exp=0.19 *7*
419.5 *3*	5.8 *6*	911.02	7/2⁻	491.58	5/2⁻	M1+E2	0.8 *+5−4*	0.098 *24*		α(K)=0.079 *21*; α(L)=0.0147 *23*; α(M)=0.0035 *5* α(N)=0.00086 *13*; α(O)=0.000155 *25*; α(P)=9.2×10^{-6} *26* α(K)exp=0.079 *20*; L12/K=0.23 *8*
420.7 *4*	1.6 *7*	1133.58	9/2⁻	712.73	11/2⁻	M1(+E2)	<1.7	0.099 *35*		α(K)=0.080 *31*; α(L)=0.015 *4*; α(M)=0.0035 *7* α(N)=0.00086 *18*; α(O)=0.00016 *4*; α(P)=9.3×10^{-6} *37* α(K)exp=0.10 *5*
429[&] *1*	2.2[&] *6*	1525.0	⁻	1097.04	13/2⁻	M1		0.1268 *20*		α(K)=0.1046 *16*; α(L)=0.0171 *3*; α(M)=0.00396 *6* α(N)=0.000985 *16*; α(O)=0.000181 *3*; α(P)=1.232×10^{-5} *19* α(K)exp=0.16 *5*
429[&] *1*	5.0[&] *10*	1559.1	⁻	1130.11	11/2⁻	E2		0.0379		α(K)=0.0266 *4*; α(L)=0.00860 *14*; α(M)=0.00212 *4* α(N)=0.000525 *9*; α(O)=8.98×10^{-5} *15*; α(P)=2.92×10^{-6} *5* α(K)exp=0.020 *15*
432.3 *4*	3.5 *10*	1312.98	13/2⁻	880.46	9/2⁻	E2		0.0372		α(K)=0.0261 *4*; α(L)=0.00838 *12*; α(M)=0.00207 *3* α(N)=0.000511 *8*; α(O)=8.76×10^{-5} *13*; α(P)=2.87×10^{-6} *4* α(K)exp≤0.05 Mult.: E2+M1,δ>0.2 from 1996Wo04 is inconsistent with ΔJ=2 transition. Also α(K)exp is consistent with E2.
433.0 *3*	5.4 *9*	1145.71	13/2⁻,15/2⁻	712.73	11/2⁻	M1+E2	1.8 *+43−7*	0.057 *19*		α(K)=0.044 *17*; α(L)=0.0103 *19*; α(M)=0.0025 *4* α(N)=0.00062 *10*; α(O)=0.000108 *20*; α(P)=5.0×10^{-6} *20* α(K)exp=0.044 *16*
433.5 *3*	5.6 *9*	1295.52	11/2⁻	862.06	9/2⁻	M1+E2	0.8 *+6−5*	0.090 *27*		α(K)=0.072 *24*; α(L)=0.013 *3*; α(M)=0.0031 *6*

$^{189}_{79}$Au$_{110}$-13

γ(^{189}Au) (continued)

E_γ[†]	I_γ[†@]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[‡]	α[#]	Comments
									α(N)=0.00078 *14*; α(O)=0.00014 *3*; α(P)=8.4×10^{-6} *29* α(K)exp=0.070 *20*
434.6 *2*	111 *10*	681.89	15/2$^-$	247.25	11/2$^-$	E2		0.0367	α(K)=0.0258 *4*; α(L)=0.00824 *12*; α(M)=0.00203 *3* α(N)=0.000502 *7*; α(O)=8.61×10^{-5} *13*; α(P)=2.84×10^{-6} *4* α(K)exp=0.025 *4*; L12/K=0.19 *7*
437 *1*	0.6 *4*	2176.2	$^+$	1739.4	13/2$^+$,15/2$^+$				
443.4 *5*	2.5 *10*	647.29	7/2$^+$	203.81	3/2$^+$				
445.6 *2*	9.2 *9*	770.72	7/2$^-$	325.13	9/2$^-$	M1+E2	0.8 *3*	0.083 *16*	α(K)=0.067 *14*; α(L)=0.0124 *15*; α(M)=0.0029 *4* α(N)=0.00072 *9*; α(O)=0.000131 *17*; α(P)=7.8×10^{-6} *17* α(K)exp=0.084 *13* δ<0.7 from ce data in the present experiment.
(449)	<0.4	961.28	(5/2,3/2)$^+$	512.39	7/2$^+$				
451 *1*	3.8 *13*	1097.04	13/2$^-$	646.18	13/2$^-$	M1(+E2)	<0.5	0.103 *8*	α(K)=0.085 *7*; α(L)=0.0142 *8*; α(M)=0.00329 *18* α(N)=0.00082 *5*; α(O)=0.000150 *9*; α(P)=1.00×10^{-5} *9* α(K)exp=0.089 *10*; L12/K=0.46 *17*
(451)	<0.4	1298.92	11/2$^+$	847.94	9/2$^+$				
451[&] *1*	2.8[&] *10*	1835.1	(13/2$^+$,15/2$^+$)	1383.25	13/2$^+$				
453 *1*	3.5 *10*	760.70	9/2$^+$	307.78	5/2$^+$	E2		0.0330	α(K)=0.0235 *4*; α(L)=0.00720 *12*; α(M)=0.00177 *3* α(N)=0.000438 *7*; α(O)=7.53×10^{-5} *12*; α(P)=2.59×10^{-6} *4* α(K)exp≤0.030 Mult.: E2(+M1) (δ>3.0) from 1996Wo04 is not likely for ΔJ=2 transition; also a(K)exp is consistent with E2.
455 *1*	1.3 *5*	1601.20	13/2$^+$,15/2$^+$	1145.71	13/2$^-$,15/2$^-$				
459 *1*	1.2 *6*	1273.21	11/2$^-$	812.67	13/2$^-$	M1(+E2)	<6	0.070 *36*	α(K)=0.056 *32*; α(L)=0.0107 *36*; α(M)=0.00252 *78* α(N)=6.3×10^{-4} *20*; α(O)=1.13×10^{-4} *39*; α(P)=6.5×10^{-6} *38* α(K)exp=0.067 *42*
459.1 *2*	26 *2*	1105.28	17/2$^-$	646.18	13/2$^-$	E2		0.0319	α(K)=0.0228 *4*; α(L)=0.00690 *10*; α(M)=0.001695 *24* α(N)=0.000420 *6*; α(O)=7.22×10^{-5} *11*; α(P)=2.52×10^{-6} *4* α(K)exp=0.022 *3*; L12/K=0.32 *11*; L3/K≤0.13; M/K≤0.09
(465)	<1	712.73	11/2$^-$	247.25	11/2$^-$				
(465)	≤0.7	1112.51	11/2$^+$	647.29	7/2$^+$				
479.1 *3*	2.4 *5*	1939.01	$^+$	1460.00	11/2$^+$	M1+E2	0.6 *2*	0.077 *9*	α(K)exp=0.065 *8* α(K)=0.063 *8*; α(L)=0.0110 *9*; α(M)=0.00255 *19* α(N)=0.00064 *5*; α(O)=0.000116 *10*; α(P)=7.4×10^{-6} *9*
483[&] *1*	1.3[&] *4*	1295.52	11/2$^-$	812.67	13/2$^-$				
483[&] *1*	2.4[&] *10*	1580.4	$^-$	1097.04	13/2$^-$	M1		0.0926	α(K)=0.0764 *12*; α(L)=0.01245 *19*; α(M)=0.00288 *5*

$^{189}_{79}$Au$_{110}$-14

γ(^{189}Au) (continued)

E_γ †	I_γ †@	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	δ‡	α#	$I_{(\gamma+ce)}$ @	Comments
										α(N)=0.000717 *11*; α(O)=0.0001320 *20*; α(P)=8.99×10^{-6} *14* α(K)exp=0.10 *5*
484.0 *2*	11.7 *12*	1130.11	$11/2^-$	646.18	$13/2^-$	M1		0.0921		α(K)=0.0760 *11*; α(L)=0.01238 *18*; α(M)=0.00286 *4* α(N)=0.000713 *10*; α(O)=0.0001313 *19*; α(P)=8.94×10^{-6} *13* α(K)exp=0.078 *11*; L12/K=0.18 *4*; L3/K≤0.02; M/K=0.12 *7*
484 *1*	2.0 *10*	2272.17	$^+$	1788.3	$(^+)$					
486.3 *3*	3.0 *8*	1247.2	$(9/2,7/2)^+$	760.70	$9/2^+$	M1+E2	0.8 *+6−5*	0.066 *20*		α(K)=0.054 *17*; α(L)=0.0097 *20*; α(M)=0.0023 *5* α(N)=0.00057 *11*; α(O)=0.000103 *22*; α(P)=6.2×10^{-6} *21* α(K)exp=0.053 *15*
(487)	<0.4	1133.58	$9/2^-$	647.29	$7/2^+$					
499.6 *2*	24 *2*	1145.71	$13/2^-,15/2^-$	646.18	$13/2^-$	M1+E2	0.9 *4*	0.058 *15*		α(K)=0.047 *13*; α(L)=0.0087 *16*; α(M)=0.0020 *4* α(N)=0.00051 *9*; α(O)=9.1×10^{-5} *17*; α(P)=5.5×10^{-6} *16* α(K)exp=0.049 *7*; L3/K<0.02; L12/K=0.21 *5*; M/K=0.09 *3*
502.3 *2*	33 *3*	512.39	$7/2^+$	9.95	$3/2^+$	E2		0.0255		α(K)=0.0187 *3*; α(L)=0.00521 *8*; α(M)=0.001273 *18* α(N)=0.000315 *5*; α(O)=5.45×10^{-5} *8*; α(P)=2.07×10^{-6} *3* α(K)exp=0.025 *5*; L12/K=0.33 *8*
504 *1*	0.8 *5*	812.3	$(5/2,3/2,1/2)^+$	307.78	$5/2^+$					
(507)	<0.2	1188.60	$11/2^-$	681.89	$15/2^-$					
512 *1*	55 *10*	760.70	$9/2^+$	248.57	$5/2^+$	E2		0.0244		α(K)=0.0179 *3*; α(L)=0.00492 *8*; α(M)=0.001199 *19* α(N)=0.000297 *5*; α(O)=5.14×10^{-5} *8*; α(P)=1.99×10^{-6} *3* α(K)exp=0.023 *5*; L12/K=0.26 *5*; L3/K=0.049 *16*
522.2 *2*	5.5 *6*	1483.4	$(7/2)^+$	961.28	$(5/2,3/2)^+$	M1+E2	2.2 *+11−5*	0.032 *5*		α(K)=0.025 *4*; α(L)=0.0056 *5*; α(M)=0.00134 *11* α(N)=0.00033 *3*; α(O)=5.9×10^{-5} *6*; α(P)=2.8×10^{-6} *5* α(K)exp=0.025 *4*
538.2 *2*	10.2 *10*	1298.92	$11/2^+$	760.70	$9/2^+$	M1		0.0697		α(K)=0.0575 *8*; α(L)=0.00934 *14*; α(M)=0.00216 *3* α(N)=0.000538 *8*; α(O)=9.90×10^{-5} *14*; α(P)=6.75×10^{-6} *10* α(K)exp=0.054 *8*; L12/K=0.15 *3*

γ(^{189}Au) (continued)

Eγ[†]	Iγ[†@]	Ei(level)	Jπi	Ef	Jπf	Mult.[‡]	δ[‡]	α[#]	I(γ+ce)[@]	Comments
540.0[&] 5	11.0[&] 20	847.94	9/2+	307.78	5/2+	E2		0.0215		α(K)=0.01596 23; α(L)=0.00419 6; α(M)=0.001019 15 α(N)=0.000252 4; α(O)=4.39×10^{-5} 7; α(P)=1.77×10^{-6} 3 α(K)exp=0.013 4; L12/K=0.29 8
540.0[&] 5	7.0[&] 14	1352.6	(15/2,13/2,11/2)−	812.67	13/2−	M1+E2	1.2 +7−4	0.041 10		α(K)=0.0328 83; α(L)=0.0063 11; α(M)=0.00148 23 α(N)=0.00037 6; α(O)=6.6×10^{-5} 11; α(P)=3.79×10^{-6} 99 α(K)exp=0.034 8; L12/K=0.22 5
(542)	<0.5	1188.60	11/2−	646.18	13/2−					
(555)	<0.2	1368.08	(17/2,13/2,15/2)−	812.67	13/2−					
555.7 3	6.8 7	880.46	9/2−	325.13	9/2−	M1+E2	0.5 +3−4	0.055 9		α(K)=0.045 8; α(L)=0.0076 9; α(M)=0.00177 21 α(N)=0.00044 5; α(O)=8.1×10^{-5} 10; α(P)=5.3×10^{-6} 9 α(K)exp=0.045 6; L12/K=0.12 3
565.4 2	100 10	812.67	13/2−	247.25	11/2−	M1+E2	0.6 +4−3	0.050 10		α(K)=0.041 9; α(L)=0.0070 11; α(M)=0.00163 24 α(N)=0.00041 6; α(O)=7.4×10^{-5} 12; α(P)=4.8×10^{-6} 11 α(K)exp=0.0424 40; L12/K=0.17 3; M/K=0.054 14; N/K=0.016 5
(572)	<0.4	1419.83	(13/2,11/2)+	847.94	9/2+					
578 1	1.1 4	1488.9	(7/2,11/2)−	911.02	7/2−					
585.9 3	2.2 5	911.02	7/2−	325.13	9/2−	M1		0.0558		α(K)=0.0461 7; α(L)=0.00747 11; α(M)=0.001726 25 α(N)=0.000430 6; α(O)=7.91×10^{-5} 12; α(P)=5.40×10^{-6} 8 α(K)exp=0.047 12
(592)	<0.2	1273.21	11/2−	681.89	15/2−					
600[&] 1	4.0[&] 10	847.94	9/2+	248.57	5/2+	E2		0.01682	5	ce(K)/(γ+ce)=0.01256 18; ce(L)/(γ+ce)=0.00304 5; ce(M)/(γ+ce)=0.000734 11 ce(N)/(γ+ce)=0.000182 3; ce(O)/(γ+ce)=3.18×10^{-5} 5; ce(P)/(γ+ce)=1.395×10^{-6} 21 α(K)=0.01277 19; α(L)=0.00309 5; α(M)=0.000746 11 α(N)=0.000185 3; α(O)=3.24×10^{-5} 5; α(P)=1.418×10^{-6} 21 α(K)exp≤0.02
600[&] 1	24[&] 3	1112.51	11/2+	512.39	7/2+	E2		0.01682		α(K)=0.01277 19; α(L)=0.00309 5; α(M)=0.000746 11

$^{189}_{79}$Au$_{110}$-16

^{189}Hg ε decay (8.6 min) 1996Wo04 (continued)

γ(^{189}Au) (continued)

E_γ [†]	I_γ [†@]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡]	α [#]	$I_{(\gamma+ce)}$ [@]	Comments
										α(N)=0.000185 *3*; α(O)=3.24×10^{-5} *5*; α(P)=1.418×10^{-6} *21*
										α(K)exp=0.019 *6*; L12/K=0.28 *9*
600[&] *1*	1.3[&] *4*	1247.2	(9/2,7/2)$^+$	647.29	7/2$^+$					
600.1 *5*	13.2 *30*	1312.98	13/2$^-$	712.73	11/2$^-$	M1+E2	1.3 +*11*−*5*	0.0301 *85*		α(K)=0.0241 *73*; α(L)=0.0045 *10*;

γ(^{189}Au) (continued)

E_γ †	I_γ †@	E_i(level)	J^π_i	E_f	J^π_f	Mult. ‡	δ ‡	α #	Comments
									α(M)=0.00107 *21* α(N)=0.00027 *6*; α(O)=4.8×10^{-5} *10*; α(P)=2.78×10^{-6} *87* α(K)exp=0.025 *7*; L12/K=0.22 *9*
608.5 *5*	1.4 *7*	812.3	$(5/2,3/2,1/2)^+$	203.81	$3/2^+$	E2(+M1)	>2	0.020 *4*	α(K)=0.015 *3*; α(L)=0.0033 *4*; α(M)=0.00080 *9* α(N)=0.000199 *22*; α(O)=3.5×10^{-5} *4*; α(P)=1.7×10^{-6} *4* α(K)exp=0.013 *5*
612 *1*	1.0 *3*	1295.52	$11/2^-$	681.89	$15/2^-$				
614.8 *2*	11.2 *10*	862.06	$9/2^-$	247.25	$11/2^-$	M1		0.0492	α(K)=0.0407 *6*; α(L)=0.00658 *10*; α(M)=0.001520 *22* α(N)=0.000379 *6*; α(O)=6.97×10^{-5} *10*; α(P)=4.76×10^{-6} *7* α(K)exp=0.039 *7*; L12/K=0.19 *3*
626.7 *3*	1.0 *3*	1273.21	$11/2^-$	646.18	$13/2^-$	M1		0.0469	α(K)=0.0387 *6*; α(L)=0.00626 *9*; α(M)=0.001446 *21* α(N)=0.000360 *5*; α(O)=6.63×10^{-5} *10*; α(P)=4.53×10^{-6} *7* α(K)exp=0.063 *20*
630.3 *2*	4.4 *5*	2165.21	$^+$	1534.79	$13/2^+$	M1+E2	1.2 *+4−3*	0.028 *5*	α(K)=0.022 *4*; α(L)=0.0041 *5*; α(M)=0.00097 *12* α(N)=0.00024 *3*; α(O)=4.3×10^{-5} *6*; α(P)=2.6×10^{-6} *5* α(K)exp=0.023 *3*
634& *1*	4.0& *6*	880.46	$9/2^-$	247.25	$11/2^-$	(M1+E2)	1.0 *2*	0.030 *4*	α(K)exp=0.025 *3*
634& *1*	4.1& *6*	2169.19	$(^+)$	1534.79	$13/2^+$	(M1+E2)	1.0 *2*	0.030 *4*	
637.2 *2*	5.3 *5*	647.29	$7/2^+$	9.95	$3/2^+$	E2		0.01469	α(K)=0.01127 *16*; α(L)=0.00261 *4*; α(M)=0.000629 *9* α(N)=0.0001559 *22*; α(O)=2.74×10^{-5} *4*; α(P)=1.252×10^{-6} *18* α(K)exp=0.008 *2*
641.7 *3*	1.8 *3*	1133.58	$9/2^-$	491.58	$5/2^-$	E2		0.01447	α(K)=0.01110 *16*; α(L)=0.00256 *4*; α(M)=0.000617 *9* α(N)=0.0001528 *22*; α(O)=2.69×10^{-5} *4*; α(P)=1.234×10^{-6} *18* α(K)exp=0.009 *5* Mult.: M1+E2 (δ>3.0) from 1996Wo04 is not likely for a ΔJ=2 transition; also α(K)exp is consistent with E2.
651.6 *2*	9.4 *9*	1298.92	$11/2^+$	647.29	$7/2^+$	E2		0.01398	α(K)=0.01076 *15*; α(L)=0.00246 *4*; α(M)=0.000591 *9* α(N)=0.0001465 *21*; α(O)=2.58×10^{-5} *4*; α(P)=1.196×10^{-6} *17* α(K)exp=0.011 *2* Additional information 3.
653.3 *3*	1.5 *3*	961.28	$(5/2,3/2)^+$	307.78	$5/2^+$	M1+E2	1.7 *+25−7*	0.0211 *69*	α(K)=0.0169 *59*; α(L)=0.0033 *8*; α(M)=0.00077 *18* α(N)=0.00019 *5*; α(O)=3.4×10^{-5} *9*; α(P)=1.93×10^{-6} *70* α(K)exp=0.017 *5*
659.0 *2*	15.4 *15*	1419.83	$(13/2,11/2)^+$	760.70	$9/2^+$	E2		0.01364	α(K)=0.01051 *15*; α(L)=0.00239 *4*; α(M)=0.000573 *8* α(N)=0.0001420 *20*; α(O)=2.50×10^{-5} *4*; α(P)=1.168×10^{-6} *17* α(K)exp=0.012 *2*; L12/K=0.16 *3*

$^{189}_{79}Au_{110}$-18

γ(^{189}Au) (continued)

Eγ[†]	Iγ[†@]	Ei(level)	J^{π}_i	E_f	J^{π}_f	Mult.[‡]	δ[‡]	α[#]	Comments
663.6 2	6.2 6	2264.81	(+)	1601.20	13/2+,15/2+	M1+E2	0.5 +3−4	0.035 6	α(K)=0.029 5; α(L)=0.0048 6; α(M)=0.00111 13 α(N)=0.00028 4; α(O)=5.1×10^{-5} 7; α(P)=3.4×10^{-6} 6 α(K)exp=0.029 4
667.0 3	2.4 5	1312.98	13/2−	646.18	13/2−	M1(+E2)	<0.9	0.034 6	α(K)=0.028 5; α(L)=0.0046 7; α(M)=0.00108 16 α(N)=0.00027 4; α(O)=4.9×10^{-5} 8; α(P)=3.2×10^{-6} 6 α(K)exp=0.032 9
(669)	≤0.6	1481.6	13/2−	812.67	13/2−				
670[&] 1	1.3[&] 5	1352.6	(15/2,13/2,11/2)−	681.89	15/2−	M1		0.0394	α(K)=0.0326 5; α(L)=0.00525 8; α(M)=0.001213 18 α(N)=0.000302 5; α(O)=5.57×10^{-5} 8; α(P)=3.80×10^{-6} 6 α(K)exp=0.036 15 Eγ: doublet. Evaluators have corrected the K-electron intensity for contribution from the 670 keV transition that deexcites the 1383 keV level.
670[&] 1	0.9[&] 4	1383.25	13/2+	712.73	11/2−	[E1]		0.00471	α(K)=0.00394 6; α(L)=0.000599 9; α(M)=0.0001374 20 α(N)=3.40×10^{-5} 5; α(O)=6.19×10^{-6} 9; α(P)=3.97×10^{-7} 6 Eγ: doublet.
676[&] 1	4.3[&] 10	1523.8	+	847.94	9/2+	M1+E2	1.6 +9−5	0.020 5	α(K)=0.016 4; α(L)=0.0030 5; α(M)=0.00072 12 α(N)=0.00018 3; α(O)=3.2×10^{-5} 6; α(P)=1.8×10^{-6} 5 α(K)exp=0.016 3
676[&] 1	5.0[&] 9	1788.3	(+)	1112.51	11/2+	(E2)		0.01290	α(K)=0.00998 15; α(L)=0.00223 4; α(M)=0.000534 8 α(N)=0.0001324 20; α(O)=2.34×10^{-5} 4; α(P)=1.109×10^{-6} 16 L12/K=0.24 10
683.4[a] 4	1.2 3	1365.3		681.89	15/2−				
686 1	2.6 8	1534.79	13/2+	847.94	9/2+	[E2]		0.01250	α(K)=0.00969 14; α(L)=0.00214 4; α(M)=0.000513 8 α(N)=0.0001272 19; α(O)=2.25×10^{-5} 4; α(P)=1.076×10^{-6} 16 α(K)exp=0.023 4 Mult.: M1+E2,δ=0.8 +4−3 from 1996Wo04 is inconsistent with ΔJ=2 transition, possible overlap with 682.2 transition.
686.2 2	5.3 7	1368.08	(17/2,13/2,15/2)−	681.89	15/2−	(M1)		0.0370	α(K)=0.0306 5; α(L)=0.00493 7; α(M)=0.001140

$^{189}_{79}Au_{110}$-19

$\gamma(^{189}Au)$ (continued)

E_γ[†]	I_γ[†@]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[‡]	α[#]	Comments
									16 α(N)=0.000284 4; α(O)=5.23×10^{-5} 8; α(P)=3.57×10^{-6} 5 L12/K=0.12 3
[x]694.1 7	1.0 6								
695.3 5	2.6 3	1800.5	15/2$^+$	1105.28	17/2$^-$	(E1)		0.00438	α(K)=0.00366 6; α(L)=0.000556 8; α(M)=0.0001274 18 α(N)=3.16×10^{-5} 5; α(O)=5.75×10^{-6} 8; α(P)=3.70×10^{-7} 6 α(K)exp<0.008 Mult.: E1 or (E2) in 1996Wo04 from α(K)exp, but ΔJ^π requires (E1).
697.3 4	1.6 3	2257.20	($^-$)	1559.85	$^-$				
704[&] 1	2.5[&] 3	1188.60	11/2$^-$	484.04	7/2$^-$	[E2]		0.01181	α(K)=0.00919 14; α(L)=0.00200 3; α(M)=0.000478 7 α(N)=0.0001187 18; α(O)=2.10×10^{-5} 3; α(P)=1.021×10^{-6} 15
704[&] 1	1.1[&] 3	1516.7	$^-$	812.67	13/2$^-$	M1+E2	2.0 +11−5	0.0164 25	α(K)=0.0131 21; α(L)=0.0025 3; α(M)=0.00060 7 α(N)=0.000148 16; α(O)=2.7×10^{-5} 3; α(P)=1.5×10^{-6} 3 α(K)exp=0.013 2
709.1 4	1.1 3	2169.19	($^+$)	1460.00	11/2$^+$	E2(+M1)	>1.2	0.0162 46	α(K)=0.0130 40; α(L)=0.0025 6; α(M)=0.00059 12 α(N)=0.00015 3; α(O)=2.6×10^{-5} 6; α(P)=1.47×10^{-6} 47 α(K)exp=0.011 6
(711)	<0.2	1523.4	($^-$)	812.67	13/2$^-$				
713.0 5	4.5 10	961.28	(5/2,3/2)$^+$	248.57	5/2$^+$	E2		0.01150	α(K)=0.00896 13; α(L)=0.00194 3; α(M)=0.000463 7 α(N)=0.0001147 17; α(O)=2.03×10^{-5} 3; α(P)=9.95×10^{-7} 14 α(K)exp=0.0076 20
716[&] 1	0.9[&] 4	2176.2	$^+$	1460.00	11/2$^+$	E2		0.01139	α(K)=0.00889 13; α(L)=0.00191 3; α(M)=0.000457 7 α(N)=0.0001134 17; α(O)=2.01×10^{-5} 3; α(P)=9.87×10^{-7} 14 α(K)exp=0.008 3
716[&] 1	1.4[&] 5	2275.7	$^+$	1559.85	$^-$				
716[&] 1	1.5[&] 8	2317.14	$^+$	1601.20	13/2$^+$,15/2$^+$				
722[&] 1	2.4[&] 4	1483.4	(7/2)$^+$	760.70	9/2$^+$	M1+E2	1.1 +5−4	0.021 5	α(K)=0.017 4; α(L)=0.0030 6; α(M)=0.00070 12 α(N)=0.00017 3; α(O)=3.1×10^{-5} 6; α(P)=1.9×10^{-6} 5 α(K)exp=0.017 3
722[&] 1	0.9[&] 3	1534.79	13/2$^+$	812.67	13/2$^-$				
730[&] 1	1.2[&] 4	1376.2	$^-$	646.18	13/2$^-$	M1+E2	≈1.7	≈0.01624	α(K)≈0.01307; α(L)≈0.00243; α(M)≈0.000572

$^{189}_{79}Au_{110}$-20

γ(^{189}Au) (continued)

E_γ [†]	I_γ [†@]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡]	δ [‡]	α [#]	Comments
									α(N)≈0.0001422; α(O)≈2.56×10^{-5}; α(P)≈1.488×10^{-6} α(K)exp≈0.013
730[&] *1*	1.1[&] *4*	1411.9	19/2$^-$	681.89	15/2$^-$				
734 *1*	1.5 *8*	2335.14	($^+$)	1601.20	13/2$^+$,15/2$^+$	M1+E2	0.8 *+9−6*	0.0232 *72*	α(K)=0.0190 *61*; α(L)=0.00323 *83*; α(M)=0.00075 *19* α(N)=0.00019 *5*; α(O)=3.41×10^{-5} *89*; α(P)=2.20×10^{-6} *73* α(K)exp=0.019 *6*
735 *1*	2.5 *8*	1247.2	(9/2,7/2)$^+$	512.39	7/2$^+$				
737.0 *2*	34 *3*	1383.25	13/2$^+$	646.18	13/2$^-$	E1		0.00391	α(K)=0.00327 *5*; α(L)=0.000494 *7*; α(M)=0.0001133 *16* α(N)=2.81×10^{-5} *4*; α(O)=5.11×10^{-6} *8*; α(P)=3.31×10^{-7} *5* α(K)exp=0.0039 *6*
^{x}742.0 *3*	1.5 *5*								
746.9 *3*	2.7 *3*	2045.8	$^+$	1298.92	11/2$^+$	M1+E2	1.2 *+6−4*	0.018 *4*	α(K)=0.015 *4*; α(L)=0.0026 *5*; α(M)=0.00062 *11* α(N)=0.00015 *3*; α(O)=2.8×10^{-5} *5*; α(P)=1.7×10^{-6} *4* α(K)exp=0.015 *3*
749.7 *3*	3.6 *4*	2169.6	($^+$)	1419.83	(13/2,11/2)$^+$	M1+E2	0.6 *3*	0.024 *4*	α(K)=0.020 *3*; α(L)=0.0033 *4*; α(M)=0.00077 *10* α(N)=0.000192 *23*; α(O)=3.5×10^{-5} *5*; α(P)=2.3×10^{-6} *4* α(K)exp=0.020 *3*
751.0 *5*	1.3 *5*	2211.01	$^+$	1460.00	11/2$^+$	M1(+E2)	<2.2	0.0215 *79*	α(K)=0.0176 *68*; α(L)=0.00299 *92*; α(M)=6.9×10^{-4} *21* α(N)=1.73×10^{-4} *52*; α(O)=3.16×10^{-5} *98*; α(P)=2.03×10^{-6} *81* α(K)exp=0.021 *10*
751 *1*	1.5 *7*	2239.9		1488.9	(7/2,11/2)$^-$				
751.4 *5*	1.3 *7*	1463.9	$^-$	712.73	11/2$^-$	M1		0.0293	α(K)=0.0243 *4*; α(L)=0.00390 *6*; α(M)=0.000900 *13* α(N)=0.000224 *4*; α(O)=4.13×10^{-5} *6*; α(P)=2.83×10^{-6} *4* α(K)exp=0.038 *25*
757.5 *2*	6.5 *7*	961.28	(5/2,3/2)$^+$	203.81	3/2$^+$	M1+E2	2.6 *+12−6*	0.0125 *14*	α(K)=0.0100 *12*; α(L)=0.00194 *16*; α(M)=0.00046 *4* α(N)=0.000114 *9*; α(O)=2.03×10^{-5} *17*; α(P)=1.12×10^{-6} *14* α(K)exp=0.010 *1*
(763)	<0.4	1523.8	$^+$	760.70	9/2$^+$				
771.9 *3*	7.7 *8*	1097.04	13/2$^-$	325.13	9/2$^-$	E2		0.00972	α(K)=0.00765 *11*; α(L)=0.001580 *23*; α(M)=0.000376 *6* α(N)=9.32×10^{-5} *13*; α(O)=1.657×10^{-5} *24*; α(P)=8.48×10^{-7} *12* α(K)exp=0.0067 *10*

$^{189}_{79}$Au$_{110}$-21

γ(^{189}Au) (continued)

E_γ †	I_γ †@	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	δ‡	α#	Comments
(774)	≤1	1534.79	13/2$^+$	760.70	9/2$^+$				
776.0 *3*	2.0 *4*	1488.9	(7/2,11/2)$^-$	712.73	11/2$^-$	(E2)		0.00961	α(K)=0.00757 *11*; α(L)=0.001559 *22*; α(M)=0.000371 *6* α(N)=9.20×10^{-5} *13*; α(O)=1.635×10^{-5} *23*; α(P)=8.40×10^{-7} *12* α(K)exp=0.0050 *27* Additional information 4.
777 *1*	1.5 *3*	2336.1		1559.1	$^-$				
780.1 *5*	1.1 *3*	2163.4	$^+$	1383.25	13/2$^+$	M1		0.0266	α(K)=0.0220 *4*; α(L)=0.00353 *5*; α(M)=0.000816 *12* α(N)=0.000203 *3*; α(O)=3.74×10^{-5} *6*; α(P)=2.56×10^{-6} *4* α(K)exp≤0.02
782.2 *3*	2.8 *3*	2317.14	$^+$	1534.79	13/2$^+$	M1+E2	0.7 *4*	0.021 *5*	α(K)=0.017 *4*; α(L)=0.0029 *5*; α(M)=0.00066 *11* α(N)=0.00017 *3*; α(O)=3.0×10^{-5} *6*; α(P)=2.0×10^{-6} *5* α(K)exp=0.017 *3*
786.6 *2*	3.3 *3*	1298.92	11/2$^+$	512.39	7/2$^+$	E2		0.00934	α(K)=0.00737 *11*; α(L)=0.001507 *22*; α(M)=0.000358 *5* α(N)=8.88×10^{-5} *13*; α(O)=1.581×10^{-5} *23*; α(P)=8.17×10^{-7} *12* α(K)exp=0.009 *2*
788.5 *2*	4.0 *7*	1601.20	13/2$^+$,15/2$^+$	812.67	13/2$^-$	E1		0.00344	α(K)=0.00288 *4*; α(L)=0.000433 *6*; α(M)=9.90×10^{-5} *14* α(N)=2.46×10^{-5} *4*; α(O)=4.48×10^{-6} *7*; α(P)=2.92×10^{-7} *4* α(K)exp=0.002 *1*
(790)	≤0.7	1273.21	11/2$^-$	484.04	7/2$^-$				
^{x}792.4 *4*	1.5 *4*					M1+E2	1.2 *+30−7*	0.0159 *64*	α(K)=0.0130 *55*; α(L)=0.00226 *75*; α(M)=5.3×10^{-4} *17* α(N)=1.31×10^{-4} *43*; α(O)=2.39×10^{-5} *80*; α(P)=1.48×10^{-6} *65* α(K)exp=0.013 *5*
^{x}796.8 *4*	1.5 *5*					M1		0.0252	α(K)=0.0209 *3*; α(L)=0.00335 *5*; α(M)=0.000772 *11* α(N)=0.000192 *3*; α(O)=3.54×10^{-5} *5*; α(P)=2.43×10^{-6} *4* α(K)exp=0.027 *10*
799 *1*	1.1 *3*	1106.60	(5/2$^+$,3/2$^+$)	307.78	5/2$^+$				
800& *1*	4.2& *6*	1481.6	13/2$^-$	681.89	15/2$^-$	M1		0.0250	α(K)=0.0207 *3*; α(L)=0.00331 *5*; α(M)=0.000764 *11* α(N)=0.000190 *3*; α(O)=3.51×10^{-5} *5*; α(P)=2.40×10^{-6} *4* α(K)exp=0.032 *14*
800& *1*	3.6& *6*	2335.14	($^+$)	1534.79	13/2$^+$	[E2]		0.00902	α(K)=0.00713 *11*; α(L)=0.001445 *21*; α(M)=0.000343 *5* α(N)=8.51×10^{-5} *13*; α(O)=1.516×10^{-5} *22*; α(P)=7.90×10^{-7} *12* α(K)exp=0.003 *2* Mult.: E1 from 1996Wo04 is inconsistent with ΔJ^π; α(K)exp is consistent with E1 or E2.
802.4 *4*	1.0 *3*	812.3	(5/2,3/2,1/2)$^+$	9.95	3/2$^+$	M1		0.0248	α(K)=0.0205 *3*; α(L)=0.00329 *5*; α(M)=0.000759 *11* α(N)=0.000189 *3*; α(O)=3.48×10^{-5} *5*; α(P)=2.38×10^{-6} *4* α(K)exp=0.020 *7*

$^{189}_{79}Au_{110}$-22

^{189}Hg ε decay (8.6 min) 1996Wo04 (continued)

γ(^{189}Au) (continued)

E_γ†	I_γ†@	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	δ‡	α#	Comments
805.0 3	2.0 7	1130.11	11/2⁻	325.13	9/2⁻	E2(+M1)	>0.8	0.0137 48	α(K)=0.0111 41; α(L)=0.00198 56; α(M)=4.6×10⁻⁴ 13 α(N)=1.15×10⁻⁴ 32; α(O)=2.09×10⁻⁵ 60; α(P)=1.26×10⁻⁶ 49 α(K)exp=0.010 5
808 1	0.9 3	2268.0		1460.00	11/2⁺				
809 1	2.1 4	1456.3	+	647.29	7/2⁺	M1		0.0243	α(K)=0.0201 3; α(L)=0.00322 5; α(M)=0.000743 11 α(N)=0.000185 3; α(O)=3.41×10⁻⁵ 5; α(P)=2.34×10⁻⁶ 4 α(K)exp=0.030 7
811 1	1.3 5	1295.52	11/2⁻	484.04	7/2⁻				
812.1 4	1.1 3	1525.0	−	712.73	11/2⁻	M1(+E2)	<0.7	0.022 3	α(K)=0.0178 22; α(L)=0.0029 3; α(M)=0.00067 7 α(N)=0.000166 17; α(O)=3.1×10⁻⁵ 4; α(P)=2.1×10⁻⁶ 3 α(K)exp=0.029 9
813 1	2.5 7	1460.00	11/2⁺	646.18	13/2⁻	E1		0.00324	α(K)=0.00271 4; α(L)=0.000408 6; α(M)=9.33×10⁻⁵ 14 α(N)=2.31×10⁻⁵ 4; α(O)=4.22×10⁻⁶ 6; α(P)=2.76×10⁻⁷ 4 α(K)exp≤0.004
816.5 3	1.8 5	2276.62	+	1460.00	11/2⁺	M1(+E2)	<1.5	0.0185 53	α(K)=0.0152 45; α(L)=0.0025 7; α(M)=0.00059 14 α(N)=0.00015 4; α(O)=2.7×10⁻⁵ 7; α(P)=1.75×10⁻⁶ 53 α(K)exp=0.016 5
817 1	1.7 5	1463.9	−	646.18	13/2⁻				
821.9 3	3.9 4	1534.79	13/2⁺	712.73	11/2⁻	E1		0.00318	α(K)=0.00266 4; α(L)=0.000399 6; α(M)=9.13×10⁻⁵ 13 α(N)=2.26×10⁻⁵ 4; α(O)=4.13×10⁻⁶ 6; α(P)=2.70×10⁻⁷ 4 α(K)exp=0.0041 13
837.8 3	2.2 4	2257.55	(⁺)	1419.83	(13/2,11/2)⁺	M1+E2	1.1 +9−5	0.0145 40	α(K)=0.0119 34; α(L)=0.0020 5; α(M)=0.00047 11 α(N)=0.00012 3; α(O)=2.1×10⁻⁵ 5; α(P)=1.36×10⁻⁶ 40 α(K)exp=0.012 3
841& 1	2.3& 4	1523.4	(⁻)	681.89	15/2⁻				
841& 1	1.3& 4	1654.20	13/2⁻,15/2⁻	812.67	13/2⁻	E2		0.00814	α(K)=0.00647 10; α(L)=0.001278 19; α(M)=0.000303 5 α(N)=7.51×10⁻⁵ 11; α(O)=1.341×10⁻⁵ 20; α(P)=7.16×10⁻⁷ 11 α(K)exp=0.006 2
847.2 3	1.0 3	1559.85	−	712.73	11/2⁻	M1		0.0216	α(K)=0.0178 3; α(L)=0.00286 4; α(M)=0.000659 10 α(N)=0.0001641 23; α(O)=3.02×10⁻⁵ 5; α(P)=2.07×10⁻⁶ 3 α(K)exp=0.020 7
851.2 4	1.1 3	2271.0	+	1419.83	(13/2,11/2)⁺	M1		0.0213	α(K)=0.01763 25; α(L)=0.00282 4; α(M)=0.000651 10 α(N)=0.0001621 23; α(O)=2.99×10⁻⁵ 5; α(P)=2.05×10⁻⁶ 3 α(K)exp=0.017 5
853& 1	1.1& 3	1534.79	13/2⁺	681.89	15/2⁻	[E1]		0.00296	α(K)=0.00248 4; α(L)=0.000371 6; α(M)=8.49×10⁻⁵ 12 α(N)=2.11×10⁻⁵ 3; α(O)=3.84×10⁻⁶ 6; α(P)=2.52×10⁻⁷

$\gamma(^{189}$Au) (continued)

E_γ [†]	I_γ [†@]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡]	α [#]	Comments
									4 α(K)exp=0.008 *3* Mult.: M1+E2, δ>1.2 from α(K)exp in 1996Wo04 is inconsistent with ΔJ^π.
853[&] *1*	1.5[&] *3*	2273.1		1419.83	(13/2,11/2)$^+$				
855.6 *3*	1.1 *3*	2275.7	$^+$	1419.83	(13/2,11/2)$^+$	E2(+M1)	>0.7	0.0123 *45*	α(K)=0.0100 *38*; α(L)=0.00175 *53*; α(M)=4.1×10^{-4} *12* α(N)=1.02×10^{-4} *30*; α(O)=1.84×10^{-5} *56*; α(P)=1.14×10^{-6} *45* α(K)exp=0.009 *4*
857.7 *3*	1.5 *3*	1106.60	(5/2$^+$,3/2$^+$)	248.57	5/2$^+$	M1+E2	1.4 *+23−6*	0.0122 *36*	α(K)=0.0100 *31*; α(L)=0.0017 *5*; α(M)=0.00041 *10* α(N)=0.000101 *24*; α(O)=1.8×10^{-5} *5*; α(P)=1.13×10^{-6} *36* α(K)exp=0.010 *3*
(868)	≤0.4	1580.4	$^-$	712.73	11/2$^-$				
868.4 *2*	5.7 *6*	1193.56	$^-$	325.13	9/2$^-$	(E2)		0.00762	α(K)=0.00608 *9*; α(L)=0.001183 *17*; α(M)=0.000280 *4* α(N)=6.94×10^{-5} *10*; α(O)=1.241×10^{-5} *18*; α(P)=6.72×10^{-7} *10* α(K)exp=0.0039 *10*
^{x}874.1 *3*	1.5 *3*					M1+E2	1.3 *+18−6*	0.0121 *38*	α(K)=0.0099 *32*; α(L)=0.00171 *44*; α(M)=4.0×10^{-4} *10* α(N)=9.9×10^{-5} *25*; α(O)=1.80×10^{-5} *47*; α(P)=1.13×10^{-6} *38* α(K)exp=0.010 *3*
(879)	≤0.6	1525.0	$^-$	646.18	13/2$^-$				
882.4 *3*	1.3 *3*	1130.11	11/2$^-$	247.25	11/2$^-$	M1		0.0194	α(K)=0.01609 *23*; α(L)=0.00257 *4*; α(M)=0.000593 *9* α(N)=0.0001477 *21*; α(O)=2.72×10^{-5} *4*; α(P)=1.87×10^{-6} *3* α(K)exp=0.018 *3*
^{x}884.8 *4*	0.8 *3*								
888.5 *3*	2.7 *3*	1534.79	13/2$^+$	646.18	13/2$^-$	[E1]		0.00275	α(K)=0.00230 *4*; α(L)=0.000343 *5*; α(M)=7.85×10^{-5} *11* α(N)=1.95×10^{-5} *3*; α(O)=3.56×10^{-6} *5*; α(P)=2.34×10^{-7} *4* α(K)exp=0.006 *2* Mult.: E2 or (E1) in 1996Wo04 is inconsistent with ΔJ^π.
898.1 *4*	1.4 *3*	1145.71	13/2$^-$,15/2$^-$	247.25	11/2$^-$	E2(+M1)	>0.8	0.0106 *35*	α(K)=0.0086 *30*; α(L)=0.00151 *42*; α(M)=3.52×10^{-4} *95* α(N)=8.7×10^{-5} *24*; α(O)=1.59×10^{-5} *45*;

$^{189}_{79}$Au$_{110}$-24

γ(^{189}Au) (continued)

E$_\gamma$[†]	I$_\gamma$[†@]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.[‡]	δ[‡]	α[#]	Comments
									α(P)=9.8×10^{-7} *36* α(K)exp=0.007 *4*
^{x}900.1 *3*	1.9 *3*					M1+E2	<1.9	0.0140 *45*	α(K)=0.0115 *38*; α(L)=0.00191 *54*; α(M)=4.4×10^{-4} *12* α(N)=1.10×10^{-4} *30*; α(O)=2.02×10^{-5} *57*; α(P)=1.33×10^{-6} *45* α(K)exp=0.012 *4*
903.1 *3*	1.2 *3*	1106.60	(5/2$^+$,3/2$^+$)	203.81	3/2$^+$	M1(+E2)	<2.6	0.0134 *50*	α(K)=0.0110 *42*; α(L)=0.00184 *59*; α(M)=4.3×10^{-4} *14* α(N)=1.06×10^{-4} *34*; α(O)=1.94×10^{-5} *63*; α(P)=1.26×10^{-6} *50* α(K)exp=0.013 *6*
^{x}909.7 *4*	1.2 *3*					M1		0.0180	α(K)=0.01489 *21*; α(L)=0.00238 *4*; α(M)=0.000548 *8* α(N)=0.0001366 *20*; α(O)=2.52×10^{-5} *4*; α(P)=1.728×10^{-6} *25* α(K)exp=0.017 *6*
912.9 *3*	1.5 *5*	1559.1	$^-$	646.18	13/2$^-$	M1(+E2)	<0.24	0.0175 *4*	α(K)=0.0145 *4*; α(L)=0.00232 *5*; α(M)=0.000535 *11* α(N)=0.000133 *3*; α(O)=2.46×10^{-5} *6*; α(P)=1.68×10^{-6} *4* α(K)exp=0.024 *8*
919.0 *4*	1.1 *3*	1601.20	13/2$^+$,15/2$^+$	681.89	15/2$^-$				
925.2 *3*	1.6 *3*	2113.8		1188.60	11/2$^-$				
926.8 *3*	1.6 *5*	1739.4	13/2$^+$,15/2$^+$	812.67	13/2$^-$	[E1]		0.00254	α(K)=0.00213 *3*; α(L)=0.000317 *5*; α(M)=7.24×10^{-5} *11* α(N)=1.80×10^{-5} *3*; α(O)=3.28×10^{-6} *5*; α(P)=2.17×10^{-7} *3* α(K)exp=0.0063 *23* Mult.: E2 in 1996Wo04 and M1+E2, δ>1.4 from inconsistent with ΔJ^π.
934.2 *6*	1.9 *4*	1580.4	$^-$	646.18	13/2$^-$				
939.8 *6*	0.8 *3*	1247.2	(9/2,7/2)$^+$	307.78	5/2$^+$				
941.4 *2*	13.6 *14*	1188.60	11/2$^-$	247.25	11/2$^-$	M1+E2	1.3 *+5−4*	0.0102 *19*	α(K)=0.0083 *16*; α(L)=0.00142 *22*; α(M)=0.00033 *5* α(N)=8.2×10^{-5} *13*; α(O)=1.50×10^{-5} *24*; α(P)=9.5×10^{-7} *19* α(K)exp=0.0085 *12*; L12/K=0.26 *9*
951[&] *1*	1.5[&] *5*	1597.2		646.18	13/2$^-$				
951[&] *1*	1.9[&] *6*	2264.0		1312.98	13/2$^-$				
952 *1*	0.8 *4*	961.28	(5/2,3/2)$^+$	9.95	3/2$^+$	(E2)		0.00634	α(K)=0.00509 *8*; α(L)=0.000953 *14*; α(M)=0.000224 *4* α(N)=5.57×10^{-5} *8*; α(O)=1.000×10^{-5} *15*; α(P)=5.62×10^{-7} *8* α(K)exp=0.004 *2* Mult.: E2 or E1 in 1996Wo04, but ΔJ^π consistent with E2.
954.9 *3*	3.6 *4*	1601.20	13/2$^+$,15/2$^+$	646.18	13/2$^-$	E1		0.00240	α(K)=0.00201 *3*; α(L)=0.000299 *5*; α(M)=6.85×10^{-5} *10* α(N)=1.698×10^{-5} *24*; α(O)=3.10×10^{-6} *5*; α(P)=2.06×10^{-7} *3* α(K)exp=0.002 *1*
958.7 *3*	1.7 *3*	2257.55	($^+$)	1298.92	11/2$^+$	M1(+E2)	<1.1	0.013 *3*	α(K)=0.0108 *22*; α(L)=0.0018 *4*; α(M)=0.00041 *7* α(N)=0.000102 *18*; α(O)=1.9×10^{-5} *4*; α(P)=1.2×10^{-6} *3* α(K)exp=0.012 *3*

$^{189}_{79}$Au$_{110}$-25

^{189}Hg ε decay (8.6 min) 1996Wo04 (continued)

γ(^{189}Au) (continued)

E_γ †	I_γ †@	E_i(level)	J^π_i	E_f	J^π_f	Mult. ‡	δ ‡	α #	Comments
972.1 *3*	3.3 *3*	1654.20	13/2$^-$,15/2$^-$	681.89	15/2$^-$	M1+E2	0.7 *5*	0.012 *3*	α(K)=0.0101 *23*; α(L)=0.0016 *4*; α(M)=0.00038 *8* α(N)=9.5×10^{-5} *18*; α(O)=1.7×10^{-5} *4*; α(P)=1.2×10^{-6} *3* α(K)exp=0.010 *2*
977.9 *3*	2.8 *3*	2276.62	$^+$	1298.92	11/2$^+$	M1(+E2)	<1.0	0.0127 *23*	α(K)=0.0105 *19*; α(L)=0.0017 *3*; α(M)=0.00039 *7* α(N)=9.8×10^{-5} *16*; α(O)=1.8×10^{-5} *3*; α(P)=1.21×10^{-6} *23* α(K)exp=0.011 *2*
981 *1*	1.0 *4*	2293.9		1312.98	13/2$^-$				
981.2 *4*	1.2 *4*	2169.6	($^+$)	1188.60	11/2$^-$				
987.8 *4*	1.1 *3*	1312.98	13/2$^-$	325.13	9/2$^-$				
(999)	≤1	1247.2	(9/2,7/2)$^+$	248.57	5/2$^+$				
999.5 *3*	1.6 *3*	1760.2		760.70	9/2$^+$				
1003.6 *3*	0.8 *4*	1764.3		760.70	9/2$^+$				
1013.8 *5*	1.3 *4*	1774.5		760.70	9/2$^+$				
^{x}1017.5 *4*	1.2 *3*								
1022.6 *3*	0.6 *3*	1835.1	(13/2$^+$,15/2$^+$)	812.67	13/2$^-$				
1026.2 *5*	1.8 *3*	1273.21	11/2$^-$	247.25	11/2$^-$	M1+E2	1.2 *+20−6*	0.0086 *26*	α(K)=0.0071 *22*; α(L)=0.00119 *31*; α(M)=2.76×10^{-4} *70* α(N)=6.9×10^{-5} *18*; α(O)=1.25×10^{-5} *33*; α(P)=8.1×10^{-7} *26* α(K)exp=0.007 *2*
1039 *1*	0.6 *3*	2145.0		1105.28	17/2$^-$				
1048.4 *3*	2.6 *8*	1295.52	11/2$^-$	247.25	11/2$^-$	M1+E2	1.1 *+16−6*	0.0085 *26*	α(K)=0.0070 *22*; α(L)=0.00117 *31*; α(M)=2.70×10^{-4} *70* α(N)=6.7×10^{-5} *18*; α(O)=1.23×10^{-5} *33*; α(P)=8.0×10^{-7} *26* α(K)exp=0.007 *2*
1049 *1*	0.9 *3*	1730.6		681.89	15/2$^-$				
1057.0 *10*	1.0 *4*	1739.4	13/2$^+$,15/2$^+$	681.89	15/2$^-$				
1064.4 *4*	1.8 *6*	1877.1	$^-$	812.67	13/2$^-$	M1+E2	≈0.7	≈0.00977	α(K)≈0.00807; α(L)≈0.001309; α(M)≈0.000303 α(N)≈7.54×10^{-5}; α(O)≈1.384×10^{-5}; α(P)≈9.26×10^{-7} α(K)exp=0.008 *4*
1074.8 *3*	2.5 *3*	1756.7	$^-$	681.89	15/2$^-$	M1		0.01177	α(K)=0.00976 *14*; α(L)=0.001549 *22*; α(M)=0.000357 *5* α(N)=8.90×10^{-5} *13*; α(O)=1.640×10^{-5} *23*; α(P)=1.129×10^{-6} *16* α(K)exp=0.013 *2*
1083& *1*	1.4& *5*	1595.4		512.39	7/2$^+$				
1083& *1*	1.0& *5*	2272.17	$^+$	1188.60	11/2$^-$				α(K)exp=0.008 *4* Mult.: M1+E2, δ≈1 for the doublet.
1093& *1*	3.1& *8*	1739.4	13/2$^+$,15/2$^+$	646.18	13/2$^-$	[E1]		0.00188	α(K)=0.001580 *23*; α(L)=0.000233 *4*;

From ENSDF

$^{189}_{79}Au_{110}$-26

$\gamma(^{189}$Au) (continued)

E_γ[†]	I_γ[†@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
									α(M)=5.32×10^{-5} *8* α(N)=1.320×10^{-5} *19*; α(O)=2.42×10^{-6} *4*; α(P)=1.620×10^{-7} *23* α(K)exp=0.007 *2* Mult.: M1+E2, δ=0.9 +*11*−*7* from α(K)exp (1996Wo04) is inconsistent with ΔJ^π.
1093[&] *1*	0.8[&] *4*	2281.9		1188.60	11/2$^-$				
1105.4 *3*	1.9 *3*	1352.6	(15/2,13/2,11/2)$^-$	247.25	11/2$^-$	E2		0.00473	α(K)=0.00384 *6*; α(L)=0.000681 *10*; α(M)=0.0001591 *23* α(N)=3.95×10^{-5} *6*; α(O)=7.14×10^{-6} *10*; α(P)=4.23×10^{-7} *6*; α(IPF)=2.06×10^{-7} *4* α(K)exp≤0.004
[x]1114.8 *3*	1.2 *3*					M1		0.01073	α(K)=0.00890 *13*; α(L)=0.001411 *20*; α(M)=0.000325 *5* α(N)=8.10×10^{-5} *12*; α(O)=1.494×10^{-5} *21*; α(P)=1.029×10^{-6} *15*; α(IPF)=5.11×10^{-7} *10* α(K)exp=0.012 *3*
1122.2 *2*	7.8 *8*	1935.02	$^+$	812.67	13/2$^-$	E1		0.00180	α(K)=0.001508 *22*; α(L)=0.000222 *4*; α(M)=5.07×10^{-5} *8* α(N)=1.258×10^{-5} *18*; α(O)=2.30×10^{-6} *4*; α(P)=1.547×10^{-7} *22*; α(IPF)=2.04×10^{-6} *4* α(K)exp=0.0018 *4*
1125[a] *1*	0.6 *3*	2255.1		1130.11	11/2$^-$				
1126.4 *3*	2.4 *5*	1939.01	$^+$	812.67	13/2$^-$	(E1)		0.00179	α(K)=0.001498 *21*; α(L)=0.000221 *3*; α(M)=5.04×10^{-5} *7* α(N)=1.249×10^{-5} *18*; α(O)=2.29×10^{-6} *4*; α(P)=1.537×10^{-7} *22*; α(IPF)=2.37×10^{-6} *5* α(K)exp<0.003
1128.7 *3*	1.0 *3*	2240.96	($^+$)	1112.51	11/2$^+$	M1(+E2)	<0.9	0.0091 *14*	α(K)=0.0075 *11*; α(L)=0.00121 *17*; α(M)=0.00028 *4* α(N)=6.9×10^{-5} *10*; α(O)=1.28×10^{-5} *18*; α(P)=8.6×10^{-7} *14*; α(IPF)=8.0×10^{-7} *8* α(K)exp=0.014 *5*
1134.8 *2*	11.0 *11*	1460.00	11/2$^+$	325.13	9/2$^-$	E1		1.76×10^{-3}	α(K)=0.001479 *21*; α(L)=0.000218 *3*; α(M)=4.97×10^{-5} *7* α(N)=1.233×10^{-5} *18*; α(O)=2.26×10^{-6} *4*; α(P)=1.517×10^{-7} *22*; α(IPF)=3.15×10^{-6} *5* α(K)exp=0.0009 *3*
1140.3 *3*	1.1 *3*	1822.2	$^-$	681.89	15/2$^-$	M1(+E2)	<1.6	0.0081 *21*	α(K)=0.0067 *18*; α(L)=0.0011 *3*; α(M)=0.00025 *6* α(N)=6.2×10^{-5} *15*; α(O)=1.1×10^{-5} *3*; α(P)=7.7×10^{-7} *21*; α(IPF)=1.13×10^{-6} *19* α(K)exp=0.007 *2*

$^{189}_{79}$Au$_{110}$-27

γ(^{189}Au) (continued)

E_γ †	I_γ †@	E_i(level)	J^π_i	E_f	J^π_f	Mult. ‡	δ ‡	α #	Comments
^{x}1142.6 4	0.9 3								
1145 1	2.4 5	2257.55	($^+$)	1112.51	11/2$^+$	M1(+E2)	<1.0	0.0086 14	α(K)=0.0071 12; α(L)=0.00115 18; α(M)=0.00026 4 α(N)=6.6×10^{-5} 10; α(O)=1.21×10^{-5} 19; α(P)=8.2×10^{-7} 15; α(IPF)=1.39×10^{-6} 17 α(K)exp=0.0083 21
1150 1	0.9 3	2338.6		1188.60	11/2$^-$				
1153 1	1.0 3	1835.1	(13/2$^+$,15/2$^+$)	681.89	15/2$^-$				
1159.7 5	7.4 7	2264.81	($^+$)	1105.28	17/2$^-$	(E1)		1.70×10^{-3}	α(K)=0.001423 20; α(L)=0.000209 3; α(M)=4.78×10^{-5} 7 α(N)=1.185×10^{-5} 17; α(O)=2.17×10^{-6} 3; α(P)=1.461×10^{-7} 21; α(IPF)=6.65×10^{-6} 13 α(K)exp=0.0024 8 Additional information 5.
1161.0 4	1.7 5	2274.1		1112.51	11/2$^+$				
1164.3 5	2.8 3	1488.9	(7/2,11/2)$^-$	325.13	9/2$^-$	M1+E2	1.4 +14−6	0.0061 15	α(K)=0.0050 13; α(L)=0.00083 18; α(M)=0.00019 4 α(N)=4.8×10^{-5} 11; α(O)=8.7×10^{-6} 19; α(P)=5.7×10^{-7} 15; α(IPF)=2.1×10^{-6} 3 α(K)exp=0.005 1
1167.8 3	1.8 3	2264.81	($^+$)	1097.04	13/2$^-$				
1171.8 2	9.9 10	2317.51	$^+$	1145.71	13/2$^-$,15/2$^-$	(E1)		1.67×10^{-3}	α(K)=0.001397 20; α(L)=0.000205 3; α(M)=4.69×10^{-5} 7 α(N)=1.163×10^{-5} 17; α(O)=2.13×10^{-6} 3; α(P)=1.435×10^{-7} 20; α(IPF)=9.10×10^{-6} 14 α(K)exp=0.0020 5 Mult.: E1 or (E2) in 1996Wo04 from α(K)exp, but ΔJ^π requires (E1).
1188.9 5	3.5 4	1835.1	(13/2$^+$,15/2$^+$)	646.18	13/2$^-$				
1198.0 2	3.7 4	2295.00	$^+$	1097.04	13/2$^-$				
1212 1	1.8 6	2317.51	$^+$	1105.28	17/2$^-$				
1213 1	2.4 8	1460.00	11/2$^+$	247.25	11/2$^-$				
1222.7 4	1.0 3	2335.14	($^+$)	1112.51	11/2$^+$				
^{x}1228.6 3	1.8 3								
1234.3 3	2.0 3	1559.85	$^-$	325.13	9/2$^-$				
1238.0 3	1.2 3	2335.14	($^+$)	1097.04	13/2$^-$				
1253.3 2	5.4 6	1935.02	$^+$	681.89	15/2$^-$				
1257.3 3	1.9 3	1939.01	$^+$	681.89	15/2$^-$				
1259 1	1.3 3	1905.2		646.18	13/2$^-$				
1264.9 4	0.8 3	2370.2		1105.28	17/2$^-$				
1276.2 3	1.4 3	1523.4	($^-$)	247.25	11/2$^-$				

γ(^{189}Au) (continued)

Eγ[†]	Iγ[†@]	Ei(level)	J_i^π	Ef	J_f^π	Mult.[‡]	α[#]	Comments
1287.7 *2*	8.3 *8*	1534.79	13/2+	247.25	11/2−	E1	1.46×10^{-3}	α(K)=0.001186 *17*; α(L)=0.0001734 *25*; α(M)=3.96×10^{-5} *6* α(N)=9.82×10^{-6} *14*; α(O)=1.80×10^{-6} *3*; α(P)=1.220×10^{-7} *17*; α(IPF)=5.01×10^{-5} *7* α(K)exp=0.0014 *5*
1289 *1*	2.1 *3*	1935.02	+	646.18	13/2−			
1292.7 *3*	1.9 *4*	1939.01	+	646.18	13/2−			
1301.1 *5*	2.5 *5*	2113.8		812.67	13/2−			
1312.9 *3*	1.8 *3*	1559.85	−	247.25	11/2−			
1331.0 *3*	0.8 *4*	2436.3		1105.28	17/2−			
1352.8 *3*	0.8 *3*	2165.21	+	812.67	13/2−			
1356.4 *3*	0.9 *3*	2169.19	(+)	812.67	13/2−			
1364[&] *1*	1.6[&] *4*	2045.8	+	681.89	15/2−			
1364[&] *1*	1.3[&] *4*	2176.8		812.67	13/2−			
1379.0 *2*	3.6 *10*	2240.96	(+)	862.06	9/2−			
1395.4 *3*	1.0 *3*	2257.20	(−)	862.06	9/2−			
1398.5 *3*	1.1 *3*	2211.01	+	812.67	13/2−			
1407.2 *3*	1.4 *3*	1654.20	13/2−,15/2−	247.25	11/2−			
1409[a] *1*	0.8 *4*	2169.6	(+)	760.70	9/2+			
1421.4[a] *3*	1.3 *3*	2268.98		847.94	9/2+			
1428.8 *3*	1.6 *5*	2276.62	+	847.94	9/2+			
1431.8 *3*	1.0 *5*	2293.9		862.06	9/2−			
1444.9 *3*	2.2 *3*	2257.55	(+)	812.67	13/2−			
1447.8 *3*	3.5 *3*	2094.0		646.18	13/2−			
1451.9 *3*	2.9 *5*	2264.81	(+)	812.67	13/2−			
[x]1455.0 *4*	1.2 *3*							
1460.6 *8*	1.8 *6*	2273.1		812.67	13/2−			
[x]1476.4 *3*	1.0 *3*							
1482.0 *4*	2.9 *5*	2295.00	+	812.67	13/2−			
1483.3 *4*	2.2 *5*	1730.6		247.25	11/2−			
1487.4 *4*	1.3 *4*	2169.19	(+)	681.89	15/2−			
[x]1491.9 *4*	1.7 *5*							
1495 *1*	1.1 *3*	2176.8		681.89	15/2−			
1496.8 *3*	3.0 *10*	2257.55	(+)	760.70	9/2+			
1498.9 *3*	4.4 *6*	2145.0		646.18	13/2−			
1503.6 *4*	1.3 *4*	2316.0		812.67	13/2−			
1511.5 *3*	4.0 *4*	2272.17	+	760.70	9/2+			
1513.7 *3*	1.5 *5*	2274.1		760.70	9/2+			
1519[&] *1*	0.8[&] *3*	2165.21	+	646.18	13/2−			
1519[&] *1*	0.6[&] *3*	2200.9		681.89	15/2−			
1523[&] *1*	2.3[&] *5*	2169.19	(+)	646.18	13/2−			
1523[&] *1*	1.2[&] *3*	2335.7		812.67	13/2−			
1528.9 *4*	1.1 *3*	2211.01	+	681.89	15/2−			

$^{189}_{79}$Au$_{110}$-29

γ(^{189}Au) (continued)

E_γ[†]	I_γ[†@]	E_i(level)	J^π_i	E_f	J^π_f
1544.7 *3*	1.8 *3*	2257.55	$(^+)$	712.73	$11/2^-$
1557.0 *3*	1.6 *8*	2269.7		712.73	$11/2^-$
1559.6 *2*	3.4 *7*	2272.17	$^+$	712.73	$11/2^-$
1568.4 *5*	2.0 *3*	2281.00		712.73	$11/2^-$
1583.0 *5*	0.8 *3*	2295.7		712.73	$11/2^-$
[x]1590.1 *4*	1.1 *2*				
1592.7 *4*	1.2 *2*	2274.6		681.89	$15/2^-$
1594.8 *3*	4.2 *4*	2240.96	$(^+)$	646.18	$13/2^-$
1599.4 *8*	2.2 *4*	2281.00		681.89	$15/2^-$
1605.7 *4*	1.4 *3*	2251.9		646.18	$13/2^-$
1610 *1*	0.5 *2*	2257.20	$(^-)$	647.29	$7/2^+$
1613 *1*	0.9 *4*	2295.00	$^+$	681.89	$15/2^-$
1618.9 *4*	1.0 *2*	2264.81	$(^+)$	646.18	$13/2^-$
1626.0 *2*	8.6 *15*	2272.17	$^+$	646.18	$13/2^-$
1630.5 *3*	4.7 *6*	2276.62	$^+$	646.18	$13/2^-$
1634.0 *3*	2.3 *3*	2316.0		681.89	$15/2^-$
1636 *1*	1.1 *3*	2281.9		646.18	$13/2^-$
1648.9 *3*	11.1 *10*	2295.00	$^+$	646.18	$13/2^-$
1649 *1*	0.8 *4*	2330.9		681.89	$15/2^-$
1657.8 *3*	1.8 *2*	2339.7		681.89	$15/2^-$
[x]1660.0 *5*	1.0 *2*				
[x]1662.9 *6*	1.0 *2*				
[x]1665.3 *3*	1.6 *2*				
1671 *1*	0.7 *3*	2483.7		812.67	$13/2^-$
1671.1 *3*	5.8 *7*	2317.14	$^+$	646.18	$13/2^-$
[x]1675.5 *4*	1.4 *3*				
1687.8 *3*	1.7 *2*	1935.02	$^+$	247.25	$11/2^-$
1691.7 *3*	12.8 *10*	1939.01	$^+$	247.25	$11/2^-$
1703[&] *1*	1.1[&] *3*	2349.2		646.18	$13/2^-$
1703[&] *1*	0.9[&] *3*	2384.7		681.89	$15/2^-$
1724 *1*	0.5 *3*	2405.9		681.89	$15/2^-$
1736 *1*	0.6 *3*	2417.9		681.89	$15/2^-$
1744.7 *5*	1.3 *3*	2257.20	$(^-)$	512.39	$7/2^+$
1771.1 *4*	1.2 *2*	2417.1		646.18	$13/2^-$
1796.2 *5*	0.8 *3*	2608.9		812.67	$13/2^-$
[x]1822.7 *3*	2.1 *2*				
1845.9 *4*	1.1 *4*	2492.1		646.18	$13/2^-$
[x]1888.5 *3*	1.4 *2*				
[x]1895.7 *4*	1.0 *2*				
1915.8 *3*	2.5 *3*	2240.96	$(^+)$	325.13	$9/2^-$
1922.0 *2*	11.1 *10*	2169.19	$(^+)$	247.25	$11/2^-$
1929.5 *3*	7.2 *7*	2176.8		247.25	$11/2^-$
1931.9 *3*	8.1 *8*	2257.20	$(^-)$	325.13	$9/2^-$
1943.8 *2*	16.8 *17*	2268.98		325.13	$9/2^-$
1945.9 *4*	1.4 *2*	2271.0	$^+$	325.13	$9/2^-$
1951.2 *3*	1.5 *2*	2276.62	$^+$	325.13	$9/2^-$
1963.7 *3*	1.7 *2*	2211.01	$^+$	247.25	$11/2^-$
1986.3 *3*	3.6 *4*	2311.3		325.13	$9/2^-$
1993.2 *3*	1.6 *2*	2240.96	$(^+)$	247.25	$11/2^-$
2009.9 *3*	6.0 *6*	2257.20	$(^-)$	247.25	$11/2^-$
[x]2016.7 *3*	2.0 *3*				
2021.8 *3*	11.5 *12*	2268.98		247.25	$11/2^-$
2024.7 *2*	30 *3*	2272.17	$^+$	247.25	$11/2^-$
2029.0 *5*	1.2 *3*	2275.7	$^+$	247.25	$11/2^-$
2033.7 *2*	21 *2*	2281.00		247.25	$11/2^-$
2063.8 *5*	0.8 *2*	2311.3		247.25	$11/2^-$
[x]2080.7 *4*	1.6 *2*				
2137.4 *3*	1.0 *2*	2384.7		247.25	$11/2^-$
2169.6 *5*	0.6 *2*	2417.1		247.25	$11/2^-$

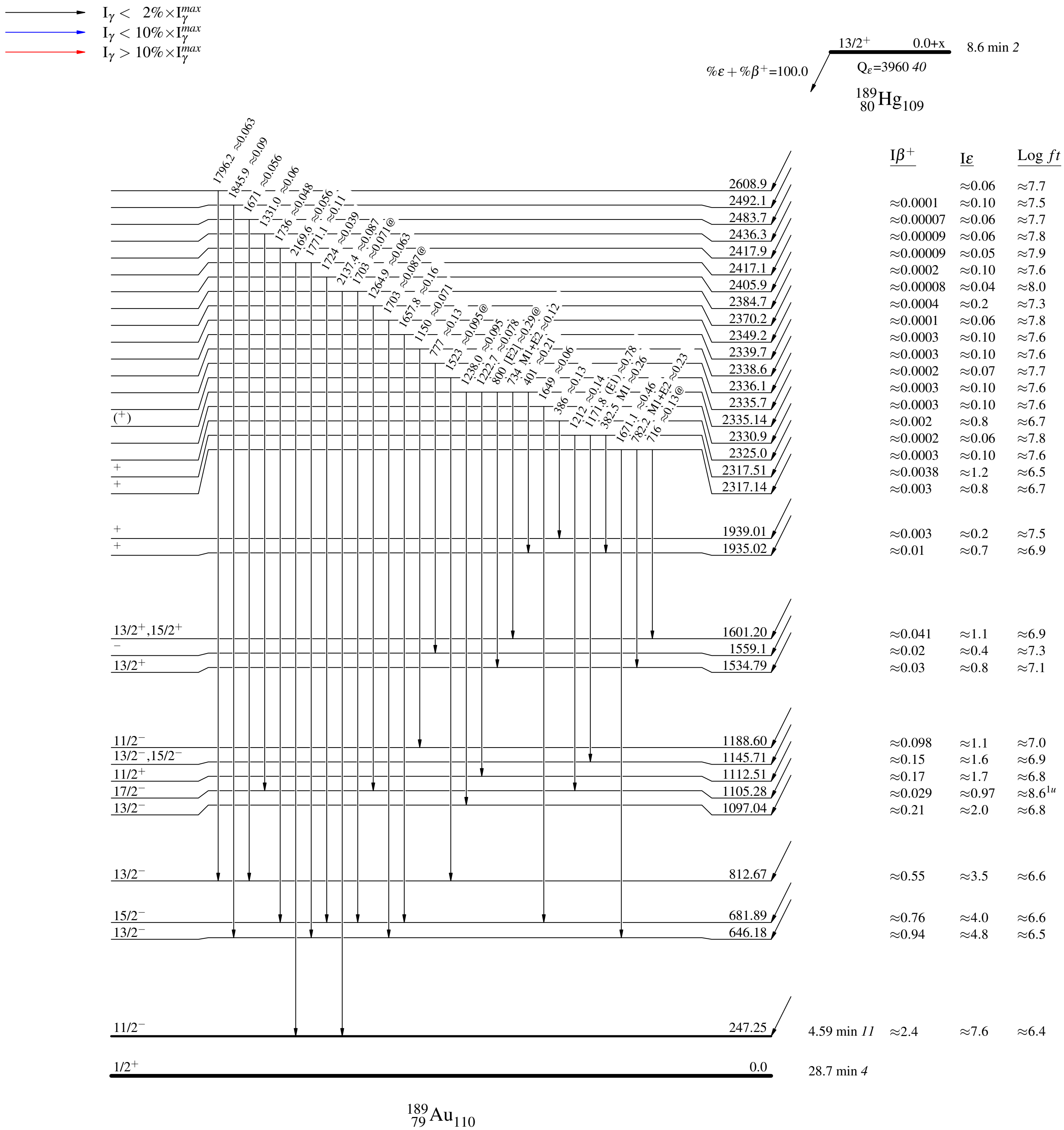
[†] From 1996Wo04, except as noted.
[‡] From Adopted Gammas, where the multipolarity and mixing ratios are based mainly on the conversion electron measurements in 1996Wo04.
[#] From BrIcc v2.3b (16-Dec-2014) 2008Ki07, "Frozen Orbitals" appr.
[@] For absolute intensity per 100 decays, multiply by ≈0.078.
[&] Multiply placed with intensity suitably divided.
[a] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

$^{189}_{79}$Au$_{110}$-30

^{189}Hg ε decay (8.6 min) 1996Wo04

Decay Scheme

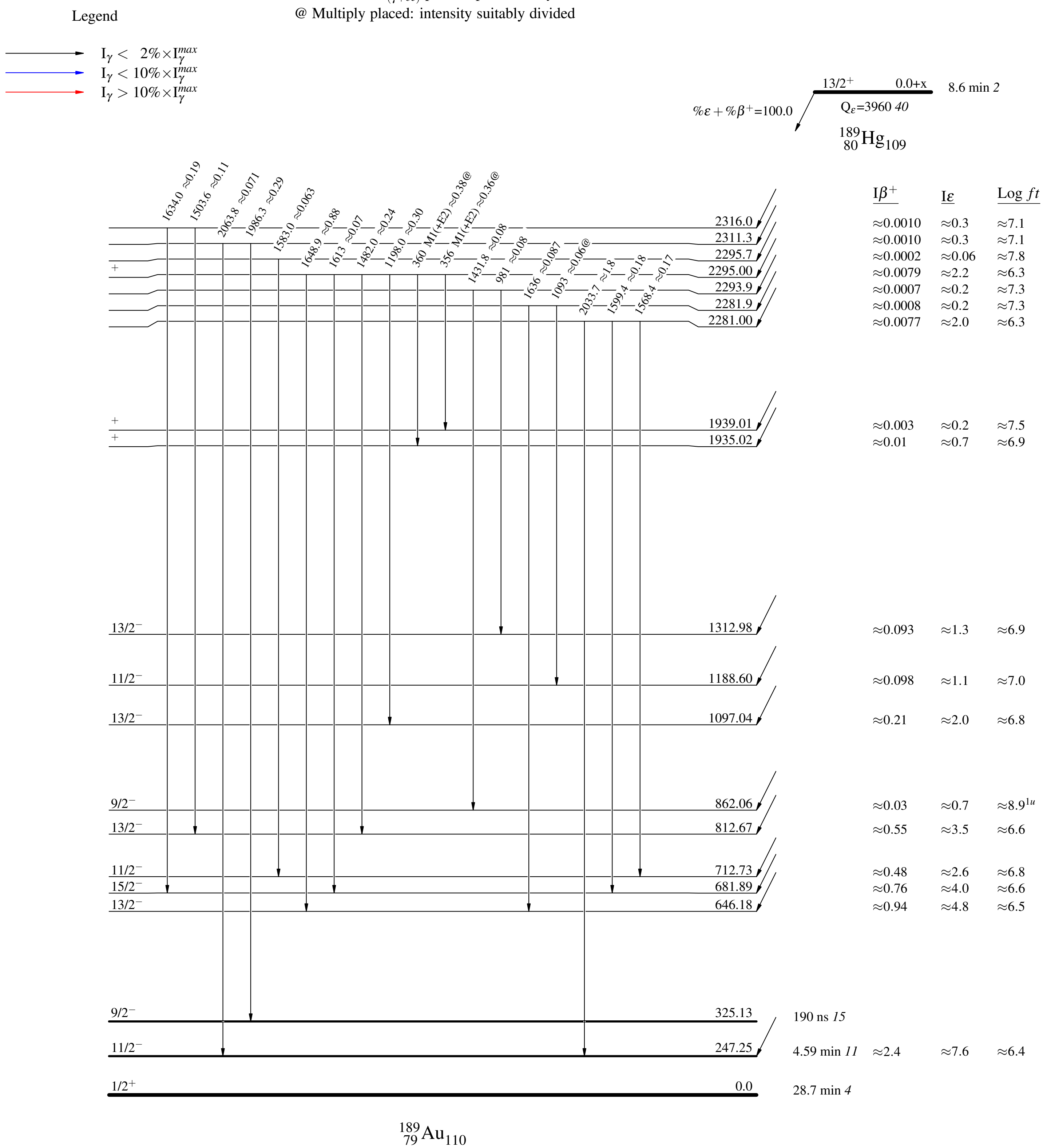
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{189}Hg ε decay (8.6 min) 1996Wo04

Decay Scheme (continued)

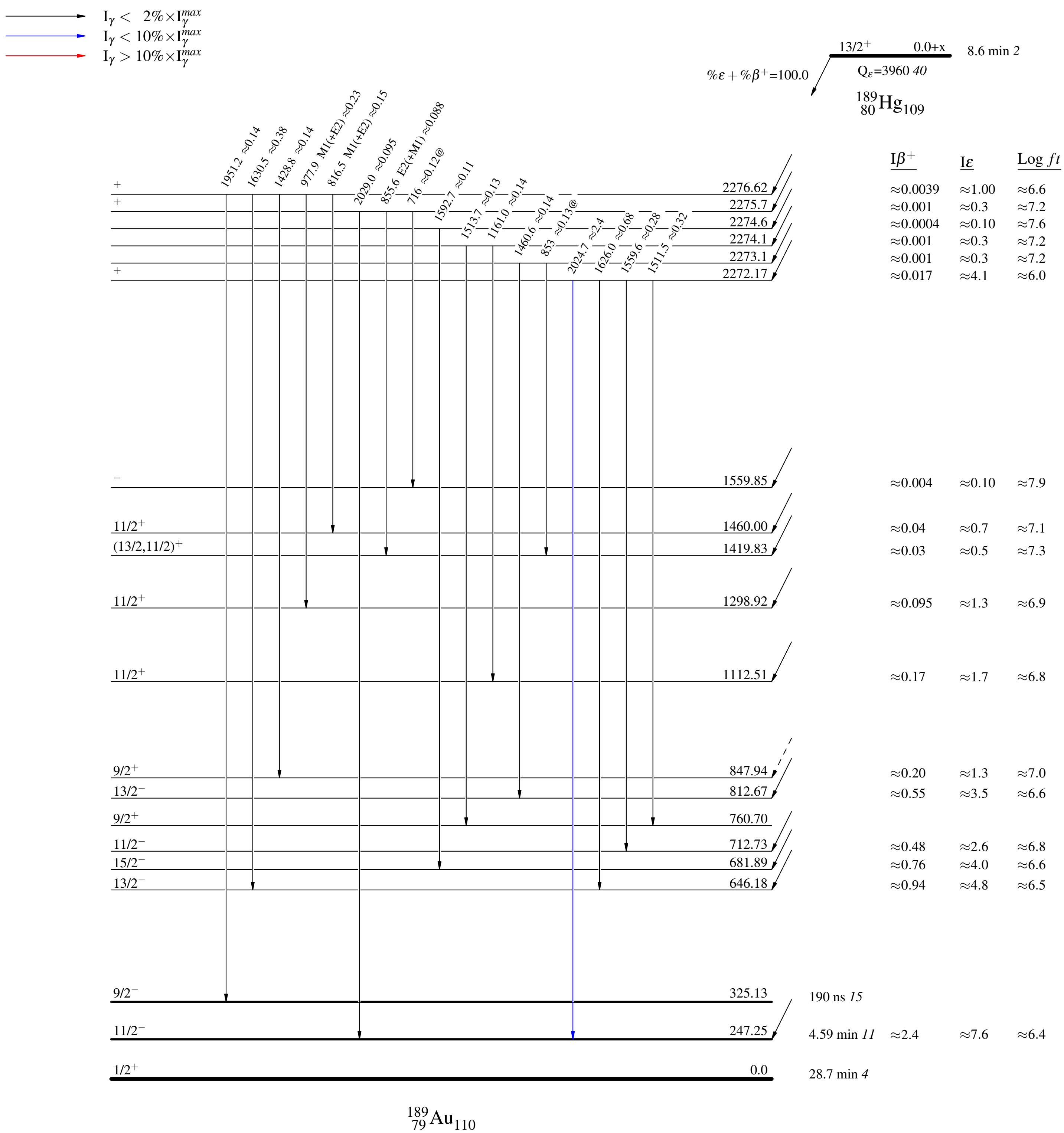
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{189}Hg ε decay (8.6 min) 1996Wo04

Decay Scheme (continued)

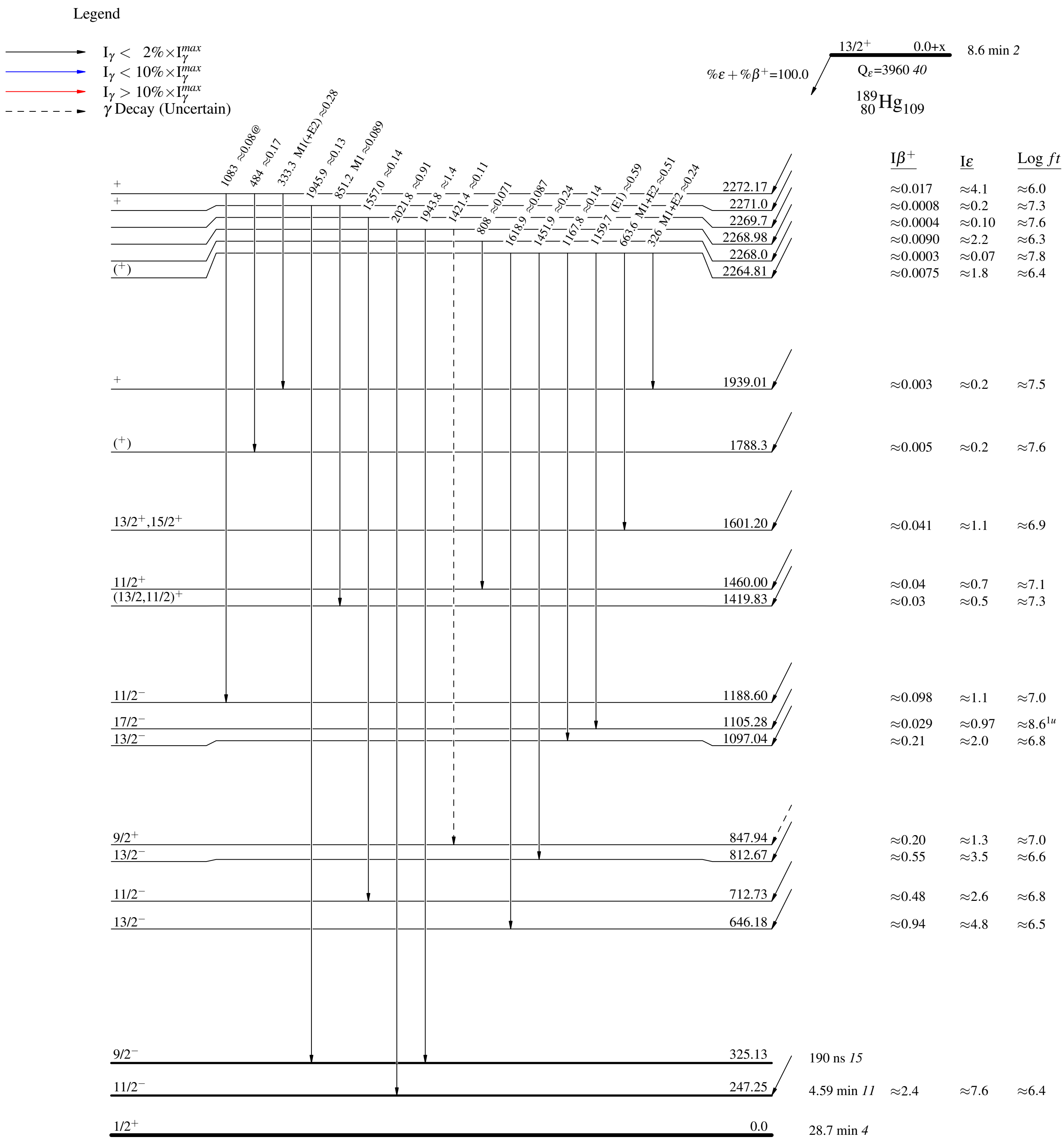
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{189}Hg ε decay (8.6 min) 1996Wo04

Decay Scheme (continued)

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

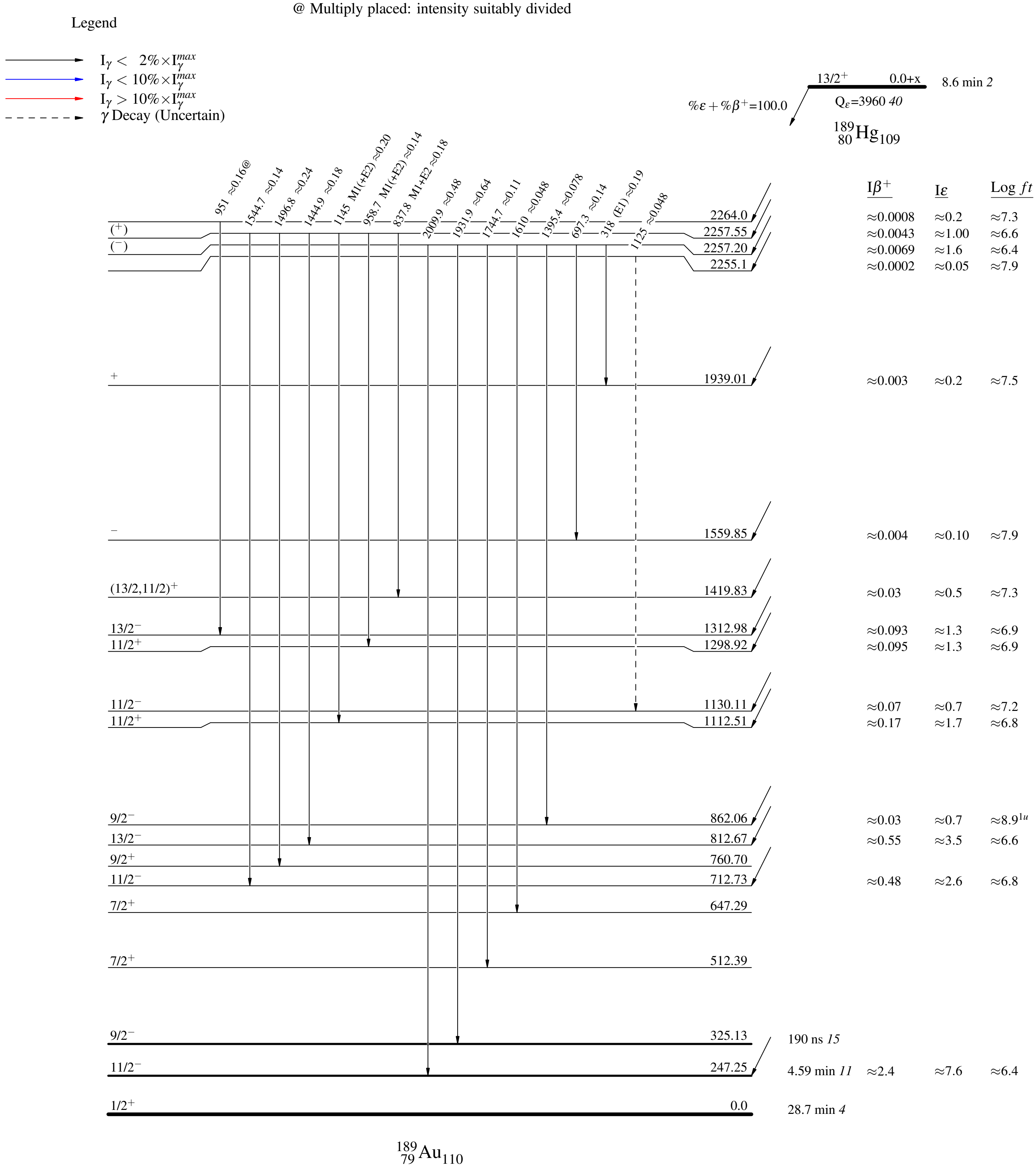


^{189}Hg ε decay (8.6 min) 1996Wo04

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

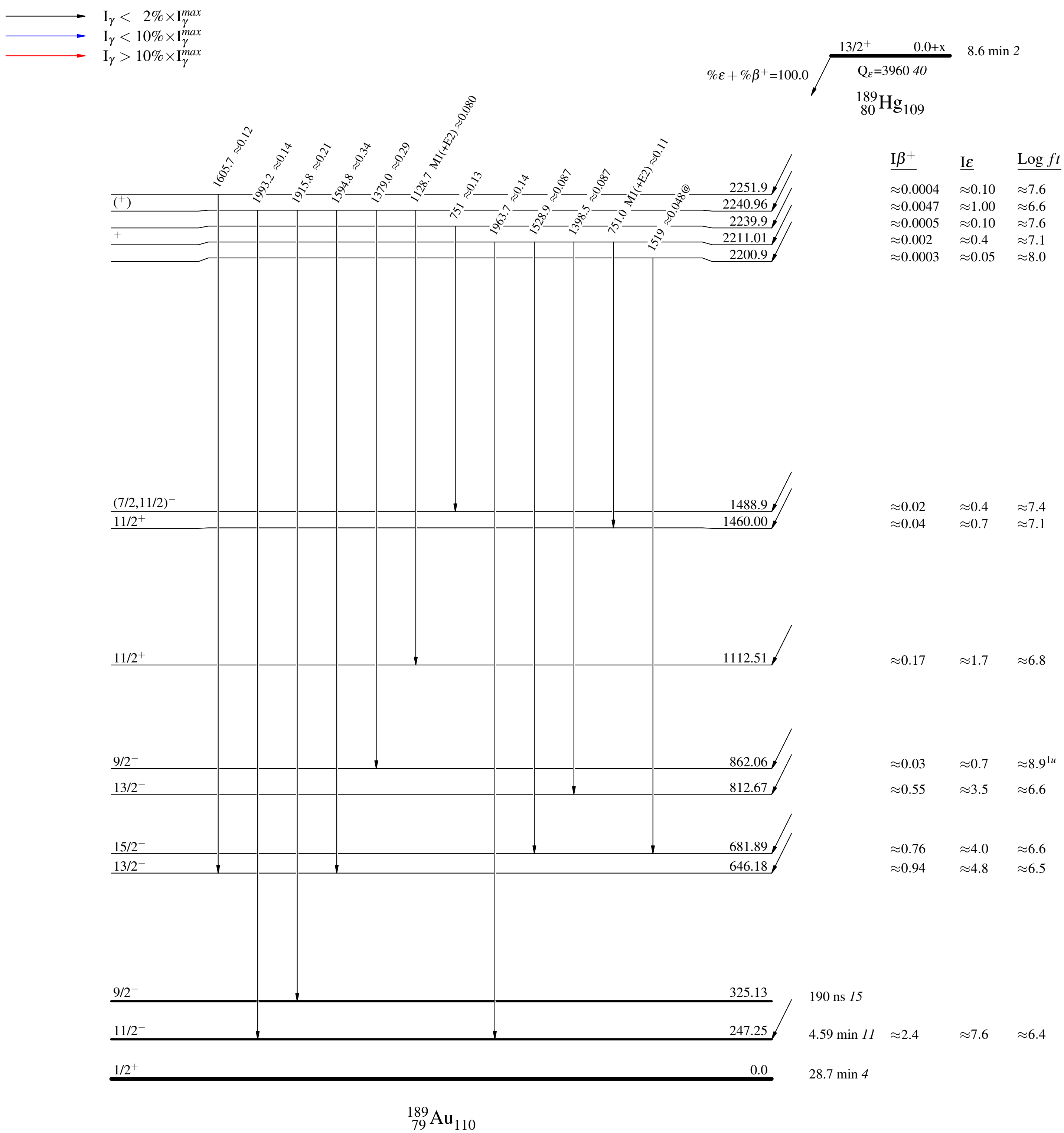
@ Multiply placed: intensity suitably divided



^{189}Hg ε decay (8.6 min) 1996Wo04

Decay Scheme (continued)

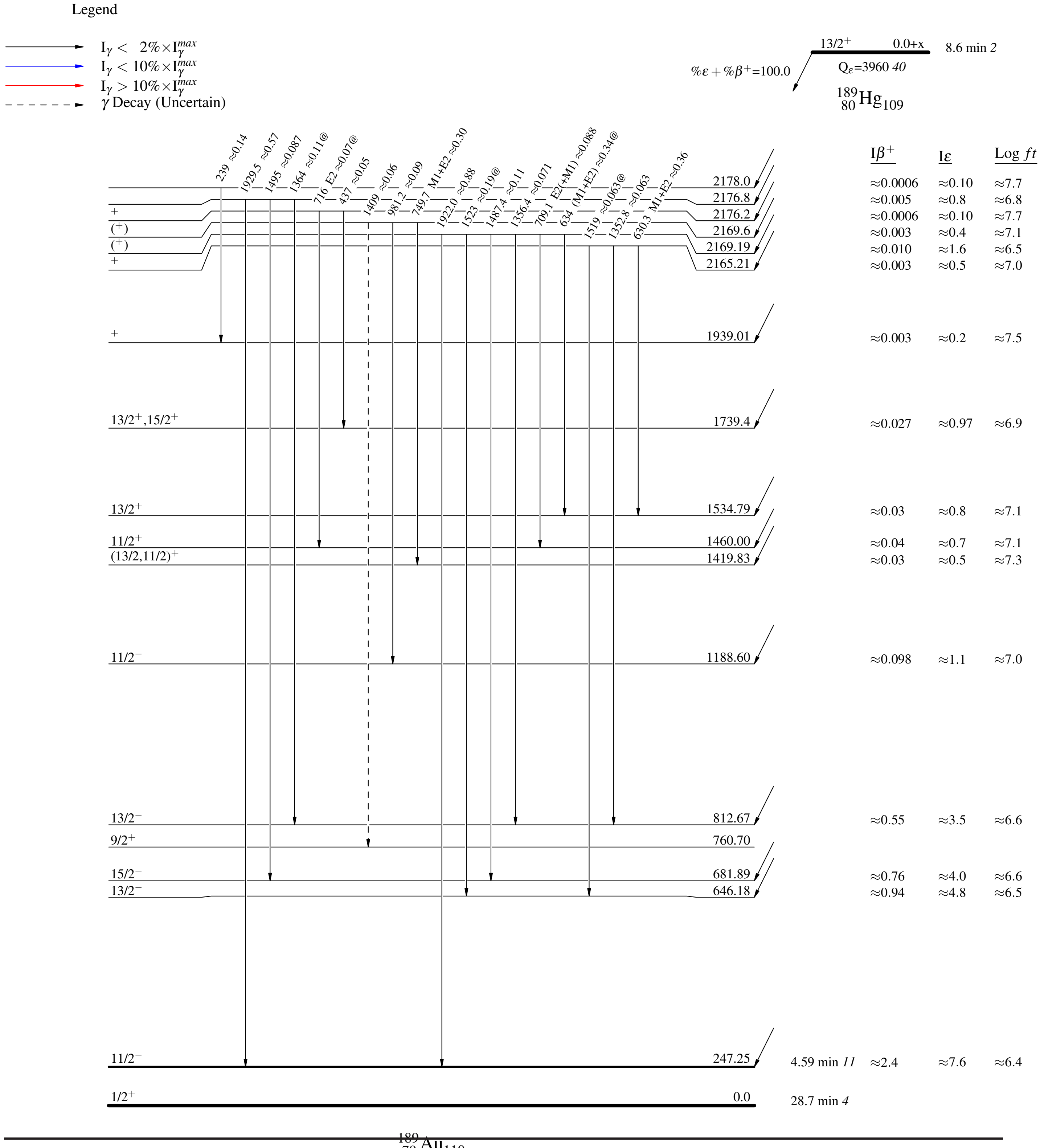
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{189}Hg ε decay (8.6 min) 1996Wo04

Decay Scheme (continued)

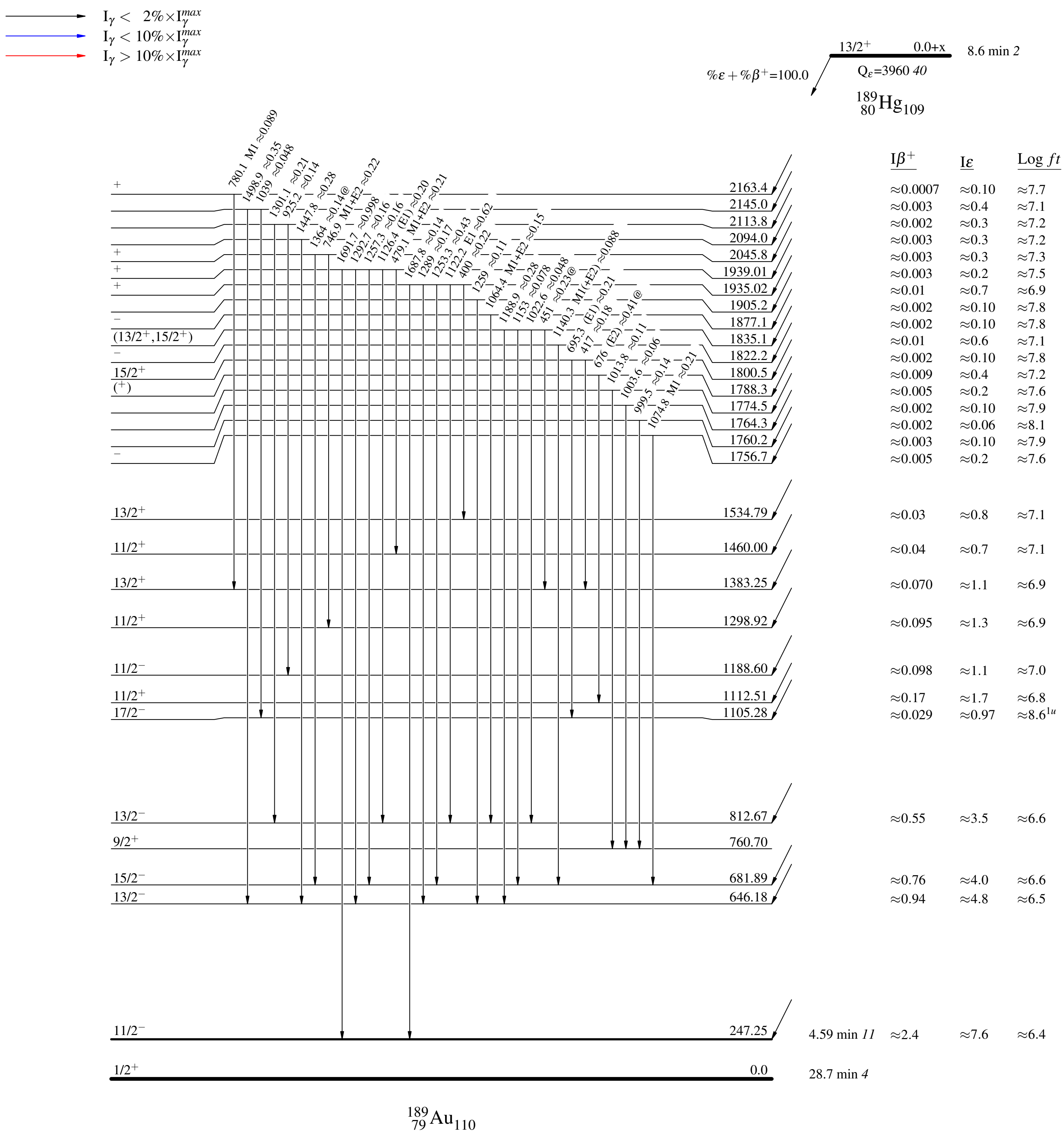
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{189}Hg ε decay (8.6 min) 1996Wo04

Decay Scheme (continued)

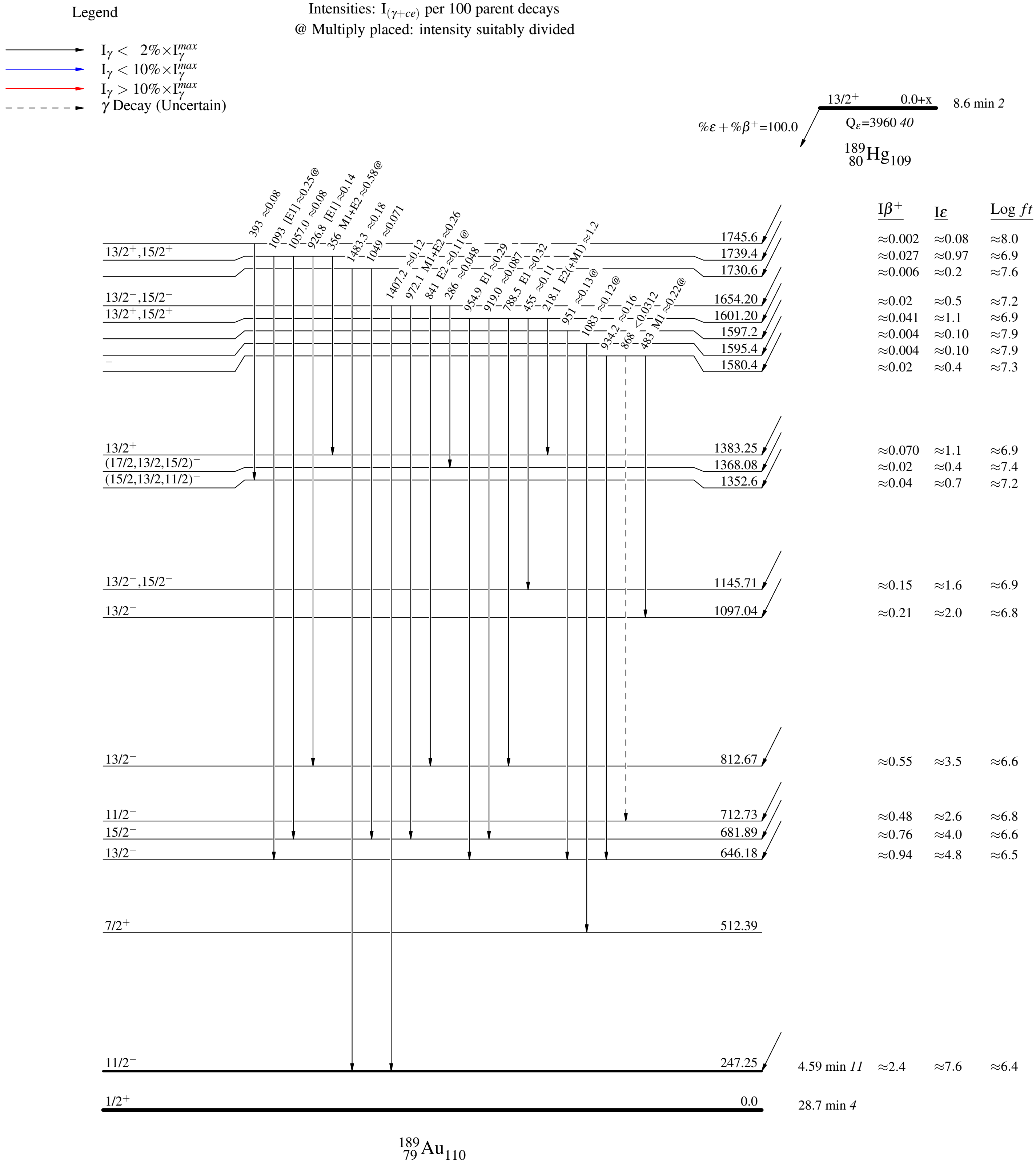
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{189}Hg ε decay (8.6 min) 1996Wo04

Decay Scheme (continued)

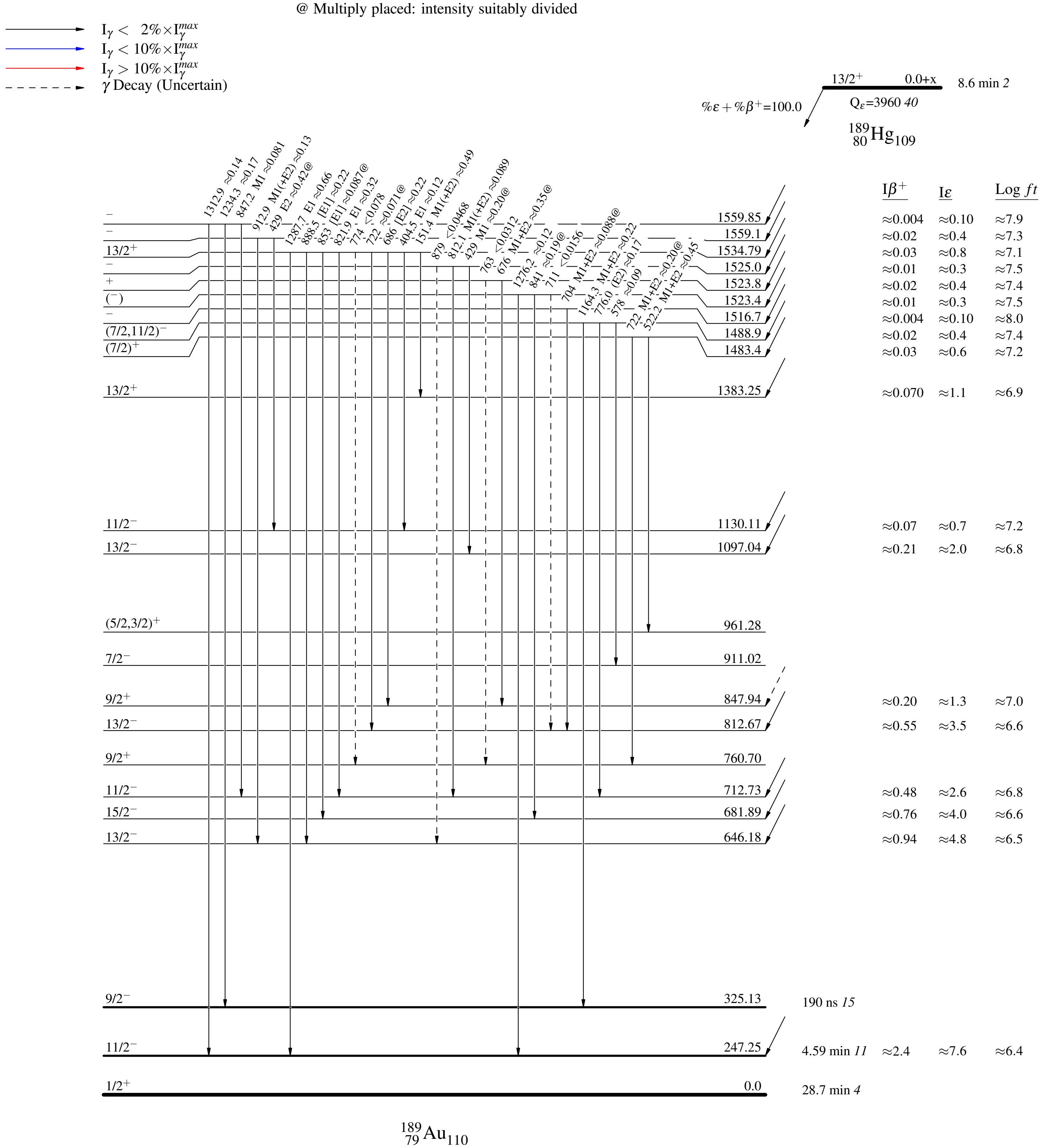
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{189}Hg ε decay (8.6 min) 1996Wo04

Decay Scheme (continued)

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

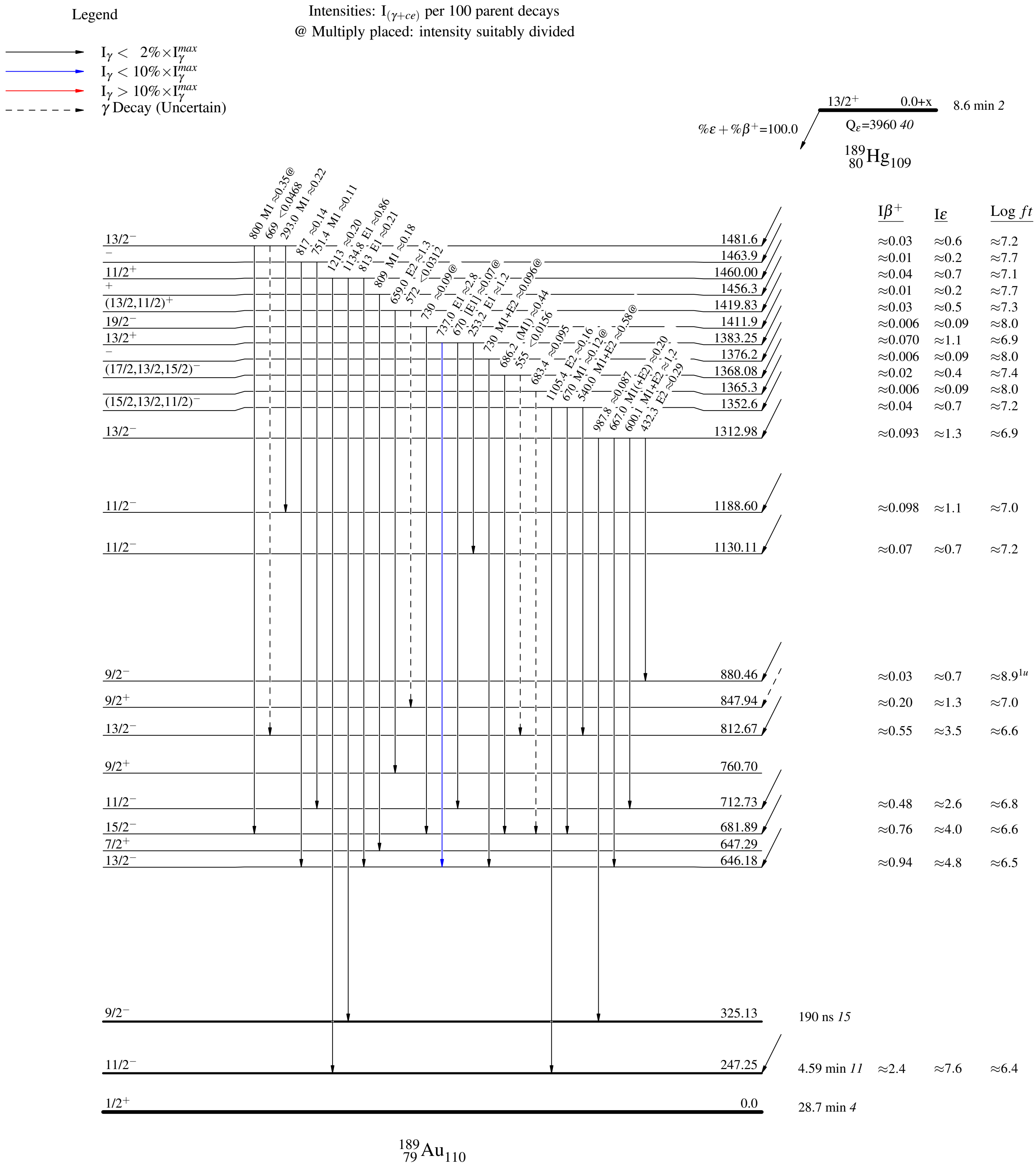


^{189}Hg ε decay (8.6 min) 1996Wo04

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

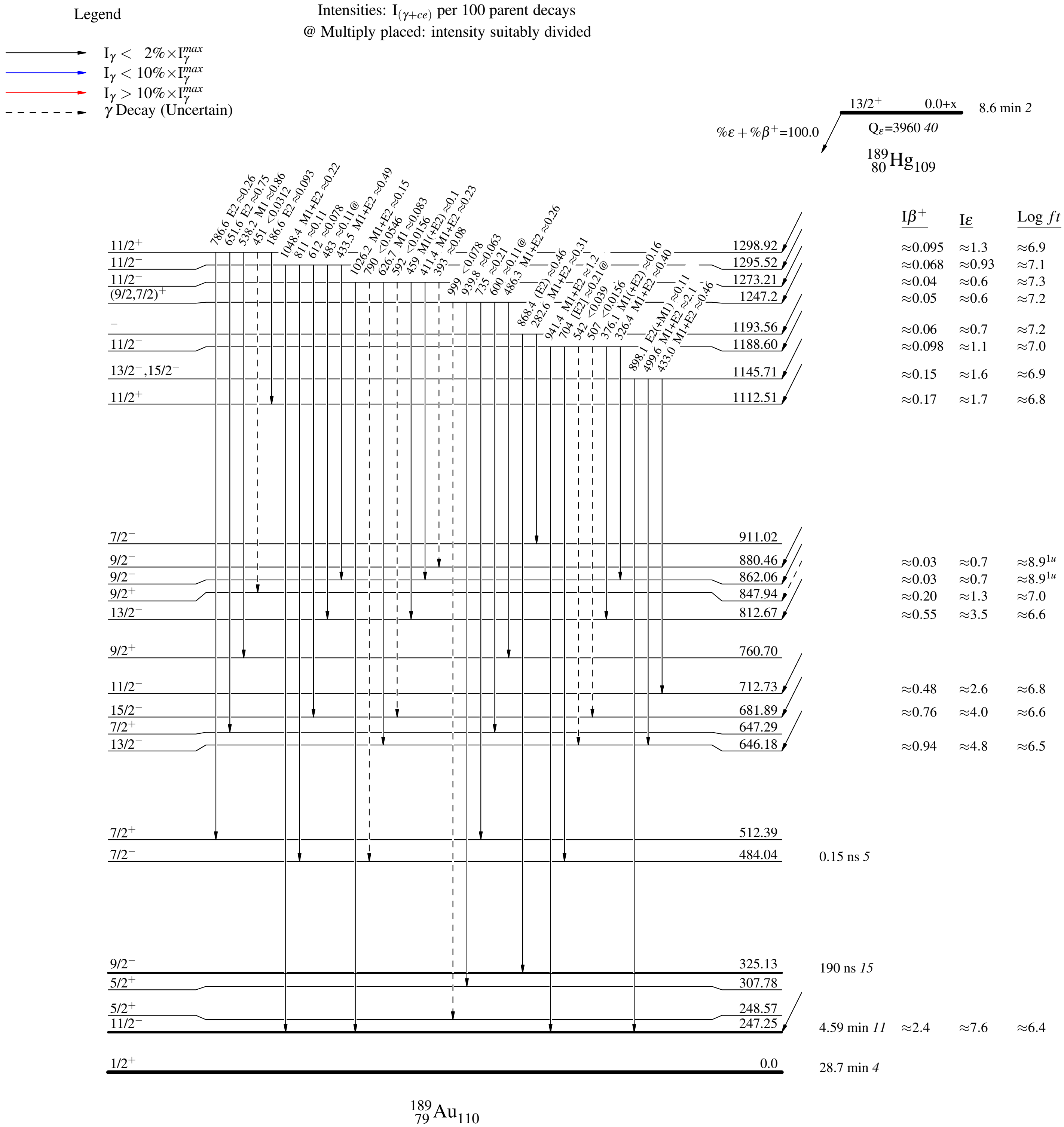
@ Multiply placed: intensity suitably divided



^{189}Hg ε decay (8.6 min) 1996Wo04

Decay Scheme (continued)

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



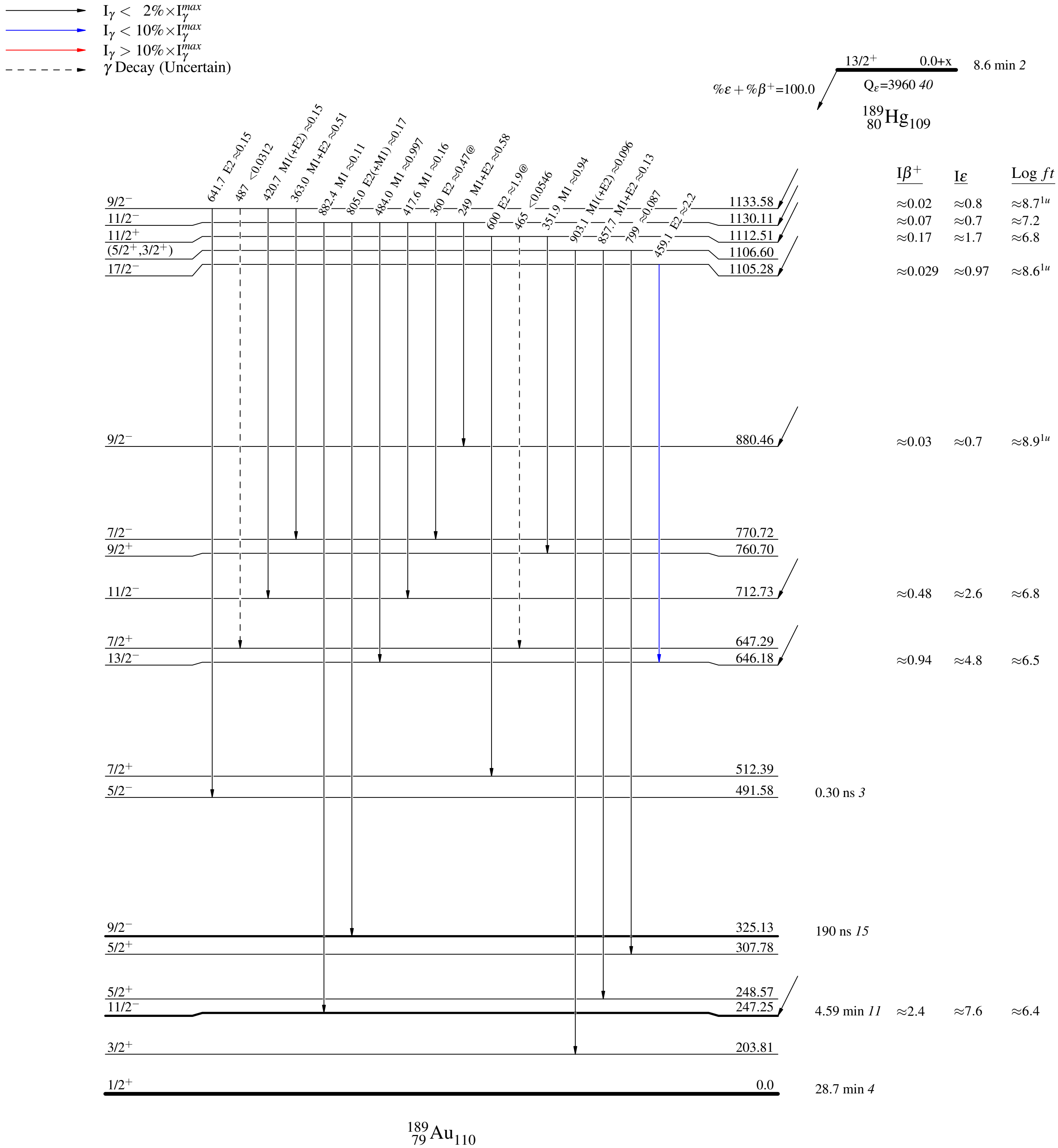
^{189}Hg ε decay (8.6 min) 1996Wo04

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

@ Multiply placed: intensity suitably divided

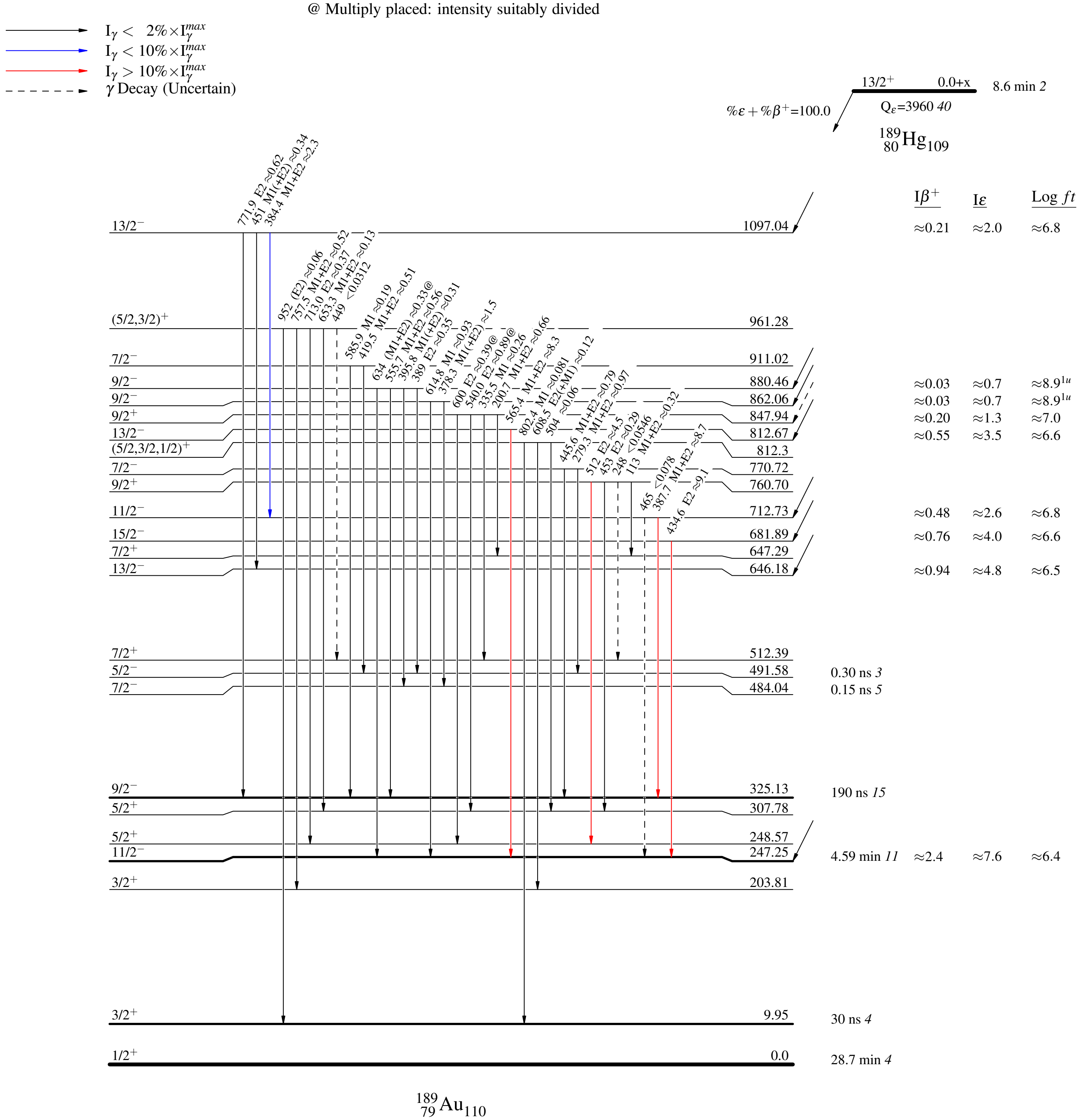
Legend



^{189}Hg ε decay (8.6 min) 1996Wo04

Decay Scheme (continued)

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



^{189}Hg ε decay (8.6 min) 1996Wo04

Decay Scheme (continued)

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