^{198}Tl ε decay (5.3 h) 1971Pa06,1971Be09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huang Xiaolong and Kang Mengxiao	NDS 133, 221 (2016)	1-Dec-2015

Parent: ^{198}Tl: E=0.0; J$^{\pi}$=2^{-}; T$_{1/2}$=5.3 h *5*; Q(ε)=3460 *80*; %ε+%β^{+} decay=100.0

Sources produced by ^{197}Au(α,3n) (1966Vi01,1971Be09,1977Kr04), ^{198}Hg(d,2n) (1971Pa06), daughter ^{198}Pb (1959Ju39,1961Gu02).

1971Pa06: measure Eγ, Iγ, Xγ-(t), γγ(θ), and γγ coin with Ge(Li), Ge(Li)-Ge(Li), and Ge(Li)-NaI(Tl).

1971Be09: measure Eγ, Iγ, I(ce), γγ(θ), ceγ-(t), Xγ-(t) with Ge(Li)-NaI(Tl), Ge(Li)-Ge(Li), and Ge(Li).

Others: 1953Be79, 1955Kn34, 1959Ju39, 1961Gu02, 1968Pe13, 1970Du10.

Eγ, Iγ measurements from 1971Pa06 (semi).

For semi γγ-coin results (1971Pa06), see drawings.

A$_2$, A$_4$ from γγ(θ): 1971Be09, 1971Pa06.

^{198}Hg Levels

γγ(θ) measured for the levels with 1048.5, 1087.7, 1401.5, 1419.4, 1548.5, 1612.4, 1832.6, 1847.2, 1858.8, 1899.4, 1901.52360.8, and 2451.8.

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$[‡]	Comments
0.0	0^{+}	stable	
411.78 *10*	2^{+}	23.15 ps *28*	
1048.50[#] *14*	4^{+}		
1087.67[#] *13*	2^{+}		
1401.50[#] *24*	0^{+}		
1419.39[#] *14*	3^{+}		
1548.48 *21*	(1,2^{+})		
1612.42[#] *14*	2^{+}		
1635.7? *4*	5^{-}		E(level): Determined by 587.2γ (1971Pa06,1971Be09). Since feeding to 5^{-} is impossible this level is doubt; 587.2γ may be unplaced here (may be from ^{198}Tl ε decay (1.87 h)).
1832.58[#] *18*	2^{+}		
1834.9 *3*	4^{+}		
1847.20[#] *16*	3^{+}		
1858.82[#] *18*	2^{+}		
1899.39 *21*	1^{+},2^{+}		
1901.48[#] *23*	(2^{+})		
1970.91 *19*	2^{+},3,4^{+}		
2005.33 *18*	0^{+},1,2,3,4^{+}		
2048.6 *5*	0^{+},1,2,3,4^{+}		
2070.8 *3*	1^{+},2^{+}		
2109.7 *5*	1,2^{+}		
2132.7 *3*	1^{+},2^{+}		
2169.38 *23*	2^{+}		
2177.65 *24*	1,2^{+}		
2209.19 *15*	1,2^{+}		
2219.4 *4*	0^{+},1,2,3,4^{+}		
2267.7 *3*	2^{+}		
2287.3 *3*	1,2^{+}		
2296.11 *20*	2^{+},3,4,5,6^{+}		
2320.3 *3*	1,2^{+}		
2331.55 *24*	4^{+}		

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^{198}Tl ε decay (5.3 h) 1971Pa06,1971Be09 (continued)

^{198}Hg Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
2360.76# 17	3+	2644.2 7	2+,3,4+	2845.1 4	1,2+	3013.1 3	
2451.84# 19	(1,3)	2694.8 7	1,2+	2861.6 6	1,2+	3022.3 8	1,2+
2465.42 21	2+	2731.2 3	2+,3,4+	2868.8 6	1,2+	3095.7 10	1,2+
2486.07 17	1,2+	2782.74 21	2+	2894.3 7	1,2+	3128.0 7	1,2+
2564.31 17	1,2+	2816.1 8	1,2+	2954.6 7	1,2+	3164.7 6	1,2+
2602.4 3		2825.5 3	1,2+	2975.9 7	1,2+		
2612.5 3	1,2+	2835.48 25	1,2+	2986.8 8	1,2+		

† From decay scheme and Eγ′s by using least-squares fit to Eγ.
‡ From Adopted Levels.
# $\gamma\gamma(\theta)$ measured.

ε,β^+ radiations

Measured E(β^+), I(β^+) components (1961Gu02).
Eβ=2440 *80*, I$\beta\approx$0.26% (1U shape factor applied); Eβ=2110 *70*, I$\beta\approx$0.22%; Eβ=1350 *110*, I$\beta\approx$0.19%; E$\beta\approx$720, I$\beta\approx$0.08% (doublet); I(β^+)/100 decays ≈0.74 from I(β^+)/ce(K)(412γ)≈0.3 (1961Gu02).
Q(ε) from max E(β^+)=2440 *80* to g.s.

E(decay)	E(level)	Iε†‡	Log ft	I(ε+β+)‡	Comments
(3.0×10² 8)	3164.7	0.051 9	7.8 4	0.051 9	εK=0.71 6; εL=0.21 5; εM+=0.073 18
(3.3×10² 8)	3128.0	0.053 10	7.9 4	0.053 10	εK=0.73 5; εL=0.20 3; εM+=0.069 12
(3.6×10² 8)	3095.7	0.028 6	8.3 3	0.028 6	εK=0.74 3; εL=0.194 22; εM+=0.066 9
(4.4×10² 8)	3022.3	0.075 23	8.0 3	0.075 23	εK=0.756 18; εL=0.182 13; εM+=0.061 6
(4.5×10² 8)	3013.1	0.29 4	7.46 22	0.29 4	εK=0.758 17; εL=0.181 13; εM+=0.061 5
(4.7×10² 8)	2986.8	0.029 6	8.52 22	0.029 6	εK=0.762 15; εL=0.178 11; εM+=0.060 5
(4.8×10² 8)	2975.9	0.12 4	7.92 24	0.12 4	εK=0.763 14; εL=0.177 10; εM+=0.059 4
(5.1×10² 8)	2954.6	0.038 8	8.47 21	0.038 8	εK=0.766 12; εL=0.175 9; εM+=0.059 4
(5.7×10² 8)	2894.3	0.26 11	7.74 25	0.26 11	εK=0.773 9; εL=0.171 7; εM+=0.057 3
(5.9×10² 8)	2868.8	0.088 15	8.26 17	0.088 15	εK=0.775 8; εL=0.169 6; εM+=0.0561 23
(6.0×10² 8)	2861.6	0.085 16	8.29 17	0.085 16	εK=0.775 8; εL=0.169 6; εM+=0.0560 22
(6.1×10² 8)	2845.1	0.140 23	8.10 16	0.140 23	εK=0.777 8; εL=0.168 6; εM+=0.0556 21
(6.2×10² 8)	2835.48	0.32 6	7.75 17	0.32 6	εK=0.777 7; εL=0.167 5; εM+=0.0554 20
(6.3×10² 8)	2825.5	0.44 6	7.63 15	0.44 6	εK=0.778 7; εL=0.167 5; εM+=0.0552 19
(6.4×10² 8)	2816.1	0.040 9	8.68 17	0.040 9	εK=0.779 7; εL=0.166 5; εM+=0.0550 19
(6.8×10² 8)	2782.74	1.10 13	7.29 14	1.10 13	εK=0.781 6; εL=0.165 4; εM+=0.0544 16
(7.3×10² 8)	2731.2	0.57 9	7.65 14	0.57 9	εK=0.784 5; εL=0.163 4; εM+=0.0536 14
(7.7×10² 8)	2694.8	0.52 12	7.74 16	0.52 12	εK=0.786 5; εL=0.161 3; εM+=0.0531 12
(8.2×10² 8)	2644.2	0.40 12	7.91 17	0.40 12	εK=0.788 4; εL=0.160 3; εM+=0.0524 11
(8.5×10² 8)	2612.5	0.30 5	8.07 13	0.30 5	εK=0.789 4; εL=0.1588 24; εM+=0.0521 10
(8.6×10² 8)	2602.4	2.8 4	7.11 12	2.8 4	εK=0.789 4; εL=0.1585 24; εM+=0.0520 9
(9.0×10² 8)	2564.31	1.25 18	7.51 12	1.25 18	εK=0.791 3; εL=0.1576 21; εM+=0.0516 9
(9.7×10² 8)	2486.07	2.3 3	7.32 11	2.3 3	εK=0.7931 24; εL=0.1559 18; εM+=0.0510 7
(9.9×10² 8)	2465.42	1.54 22	7.51 11	1.54 22	εK=0.7937 23; εL=0.1555 17; εM+=0.0508 7
(1.01×10³ 8)	2451.84	8.6 12	6.78 11	8.6 12	εK=0.7940 23; εL=0.1553 16; εM+=0.0507 7
(1.10×10³ 8)	2360.76	6.3 8	6.99 10	6.3 8	εK=0.7961 19; εL=0.1538 13; εM+=0.0501 5
(1.13×10³ 8)	2331.55	0.31 7	8.33 13	0.31 7	εK=0.7967 17; εL=0.1533 13; εM+=0.0500 5
(1.14×10³ 8)	2320.3	0.34 5	8.30 11	0.34 5	εK=0.7969 17; εL=0.1532 12; εM+=0.0499 5

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^{198}Tl ε decay (5.3 h) 1971Pa06,1971Be09 (continued)

ϵ,β+ radiations (continued)

E(decay)	E(level)	Iβ+ †‡	Iε†‡	Log ft	I(ε+β+)‡	Comments
(1.16×10^3 8)	2296.11		1.11 17	7.80 11	1.11 17	εK=0.7974 16; εL=0.1529 12; εM+=0.0498 5
(1.17×10^3 8)	2287.3		0.98 16	7.86 11	0.98 16	εK=0.7975 16; εL=0.1527 12; εM+=0.0497 5
(1.19×10^3 8)	2267.7		1.54 21	7.68 10	1.54 21	εK=0.7979 15; εL=0.1525 11; εM+=0.0496 5
(1.24×10^3 8)	2219.4		0.22 4	8.56 11	0.22 4	εK=0.7987 14; εL=0.1519 10; εM+=0.0494 4
(1.25×10^3 8)	2209.19		3.0 4	7.44 10	3.0 4	εK=0.7988 14; εL=0.1518 10; εM+=0.0494 4
(1.28×10^3 8)	2177.65		2.1 4	7.61 11	2.1 4	εK=0.7993 13; εL=0.1514 10; εM+=0.0492 4
(1.29×10^3 8)	2169.38		0.86 12	8.01 10	0.86 12	εK=0.7994 13; εL=0.1513 10; εM+=0.0492 4
(1.33×10^3 8)	2132.7		2.8 4	7.52 10	2.8 4	εK=0.7999 12; εL=0.1510 9; εM+=0.0490 4
(1.35×10^3 8)	2109.7		0.31 5	8.49 10	0.31 5	εK=0.8002 11; εL=0.1507 9; εM+=0.0489 4
(1.39×10^3 8)	2070.8		1.52 22	7.83 10	1.52 22	εK=0.8006 10; εL=0.1504 8; εM+=0.0488 3
(1.41×10^3 8)	2048.6		0.25 5	8.63 11	0.25 5	εK=0.8009 9; εL=0.1501 8; εM+=0.0487 3
(1.45×10^3 8)	2005.33		1.7 3	7.82 11	1.7 3	εK=0.8013 8; εL=0.1498 8; εM+=0.0486 3
(1.49×10^3 8)	1970.91		0.75 14	8.20 11	0.75 14	εK=0.8015 7; εL=0.1495 8; εM+=0.0485 3
(1.56×10^3 8)	1901.48	0.0027 20	2.6 4	7.70 10	2.6 4	av Eβ=263 36; εK=0.8019 5; εL=0.1489 7; εM+=0.0482 3
(1.56×10^3 8)	1899.39	0.0027 20	2.6 4	7.70 10	2.6 4	av Eβ=264 36; εK=0.8019 5; εL=0.1489 7; εM+=0.0482 3
(1.60×10^3 8)	1858.82	0.007 5	4.9 7	7.45 9	4.9 7	av Eβ=282 36; εK=0.8020 3; εL=0.1485 7; εM+=0.0481 3
(1.61×10^3 8)	1847.20	0.009 6	5.9 8	7.37 9	5.9 8	av Eβ=287 36; εK=0.8020 3; εL=0.1484 7; εM+=0.04807 25
(1.63×10^3 8)	1834.9	5.×10^{-5} 6	0.03 3	9.7 5	0.03 3	av Eβ=292 36; εK=0.8020 2; εL=0.1483 7; εM+=0.04803 25
(1.63×10^3 8)	1832.58	0.019 12	11.7 15	7.09 9	11.7 15	av Eβ=293 36; εK=0.8020 2; εL=0.1483 7; εM+=0.04802 25
(1.82×10^3 8)	1635.7?	0.0009 5	0.19 5	8.98 13	0.19 5	av Eβ=380 36; εK=0.8010 11; εL=0.1467 7; εM+=0.04743 25
(1.85×10^3 8)	1612.42	0.051 21	9.2 13	7.30 9	9.3 13	av Eβ=390 36; εK=0.8007 13; εL=0.1465 7; εM+=0.04736 25
(1.91×10^3 8)	1548.48	0.0028 11	0.39 7	8.71 10	0.39 7	av Eβ=418 36; εK=0.7998 16; εL=0.1460 8; εM+=0.0472 3
(2.04×10^3 8)	1419.39	≈0.008	≈0.69	≈8.5	≈0.7	av Eβ=475 35; εK=0.7970 24; εL=0.1448 9; εM+=0.0467 3
(2.06×10^3 8)	1401.50	0.0013 5	0.50 9	9.85[1u] 12	0.50 9	av Eβ=493 35; εK=0.7920 5; εL=0.1547 9; εM+=0.0506 4
(2.37×10^3 8)	1087.67	0.22 5	7.1 8	7.64 7	7.3 8	av Eβ=620 35; εK=0.784 5; εL=0.1410 11; εM+=0.0454 4
(2.41×10^3 8)	1048.50	≈0.0085	≈0.79	≈9.9[1u]	≈0.8	av Eβ=642 34; εK=0.7911 10; εL=0.1512 8; εM+=0.0492 3
(3.05×10^3 8)	411.78	≈0.26	≈2.29	≈8.4	≈2.55	av Eβ=918 36; εK=0.728 10; εL=0.1291 18; εM+=0.0415 6 ε-feeding is estimated from measured β+ component (1961Gu02); level scheme I(γ+ce) balance suggests Iε≤5%.
(3.46×10^3 8)	0.0	≈0.18	≈2.80	≈10.0[1u]	≈2.98	av Eβ=1085 34; εK=0.755 5; εL=0.1389 12; εM+=0.0450 4 ε-feeding is estimated from measured β+ component to g.s. (1961Gu02).

† From intensity imbalance at each level, and I(β+)/100 decays 0.74 (1961Gu02).

‡ Absolute intensity per 100 decays.

γ(^{198}Hg)

Iγ normalization: Assuming I(ε+β^+)(to g.s.)≈2.98.
α(K)exp=ce(K)/Iγ normalized to α(K)(411.8γ)=0.0300 (E2 theory).

$\gamma\gamma(\theta)$-directional correction measurements

Level	Cascade	A_2	A_4	δ(D+Q)	Refs.
1048.4	637-412	+0.100 10	-0.006 15	∞	1969BeZR
		+0.112 15	+0.020 20	∞	1971Pa06
		+0.094 9	+0.002 15	∞	1971Be09
1087.8	676-412	-0.333 9	+0.232 13	+1.43 14	1964Sa11
		-0.281 12	+0.202 16	≈+1.1	1969BeZR
		-0.290 16	+0.194 23	+1.07 14	1971Pa06
		-0.287 10	+0.194 17	≈+1.1	1971Be09
1401.5	989-412	+0.52 22	+0.74 32	∞	1971Be09
1419.3	*1008*-412	+0.260 50	-0.080 70		1969BeZR
		+0.220 40	-0.120 80	≈+1.3	1971Pa06
		+0.220 40	-0.070 60		1971Be09
1612.7	*1201*-412	+0.390 21	+0.040 30	≈-0.26	1969BeZR
		+0.350 30	+0.030 40	-0.16 7	1971Pa06
		+0.421 17	+0.017 23	-0.26 2	1971Be09
1635.6	587-636	-0.058 15	+0.033 20		1971Be09
1832.5	*1421*-412	+0.385 23	+0.050 30	≈-0.26	1969BeZR
		+0.370 30	+0.050 40	-0.19 7	1971Pa06
		+0.363 17	+0.021 24	-0.18 3	1971Be09
1847.2	798-412	+0.270 60	-0.250 90	-3 1	1971Be09
	1436-412	+0.054 36	-0.006 50	+0.15 5	1971Be09
		+0.020 50	+0.080 80		1971Pa06
1858.9	*1447*-412	+0.387 31	+0.056 43	-0.20 5	1971Be09
		+0.420 50	+0.110 80	-0.8 5	1971Pa06
1901.4	*1489*-412	+0.400 40	+0.015 56	-0.225 75	1971Be09
2360.6	*1312*-412	-0.066 24	+0.026 34	-0.09 3	1971Be09
	1312-636	-0.066 22	+0.030 30	≈0	1971Be09
2451.9	*2040*-412	-0.215 24	-0.031 32		1971Be09

$^{198}_{80}$Hg$_{118}$-4

γ(^{198}Hg) (continued)

E_γ[#]	I_γ[#@d]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	δ[‡a]	α[†]	Comments
234.8 2	4.1 6	1847.20	3+	1612.42	2+				
238.3 2	2.3 5	2209.19	1,2+	1970.91	2+,3,4+				
318.9[e] 4	0.50[e] 25	2177.65	1,2+	1858.82	2+				
318.9[e] 4	0.50[e] 25	2451.84	(1,3)	2132.7	1+,2+				
325.0[e] 4	0.84[e] 30	2296.11	2+,3,4,5,6+	1970.91	2+,3,4+				
325.0[e] 4	0.84[e] 30	2612.5	1,2+	2287.3	1,2+				
331.6 2	5.4 7	1419.39	3+	1087.67	2+				
336.5 4	0.7 3	2169.38	2+	1832.58	2+				
350.6[e] 4	0.72[e] 25	2209.19	1,2+	1858.82	2+				
350.6[ef] 4	0.72[e] 25	2816.1	1,2+	2465.42	2+				
370.8 3	2.7 4	1419.39	3+	1048.50	4+				
376.8 5	1.8 4	2209.19	1,2+	1832.58	2+				
411.8 2	750 60	411.78	2+	0.0	0+	E2		0.0439	α(K)=0.0300 5; α(L)=0.01055 15; α(M)=0.00263 4 α(N)=0.000655 10; α(O)=0.0001152 17; α(P)=3.95×10^{-6} 6 Mult.: From ce ratios, α(K)exp (^{198}Au β^- decay).
437.2 3	1.7 4	2296.11	2+,3,4,5,6+	1858.82	2+				
449.0 3	1.1 4	2296.11	2+,3,4,5,6+	1847.20	3+				
480.8 2	3.8 4	2486.07	1,2+	2005.33	0+,1,2,3,4+				
497.9 3	2.0 4	1899.39	1+,2+	1401.50	0+				
503.9 3	0.8 3	2835.48	1,2+	2331.55	4+				
[x]511.0 3	9.6[c] 15								
513.6 3	2.4 5	2360.76	3+	1847.20	3+				
525.9 3	3.0 4	2360.76	3+	1834.9	4+				
550.2 4	0.94 30	2451.84	(1,3)	1901.48	(2+)				
564.0 3	2.8 5	1612.42	2+	1048.50	4+				
587.2 3	1.8 4	1635.7?	5−	1048.50	4+				
596.8 2	9.2 10	2209.19	1,2+	1612.42	2+				
[x]617.0[f] 5	0.9 3								
621.0 5	0.7 3	2169.38	2+	1548.48	(1,2+)				
636.7 2	93 6	1048.50	4+	411.78	2+	E2		0.01540	α(K)=0.01172 17; α(L)=0.00280 4; α(M)=0.000677 10 α(N)=0.0001690 24; α(O)=3.06×10^{-5} 5; α(P)=1.555×10^{-6} 22 α(K)exp=0.010 3 (1971Be09), ≈0.0092 (1968Pe13).
664.5 6	1.2 3	2564.31	1,2+	1899.39	1+,2+				
675.8 2	100	1087.67	2+	411.78	2+	M1+E2	+1.07 14	0.0267 20	α(K)=0.0216 17; α(L)=0.00389 24; α(M)=0.00091 6 α(N)=0.000229 14; α(O)=4.3×10^{-5} 3; α(P)=2.96×10^{-6} 25 δ: From A_2=−0.290 16 (1971Pa06). α(K)exp≈0.015 (1968Pe13), 0.0224 19 (1954El04, ^{198}Au β^- decay).

$^{198}_{80}Hg_{118}$-5

γ(^{198}Hg) (continued)

E_γ[#]	I_γ[#@d]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	δ[‡a]	α[†]	Comments
[x]704.4 *3*	1.65 *30*								
712.1 *4*	0.65 *25*	2782.74	2^+	2070.8	$1^+,2^+$				
745.0 *8*	1.2 *5*	1832.58	2^+	1087.67	2^+				
747.5 *8*	0.7 *4*	1834.9	4^+	1087.67	2^+				
758.0[b] *10*	3.6[b] *9*	2177.65	$1,2^+$	1419.39	3^+				
759.6 *3*	13.3 *12*	1847.20	3^+	1087.67	2^+				
771.2 *4*	1.4 *2*	1858.82	2^+	1087.67	2^+				
786.3 *4*	2.6 *4*	1834.9	4^+	1048.50	4^+				
789.6 *4*	4.5 *5*	2209.19	$1,2^+$	1419.39	3^+				
798.7 *3*	9.8 *7*	1847.20	3^+	1048.50	4^+				
810.4 *4*	1.6 *3*	1858.82	2^+	1048.50	4^+				
853.0 *4*	1.3 *3*	1901.48	(2^+)	1048.50	4^+				
876.8 *3*	2.5 *3*	2296.11	$2^+,3,4,5,6^+$	1419.39	3^+				
884.0[f] *5*	0.8 *4*	1970.91	$2^+,3,4^+$	1087.67	2^+				
898.5 *4*	0.6 *3*	2731.2	$2^+,3,4^+$	1832.58	2^+				
911.7 *5*	0.8 *3*	2331.55	4^+	1419.39	3^+				
922.7 *6*	1.8 *3*	1970.91	$2^+,3,4^+$	1048.50	4^+				
941.4 *3*	5.7 *5*	2360.76	3^+	1419.39	3^+				
951.7[e] *5*	0.53[e] *20*	2564.31	$1,2^+$	1612.42	2^+				
951.7[e] *5*	0.53[e] *20*	3022.3	$1,2^+$	2070.8	$1^+,2^+$				
989.7 *3*	6.6 *6*	1401.50	0^+	411.78	2^+	E2		0.00616	α(K)=0.00495 *7*; α(L)=0.000929 *13*; α(M)=0.000219 *3* α(N)=5.48×10^{-5} *8*; α(O)=1.015×10^{-5} *15*; α(P)=6.50×10^{-7} *10* α(K)exp=0.0058 *15* (1971Be09).
1007.6 *3*	25.2 *25*	1419.39	3^+	411.78	2^+	(M1+E2)	≈+0.04	≈0.01494	α(K)≈0.01235; α(L)≈0.00199; α(M)≈0.000460 α(N)≈0.0001154; α(O)≈2.19×10^{-5}; α(P)≈1.702×10^{-6} α(K)exp=0.0112 *28* (1971Be09). δ: From A_2,A_4 (1971Pa06,1971Be09). Other: ≈0.05 from α(K)exp (1971Be09).
1045.0[b] *10*	1.9[b] *6*	2132.7	$1^+,2^+$	1087.67	2^+				
1045.5 *10*	4.2 *3*	2465.42	2^+	1419.39	3^+				
1066.3 *4*	2.0 *3*	2486.07	$1,2^+$	1419.39	3^+				
1074.0[f] *10*	0.40 *15*	2975.9	$1,2^+$	1901.48	(2^+)				
1087.6 *3*	22.2 *23*	1087.67	2^+	0.0	0^+	E2		0.00513	α(K)=0.00414 *6*; α(L)=0.000752 *11*; α(M)=0.0001766 *25* α(N)=4.42×10^{-5} *7*; α(O)=8.20×10^{-6} *12*; α(P)=5.43×10^{-7} *8* Mult.: From α(K)exp (1954El04,1956Vo20) in ^{198}Au β^- decay.
1090.3[b] *10*	6.0[b] *23*	2177.65	$1,2^+$	1087.67	2^+				
1121.1[e] *4*	1.25[e] *25*	2169.38	2^+	1048.50	4^+				
1121.1[e] *4*	1.25[e] *25*	2209.19	$1,2^+$	1087.67	2^+				
1131.7 *3*	2.1 *3*	2219.4	$0^+,1,2,3,4^+$	1087.67	2^+				

$^{198}_{80}$Hg$_{118}$-6

γ(^{198}Hg) (continued)

E_γ[#]	I_γ[#@d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	δ[‡a]	α[†]	$I_{(\gamma+ce)}$[d]	Comments
1136.8 *3*	3.4 *3*	1548.48	(1,2$^+$)	411.78	2$^+$					
1145.0 *3*	2.0 *3*	2564.31	1,2$^+$	1419.39	3$^+$					
1200.6 *2*	89 *9*	1612.42	2$^+$	411.78	2$^+$	M1+E2	−0.26 *2*	0.00925 *14*		α(K)=0.00765 *12*; α(L)=0.001228 *19*; α(M)=0.000284 *5* α(N)=7.12×10^{-5} *11*; α(O)=1.350×10^{-5} *21*; α(P)=1.049×10^{-6} *16*; α(IPF)=6.69×10^{-6} *11*
1208.7 *10*	3.8 *9*	2296.11	2$^+$,3,4,5,6$^+$	1087.67	2$^+$					
1219.2 *3*	9.9 *9*	2267.7	2$^+$	1048.50	4$^+$					
1232.6 *3*	1.9 *3*	2320.3	1,2$^+$	1087.67	2$^+$					
1244.0 *3*	2.9 *4*	2331.55	4$^+$	1087.67	2$^+$					
1273.1 *4*	3.3 *4*	2360.76	3$^+$	1087.67	2$^+$					
1312.2 *2*	43.5 *45*	2360.76	3$^+$	1048.50	4$^+$	M1(+E2)	−0.09 *3*	0.00765		α(K)=0.00631 *9*; α(L)=0.001008 *15*; α(M)=0.000233 *4* α(N)=5.84×10^{-5} *9*; α(O)=1.108×10^{-5} *16*; α(P)=8.66×10^{-7} *13*; α(IPF)=2.97×10^{-5} *5* α(K)exp=0.0066 *17* (1971Be09).
^{x}1341.4 *5*	0.63 *20*									
1363.9 *4*	2.9 *4*	2451.84	(1,3)	1087.67	2$^+$					
^{x}1368.2 *5*	1.98 *40*									
1398.0 *6*	0.72 *20*	2486.07	1,2$^+$	1087.67	2$^+$					
1401.7 *8*		1401.50	0$^+$	0.0	0$^+$	E0			0.09 *2*	Mult.: From α(K)exp>0.1 (1971Be09), photon unobserved. $I_{(\gamma+ce)}$: From ce(K)(1401.7γ)/Iγ(989.7γ)=0.011 *2* (1971Be09).
1416.8 *10*	3.0 *13*	2465.42	2$^+$	1048.50	4$^+$					
1420.6 *3*	73 *8*	1832.58	2$^+$	411.78	2$^+$	M1(+E2)	−0.18 *3*	0.00623 *10*		α(K)=0.00511 *8*; α(L)=0.000814 *13*; α(M)=0.000188 *3* α(N)=4.72×10^{-5} *7*; α(O)=8.95×10^{-6} *14*; α(P)=6.99×10^{-7} *11*; α(IPF)=6.79×10^{-5} *10* α(K)exp=0.0062 *16* (1971Be09). δ: Consistent with A_2, A_4 (1971Be09).
1435.4 *3*	32 *4*	1847.20	3$^+$	411.78	2$^+$	M1(+E2)	+0.15 *5*	0.00611 *10*		α(K)=0.00500 *9*; α(L)=0.000797 *13*; α(M)=0.000184 *3* α(N)=4.62×10^{-5} *8*; α(O)=8.76×10^{-6} *15*; α(P)=6.85×10^{-7} *12*; α(IPF)=7.44×10^{-5} *12* α(K)exp=0.0057 *14* (1971Be09). δ: From α(K)exp. Value is consistent with A_2, A_4 (1971Be09).
1447.0 *3*	39 *4*	1858.82	2$^+$	411.78	2$^+$	M1(+E2)	−0.20 *5*	0.00595 *11*		α(K)=0.00486 *9*; α(L)=0.000775 *14*; α(M)=0.000179 *3* α(N)=4.49×10^{-5} *8*; α(O)=8.51×10^{-6} *15*; α(P)=6.65×10^{-7} *12*; α(IPF)=7.90×10^{-5} *13* Mult.: Deduced from ce(K)/Iγ (see 1971Be09,

γ(^{198}Hg) (continued)

E_γ[#]	I_γ[#@d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	δ[‡a]	α[†]	Comments
									Fig. 1) by evaluator. δ: Consistent with A_2, A_4 (1971Be09).
1475.0[b] *10*	2.0[b] *10*	2894.3	1,2$^+$	1419.39	3$^+$				
1476.5 *10*	2.2 *10*	2564.31	1,2$^+$	1087.67	2$^+$				
1487.5 *5*	3.1 *14*	1899.39	1$^+$,2$^+$	411.78	2$^+$				
1489.6 *3*	24.1 *28*	1901.48	(2$^+$)	411.78	2$^+$	(M1+E2)	−0.23 *8*	0.00552 *13*	α(K)=0.00449 *11*; α(L)=0.000716 *17*; α(M)=0.000165 *4* α(N)=4.15×10^{-5} *10*; α(O)=7.87×10^{-6} *19*; α(P)=6.15×10^{-7} *15*; α(IPF)=9.80×10^{-5} *20*
1515.0 *4*	1.9 *3*	2602.4		1087.67	2$^+$				
1548.4 *3*	1.0 *2*	1548.48	(1,2$^+$)	0.0	0$^+$				
1559.0 *3*	8.4 *9*	1970.91	2$^+$,3,4$^+$	411.78	2$^+$				
1593.6 *2*	19.5 *20*	2005.33	0$^+$,1,2,3,4$^+$	411.78	2$^+$				
1595.6[b] *10*	3.2[b] *10*	2644.2	2$^+$,3,4$^+$	1048.50	4$^+$				
1612.5 *3*	8.8 *4*	1612.42	2$^+$	0.0	0$^+$				
1636.8 *4*	2.4 *4*	2048.6	0$^+$,1,2,3,4$^+$	411.78	2$^+$				
1643.5 *4*	2.9 *4*	2731.2	2$^+$,3,4$^+$	1087.67	2$^+$				
1659.1 *3*	15.5 *15*	2070.8	1$^+$,2$^+$	411.78	2$^+$				
1682.5 *15*	0.46 *20*	2731.2	2$^+$,3,4$^+$	1048.50	4$^+$				
1697.3 *10*	2.0 *3*	2109.7	1,2$^+$	411.78	2$^+$				
x1702.0 *10*	0.88 *20*								
1720.8 *3*	25.4 *25*	2132.7	1$^+$,2$^+$	411.78	2$^+$				
1734.0 *5*	0.86 *20*	2782.74	2$^+$	1048.50	4$^+$				
1758.6 *6*	4.1 *6*	2169.38	2$^+$	411.78	2$^+$				
1765.8 *3*	9.0 *9*	2177.65	1,2$^+$	411.78	2$^+$				
1797.4 *3*	4.6 *6*	2209.19	1,2$^+$	411.78	2$^+$				
1832.6 *3*	39 *4*	1832.58	2$^+$	0.0	0$^+$				
1856.0 *10*	4.4 *10*	2267.7	2$^+$	411.78	2$^+$				
1859.0 *10*	7.1 *10*	1858.82	2$^+$	0.0	0$^+$				
1875.3 *3*	6.1 *6*	2287.3	1,2$^+$	411.78	2$^+$				
1884.5 *10*	0.5 *2*	2296.11	2$^+$,3,4,5,6$^+$	411.78	2$^+$				
1899.3 *3*	20.4 *20*	1899.39	1$^+$,2$^+$	0.0	0$^+$				
1908.5 *4*	1.3 *2*	2320.3	1,2$^+$	411.78	2$^+$				
1925.3 *5*	0.65 *15*	3013.1		1087.67	2$^+$				
1949.1 *5*	1.1 *2*	2360.76	3$^+$	411.78	2$^+$	(M1+E2)	−0.19 *4*	0.00317	α(K)=0.00232 *4*; α(L)=0.000366 *6*; α(M)=8.46×10^{-5} *13* α(N)=2.12×10^{-5} *4*; α(O)=4.02×10^{-6} *6*; α(P)=3.16×10^{-7} *5*; α(IPF)=0.000378 *6* Mult.,δ: From Mult.=D+Q, and ΔJ^π (1971Be09).
2040.2 *2*	77 *8*	2451.84	(1,3)	411.78	2$^+$	D+Q			δ=−0.035 *25* if J^π(2451)=1$^+$; δ=−0.19 *4* if J^π(2451)=3$^+$ (1971Be09).
2053.7 *3*	1.6 *2*	2465.42	2$^+$	411.78	2$^+$				
2074.3 *3*	5.3 *6*	2486.07	1,2$^+$	411.78	2$^+$				
2109.9 *5*	0.9 *2*	2109.7	1,2$^+$	0.0	0$^+$				
x2140.6 *5*	0.86 *20*								

$^{198}_{80}Hg_{118}$-8

γ(^{198}Hg) (continued)

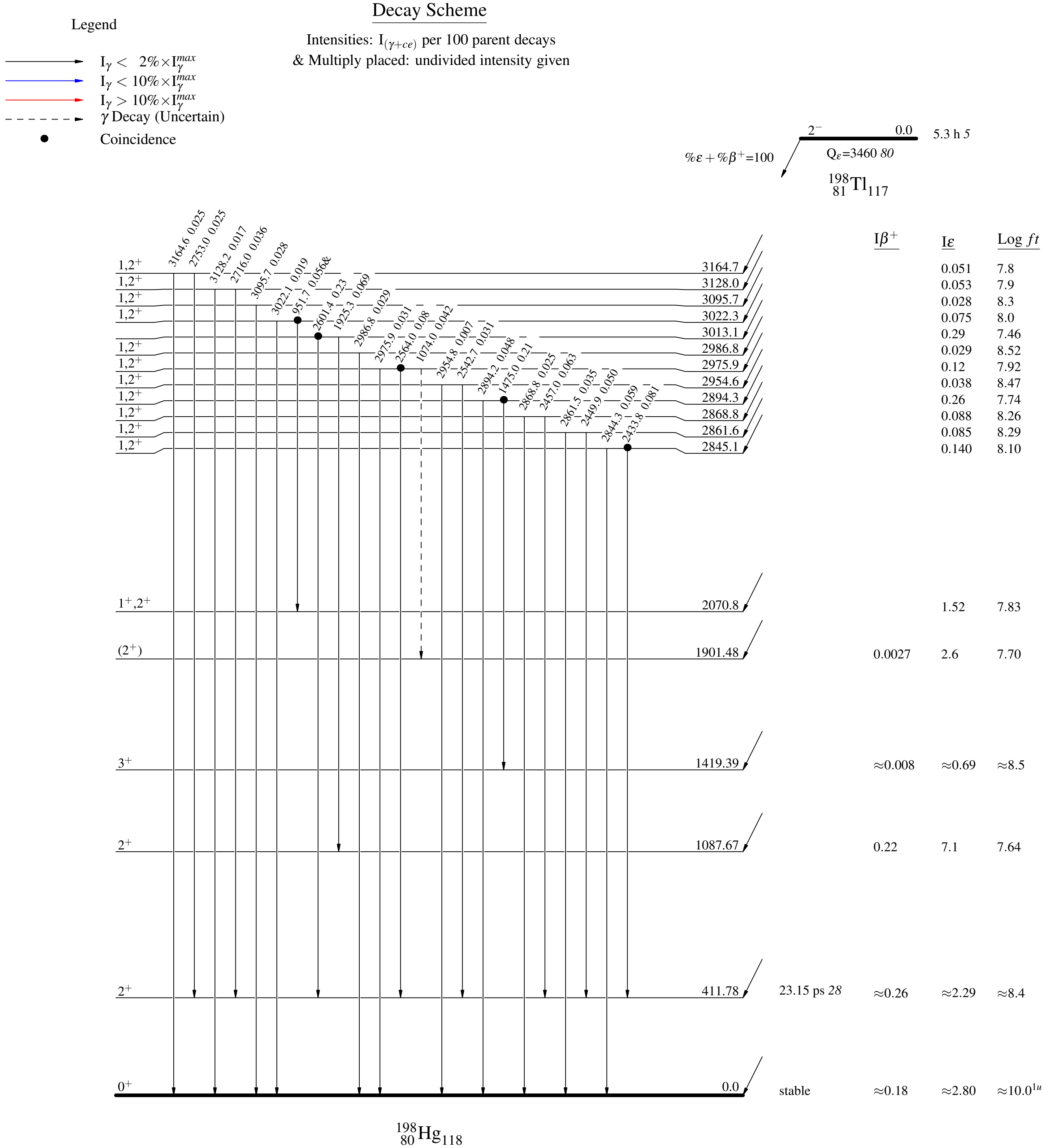
E$_\gamma$[#]	I$_\gamma$[#@d]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	E$_\gamma$[#]	I$_\gamma$[#@d]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$
2152.6 *3*	4.8 *5*	2564.31	$1,2^+$	411.78	2^+	2564.0 *10*	0.8 *3*	2975.9	$1,2^+$	411.78	2^+
2168.7 *5*	1.4 *2*	2169.38	2^+	0.0	0^+	2564.3 *3*	1.1 *3*	2564.31	$1,2^+$	0.0	0^+
2177.7 *8*	0.5 *2*	2177.65	$1,2^+$	0.0	0^+	2601.4 *3*	2.1 *2*	3013.1		411.78	2^+
2190.5 *3*	24.4 *24*	2602.4		411.78	2^+	2612.6 *3*	2.0 *2*	2612.5	$1,2^+$	0.0	0^+
2209.2 *4*	3.8 *4*	2209.19	$1,2^+$	0.0	0^+	2694.8 *8*	0.37 *7*	2694.8	$1,2^+$	0.0	0^+
2232.5 *8*	0.6 *2*	2644.2	$2^+,3,4^+$	411.78	2^+	[x]2700.7 *5*	0.72 *9*				
[x]2250.1 *8*	0.70 *15*					[x]2710.3 *8*	0.20 *6*				
2267.0 *15*	0.26 *10*	2267.7	2^+	0.0	0^+	2716.0 *8*	0.34 *7*	3128.0	$1,2^+$	411.78	2^+
2283.0[b] *10*	4.5[b] *10*	2694.8	$1,2^+$	411.78	2^+	2753.0 *10*	0.24 *5*	3164.7	$1,2^+$	411.78	2^+
2287.5 *10*	4.0 *10*	2287.3	$1,2^+$	0.0	0^+	2782.8 *4*	4.0 *4*	2782.74	2^+	0.0	0^+
2319.5[ef] *5*	1.42[e] *20*	2320.3	$1,2^+$	0.0	0^+	2816.1 *8*	0.38 *7*	2816.1	$1,2^+$	0.0	0^+
2319.5[e] *5*	1.42[e] *20*	2731.2	$2^+,3,4^+$	411.78	2^+	2825.6 *5*	1.08 *15*	2825.5	$1,2^+$	0.0	0^+
2370.9 *3*	4.9 *5*	2782.74	2^+	411.78	2^+	2835.5 *8*	0.22 *5*	2835.48	$1,2^+$	0.0	0^+
[x]2396.2 *6*	0.26 *8*					2844.3 *6*	0.56 *8*	2845.1	$1,2^+$	0.0	0^+
2404.5[f] *15*	0.13 *6*	2816.1	$1,2^+$	411.78	2^+	2861.5 *8*	0.33 *7*	2861.6	$1,2^+$	0.0	0^+
2413.7 *3*	3.1 *3*	2825.5	$1,2^+$	411.78	2^+	2868.8 *8*	0.24 *5*	2868.8	$1,2^+$	0.0	0^+
2423.7 *3*	2.0 *3*	2835.48	$1,2^+$	411.78	2^+	2894.2 *8*	0.45 *6*	2894.3	$1,2^+$	0.0	0^+
2433.8 *5*	0.76 *15*	2845.1	$1,2^+$	411.78	2^+	2954.8 *10*	0.07 *3*	2954.6	$1,2^+$	0.0	0^+
2449.9 *8*	0.47 *10*	2861.6	$1,2^+$	411.78	2^+	2975.9 *8*	0.29 *5*	2975.9	$1,2^+$	0.0	0^+
2457.0 *8*	0.59 *10*	2868.8	$1,2^+$	411.78	2^+	2986.8 *8*	0.27 *5*	2986.8	$1,2^+$	0.0	0^+
2465.4 *3*	5.7 *6*	2465.42	2^+	0.0	0^+	3022.1 *10*	0.18 *4*	3022.3	$1,2^+$	0.0	0^+
2486.2 *3*	10.3 *10*	2486.07	$1,2^+$	0.0	0^+	3095.7 *10*	0.26 *5*	3095.7	$1,2^+$	0.0	0^+
[x]2529.0 *8*	0.24 *6*					3128.2 *10*	0.16 *4*	3128.0	$1,2^+$	0.0	0^+
2542.7 *8*	0.29 *6*	2954.6	$1,2^+$	411.78	2^+	[x]3138.8[f] *15*	0.07 *3*				
[x]2551.0 *8*	0.26 *6*					3164.6 *7*	0.24 *4*	3164.7	$1,2^+$	0.0	0^+

[†] Additional information 1.
[‡] If No value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
[#] From 1971Pa06, except as noted.
[@] Relative intensities normalized to Iγ(675.8γ)=100.
[&] From α(K)exp measurements (1971Be09,1971Pa06), except as noted.
[a] From γγ(θ) measurements (1971Pa06,1971Be09), except as noted.
[b] From γγ coin.
[c] I(β^+)/100 decays=0.53 deduced. See 1961Gu02 for Eβ, Iβ spectrum.
[d] For absolute intensity per 100 decays, multiply by 0.106 *10*.
[e] Multiply placed with undivided intensity.
[f] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

^{198}Tl ε decay (5.3 h) 1971Pa06,1971Be09

Decay Scheme

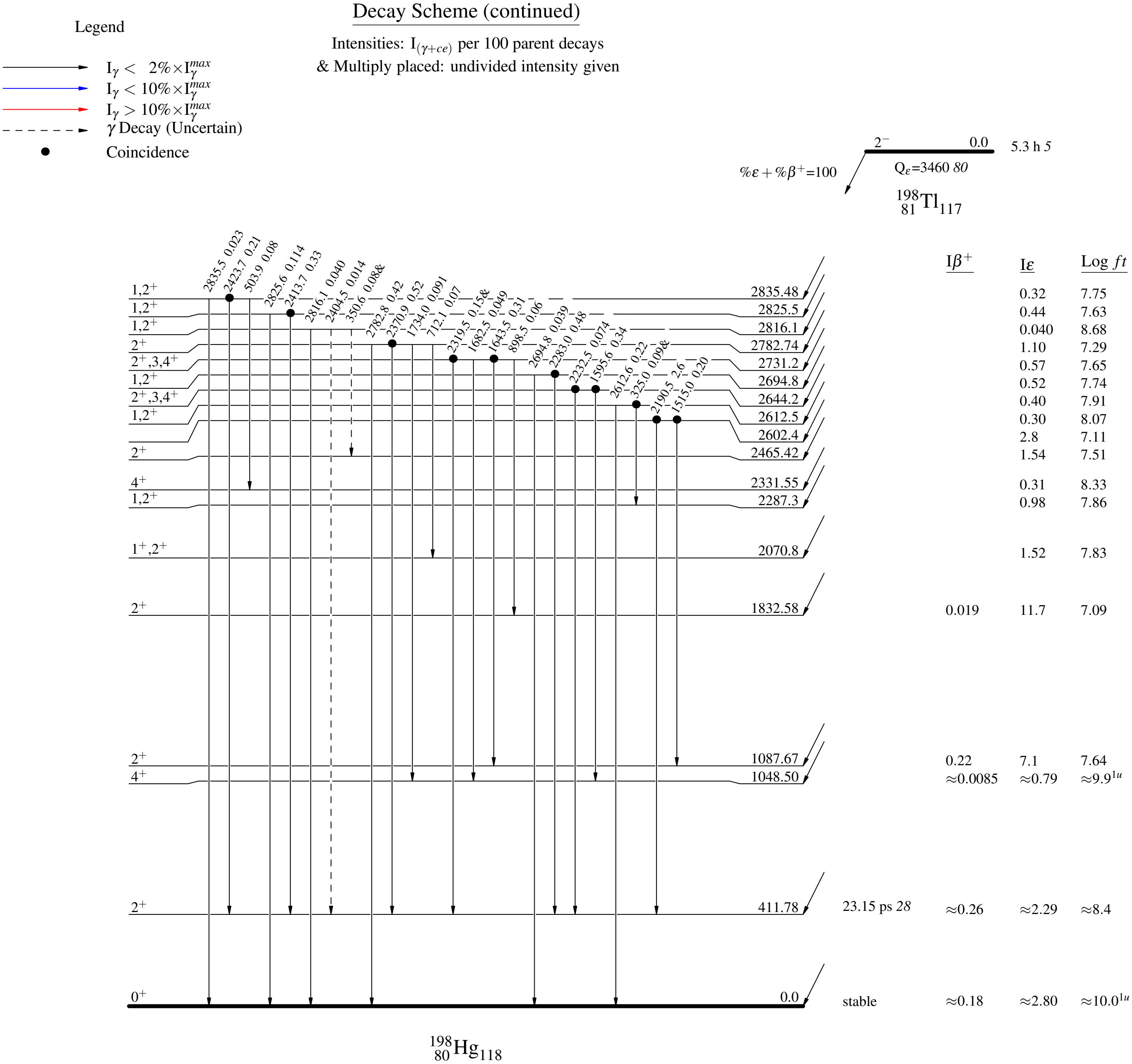
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



^{198}Tl ε decay (5.3 h) 1971Pa06,1971Be09

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



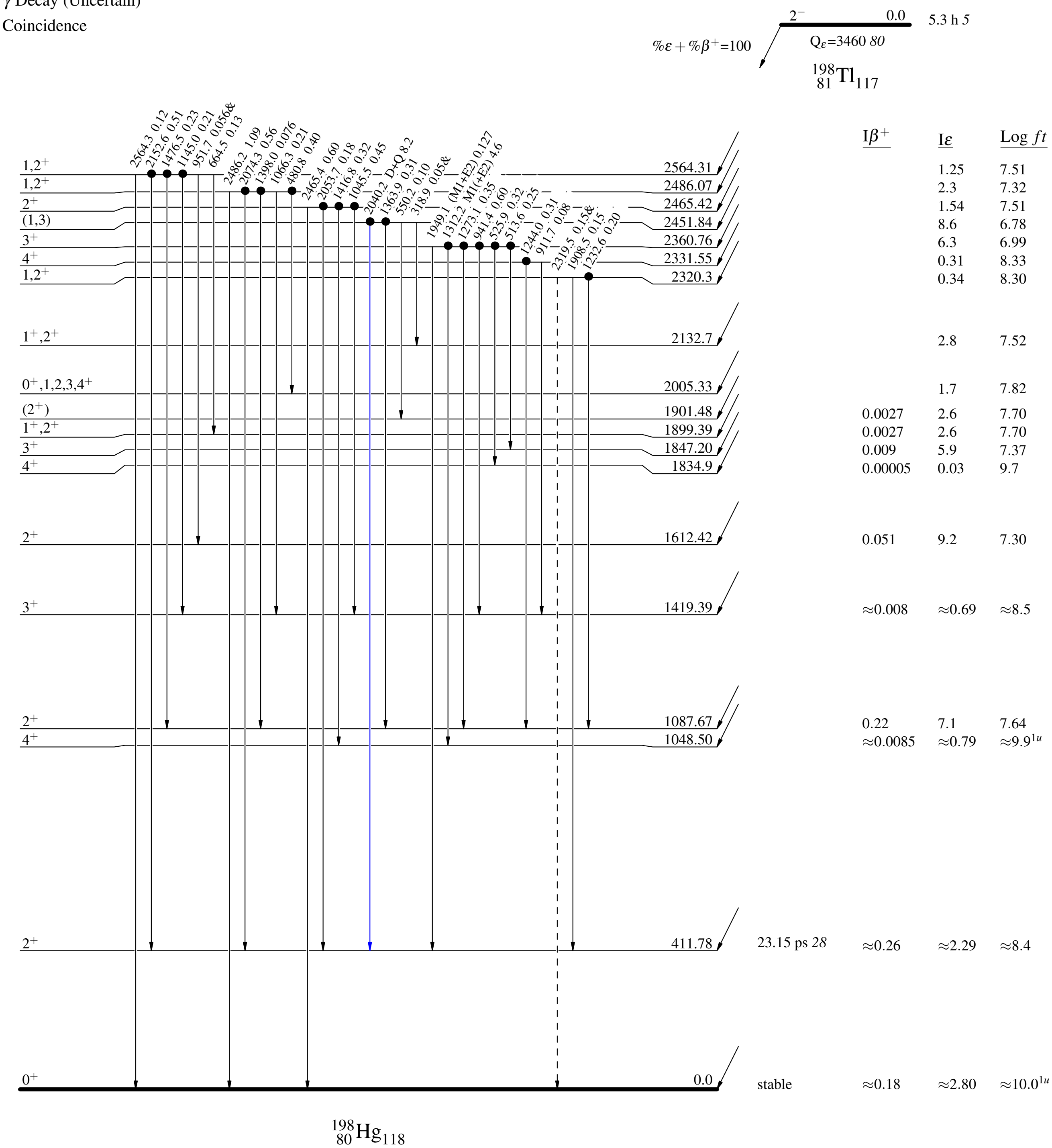
^{198}Tl ε decay (5.3 h) 1971Pa06,1971Be09

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given

Legend

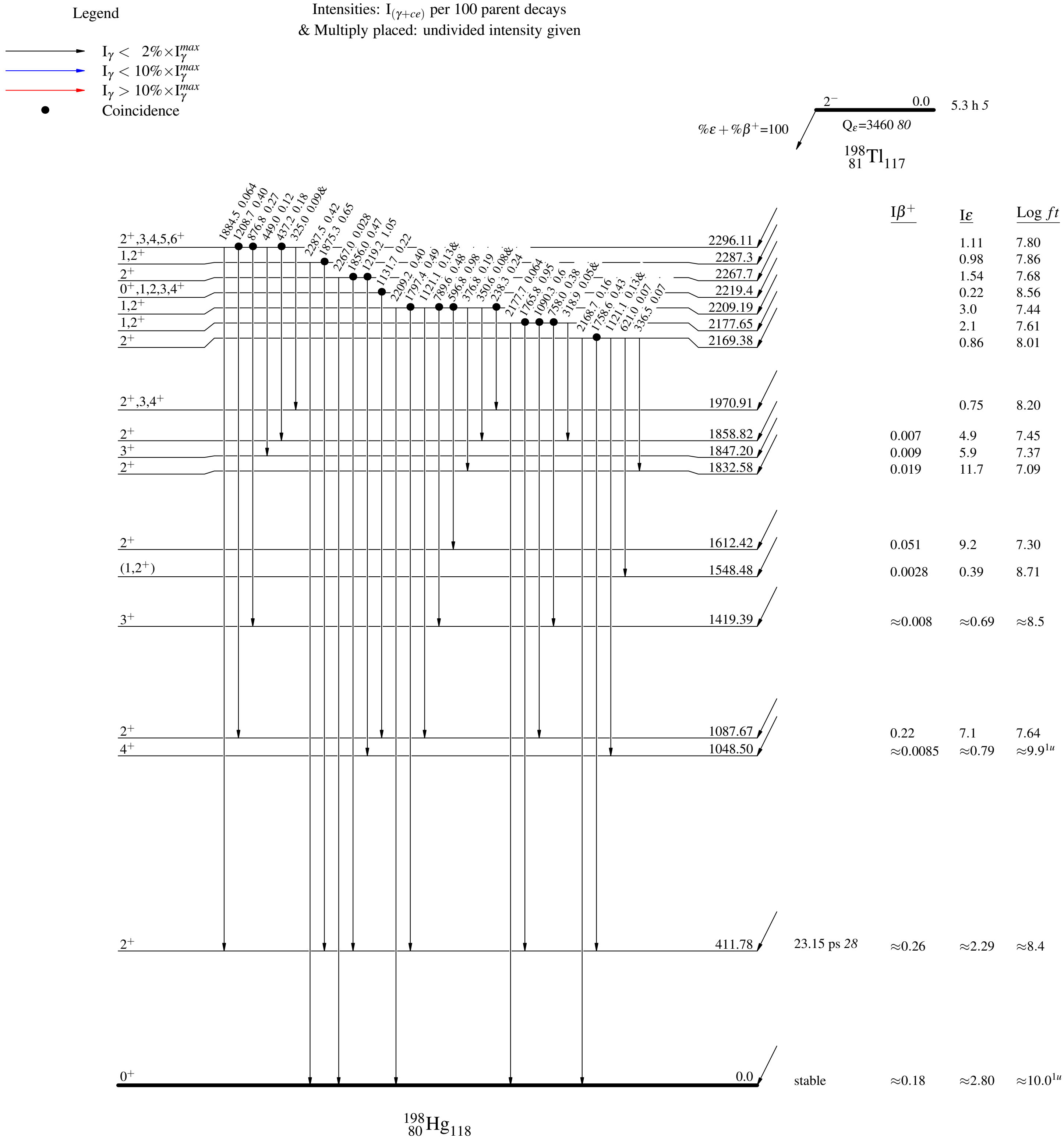
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)
- Coincidence



^{198}Tl ε decay (5.3 h) 1971Pa06,1971Be09

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



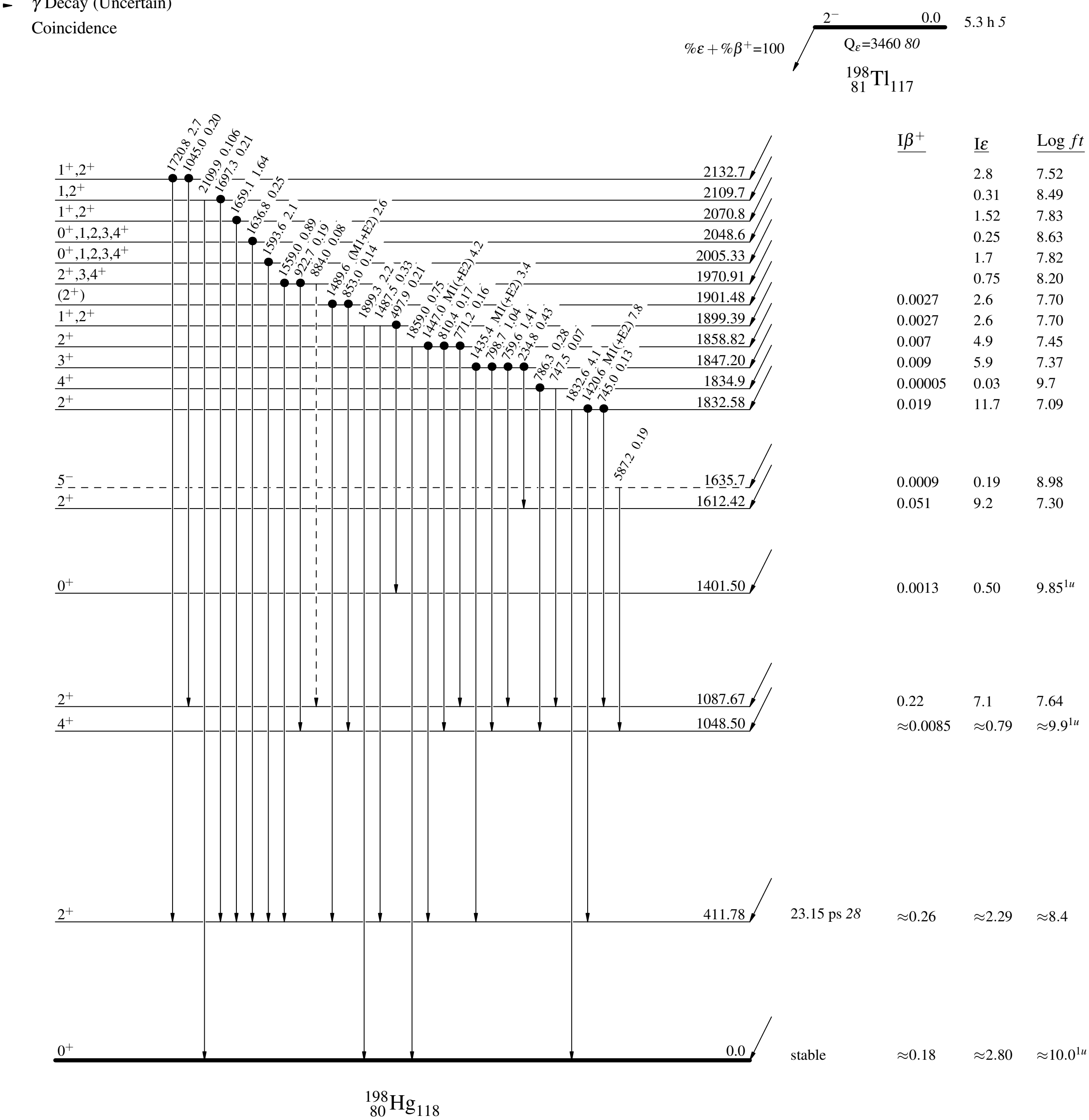
^{198}Tl ε decay (5.3 h) 1971Pa06,1971Be09

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given

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)
- ● Coincidence



^{198}Tl ε decay (5.3 h) 1971Pa06,1971Be09

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given