^{148}Eu ε decay 1985Si16,1987Ad08

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 117, 1 (2014)	1-Oct-2013

Parent: ^{148}Eu: E=0.0; J$^\pi$=5$^-$; $T_{1/2}$=54.5 d *5*; Q(ε)=3037 *10*; %ε+%β^+ decay=100.0

Measured: Eγ, Iγ (1987Ad08,1985Si16,1985AdZU,1984LaZZ,1978Ad07,1973To01,1967Cl01), $\gamma\gamma$ (1987Ad08,1985Si16,1984LaZZ,1978Ad07,1967Cl01), ce (1967Cl01,1968Ha39,1978Ad07), $\gamma\gamma(\theta)$, (1985Si16,1962Su02,1962Sc04), $\gamma(\theta)$ of polarized nuclei (1984Kr09), β^+ (1970Ag01,1963Ba32).

Level scheme is that of 1987Ad08 in general with some changes in placement from 1985Si16.

Eβ+=920 *30* 0.13% 4 (1963Ba32); 940 *40* (0.13%), 540 *30* (0.06% 2) (1970Ag01).

^{148}Sm Levels

E(level)†	J$^\pi$‡	Comments
0.0	0$^+$	
550.268 *11*	2$^+$	J$^\pi$=2$^+$ (1984Kr09).
1161.534 *12*	3$^-$	J$^\pi$=3$^-$ (1984Kr09).
1180.257 *12*	4$^+$	J$^\pi$=4$^+$ (1984Kr09).
1454.143 *13*	2$^+$	
1465.19 *25*	1$^-$	J$^\pi$=1$^-$ (1987Ad08).
1594.252 *12*	5$^-$	J$^\pi$=5$^-$ (1984Kr09),
1664.303 *22*	2$^+$	
1733.476 *12*	4$^+$	J$^\pi$=4$^+$ (1984Kr09), 4$^+$ (1985Si16), 4$^+$ (1987Ad08).
1894.832 *14*	4$^+$	J$^\pi$=4$^+$ (1984Kr09), 4$^+$ (1985Si16), 4$^+$ (1987Ad08).
1903.728 *18*	3$^+$	J$^\pi$=3$^+$,4$^+$ (1984Kr09), 3$^+$ (1987Ad08).
1905.864 *13*	6$^+$	J$^\pi$=6$^+$ (1984Kr09).
2031.423 *13*	4$^-$	J$^\pi$=4$^-$ (1984Kr09), 4$^-$ (1985Si16), 4$^-$ (1987Ad08).
2095.593 *13*	6$^+$	J$^\pi$=6$^+$ (1984Kr09), 6$^+$ (1985Si16), 6$^+$ (1987Ad08).
2111.058 *13*	4$^+$	J$^\pi$=3$^+$ (1984Kr09), (4)$^+$ (1985Si16), 4$^+$ (1987Ad08).
2128.62 *7*	7$^-$	J$^\pi$=7$^-$ (1985Si16), 7$^-$ (1987Ad08).
2147.516 *13*	5$^+$	J$^\pi$=5$^+$ (1984Kr09), 5$^+$ (1985Si16), 5$^+$ (1987Ad08).
2194.052 *14*	6$^+$	J$^\pi$=6$^+$ (1987Ad08).
2214.217 *15*	5$^+$	J$^\pi$=5$^+$ (1984Kr09), 5$^+$ (1985Si16), 5$^+$ (1987Ad08).
2228.057 *17*	4$^+$	J$^\pi$=4$^+$ (1984Kr09), 4$^+$ (1985Si16), 4$^+$ (1987Ad08).
2318.5? *5*	$^+$	E(level): from 1985Si16; 1987Ad08 could find no evidence to support the existence of this level.
2327.426 *14*	4$^+$	J$^\pi$=4$^+$ (1984Kr09), 4$^+$ (1985Si16), 4$^+$ (1987Ad08). E(level): (n,γ) E=0.020-1.0 keV data show two closely-spaced levels at 2327.09 *5* J$^\pi$=4$^+$, and 2327.62 *9* J$^\pi$=3$^+$. Eγ=1166.08 and 1777.35 are assigned to the level with higher energy. It is possible that these levels were not completely resolved in the ε decay data.
2339.19 *18*	3$^-$	J$^\pi$=(3$^-$) (1987Ad08).
2374.395 *16*	5$^+$,6$^+$	J$^\pi$=5$^+$,6$^+$ (1984Kr09), 5$^+$ (1987Ad08).
2390.43 *7*	3$^+$	J$^\pi$=3$^+$,4$^+$ (1987Ad08).
2391.77 *14*	7$^+$	
2490.017 *14*	4$^+$	J$^\pi$=4$^+$ (1984Kr09), 4$^+$ (1985Si16), 4$^+$ (1987Ad08).
2524.390 *16*	4$^+$	J$^\pi$=4$^+$ (1984Kr09), 4$^+$ (1985Si16), 4$^+$ (1987Ad08).
2532.38 *4*	4$^-$,5$^-$	J$^\pi$=4$^-$,5$^-$ (1987Ad08).
2570.794 *19*	4$^{(-)}$	J$^\pi$=3$^-$,4$^-$ (1984Kr09), (4$^-$) (1985Si16), 4$^-$ (1987Ad08).
2583.861 *16*	4$^{(-)}$	J$^\pi$=4$^-$,5$^-$ (1987Ad08).
2641.237 *17*	5$^+$	J$^\pi$=4$^+$,5$^+$ (1984Kr09), 4$^+$ (1985Si16), 4$^+$,5$^+$ (1987Ad08).
2673.07 *4*	4$^+$	J$^\pi$=4$^+$ (1987Ad08).
2675.20 *14*	(3$^+$,4,5$^-$)	
2683.464 *12*	4$^-$,5$^-$	J$^\pi$=4$^-$,5$^-$ (1987Ad08).
2698.531 *16*	5$^-$,6$^-$	J$^\pi$=5$^-$,6$^-$ (1987Ad08).
2701.92 *4*	4$^{(-)}$,3$^{(-)}$	
2713.332 *20*	3$^+$,4$^+$	J$^\pi$=3$^+$,4$^+$ (1987Ad08).
2716.00 *4*	(4$^+$,5,6$^+$)	

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^{148}Eu ε decay 1985Si16,1987Ad08 (continued)

^{148}Sm Levels (continued)

E(level)†	J$^{\pi}$‡	Comments
2723.517 23	4+	J$^{\pi}$=4+, (3+) (1984Kr09), 3+,4+ (1987Ad08).
2727.31 6	5+	
2734.45 19	(3)	J$^{\pi}$=(3−) (1987Ad08).
2801.736 13	5+	J$^{\pi}$=5+ (1984Kr09), 5+ (1985Si16), 5+ (1987Ad08).
2815.583 18	4−	J$^{\pi}$=4− (1984Kr09), 4− (1987Ad08).
2830.665 14	5+	J$^{\pi}$=5+ (1984Kr09), 5+ (1985Si16), 5+ (1987Ad08).
2861.08 3	4−,5−	J$^{\pi}$=4−,5− (1987Ad08).
2906.3? 15	3−,4−	E(level): from 1985Si16.
2928.84 5	(4,5,6)+	

† From a least-squares fit to Eγ data.

‡ Adopted values; supporting arguments from this data set are indicated in comments.

ε,β^+ radiations

E(decay)	E(level)	Iε†#	Log *ft*	I($\varepsilon+\beta^+$)‡#	Comments
(108 10)	2928.84	0.055 8	8.49 15	0.055 8	εK=0.67 4; εL=0.252 25; εM+=0.081 10
(176 10)	2861.08	0.300 11	8.35 7	0.300 11	εK=0.762 8; εL=0.182 6; εM+=0.0560 19
(206 10)	2830.665	6.98 20	7.15 6	6.98 20	εK=0.778 5; εL=0.170 4; εM+=0.0517 13
(221 10)	2815.583	0.80 3	8.17 6	0.80 3	εK=0.784 4; εL=0.165 3; εM+=0.0501 10
(235 10)	2801.736	8.48 23	7.21 5	8.48 23	εK=0.789 4; εL=0.1619 25; εM+=0.0489 9
(303 10)	2734.45	0.025 3	10.00 7	0.025 3	εK=0.8046 18; εL=0.1505 13; εM+=0.0449 5
(310 10)	2727.31	0.191 16	9.14 5	0.191 16	εK=0.8057 17; εL=0.1496 13; εM+=0.0446 5
(313 10)	2723.517	1.34 4	8.30 4	1.34 4	εK=0.8063 16; εL=0.1492 12; εM+=0.0445 5
(321 10)	2716.00	0.180 7	9.20 4	0.180 7	εK=0.8074 16; εL=0.1484 12; εM+=0.0442 4
(324 10)	2713.332	0.282 12	9.01 4	0.282 12	εK=0.8078 15; εL=0.1481 11; εM+=0.0441 4
(335 10)	2701.92	0.210 10	9.17 4	0.210 10	εK=0.8094 14; εL=0.1469 11; εM+=0.0437 4
(338 10)	2698.531	0.93 4	8.54 4	0.93 4	εK=0.8098 14; εL=0.1466 10; εM+=0.0436 4
(354 10)	2683.464	0.755 25	8.67 4	0.755 25	εK=0.8117 12; εL=0.1452 9; εM+=0.0431 3
(362 10)	2675.20	0.043 4	9.94 5	0.043 4	εK=0.8126 12; εL=0.1445 9; εM+=0.0429 3
(364 10)	2673.07	0.216 10	9.24 4	0.216 10	εK=0.8128 12; εL=0.1444 9; εM+=0.0428 3
(396 10)	2641.237	1.44 6	8.50 3	1.44 6	εK=0.8160 10; εL=0.1420 7; εM+=0.04199 24
(453 10)	2583.861	0.479 15	9.11 3	0.479 15	εK=0.8204 7; εL=0.1388 5; εM+=0.04086 18
(466 10)	2570.794	0.40 3	9.21 4	0.40 3	εK=0.8212 7; εL=0.1381 5; εM+=0.04065 17
(505 10)	2532.38	0.052 8	10.17 7	0.052 8	εK=0.8234 6; εL=0.1365 4; εM+=0.04010 14
(513 10)	2524.390	4.2 3	8.28 4	4.2 3	εK=0.8238 5; εL=0.1362 4; εM+=0.03999 13
(547 10)	2490.017	2.51 7	8.565 22	2.51 7	εK=0.8254 5; εL=0.1350 4; εM+=0.03959 12
(645 10)	2391.77	0.016 3	11.07[1u] 9	0.016 3	εK=0.8020 10; εL=0.1523 7; εM+=0.04571 25
(647 10)	2390.43	0.017 6	11.04[1u] 16	0.017 6	εK=0.8021 10; εL=0.1522 7; εM+=0.04568 25
(663 10)	2374.395	0.635 19	9.341 20	0.635 19	εK=0.8294 3; εL=0.13202 22; εM+=0.03855 8
(698 10)	2339.19	0.0056 6	11.44 5	0.0056 6	εK=0.8304 3; εL=0.13132 20; εM+=0.03831 7
(710 10)	2327.426	2.41 9	8.825 22	2.41 9	εK=0.8307 3; εL=0.13110 19; εM+=0.03824 7
(809 10)	2228.057	0.29 5	9.86 8	0.29 5	εK=0.8328 2; εL=0.12953 14; εM+=0.03770 5
(823 10)	2214.217	9.4 3	8.369 19	9.4 3	εK=0.8330 2; εL=0.12935 14; εM+=0.03764 5
(843 10)	2194.052	1.35 4	9.234 18	1.35 4	εK=0.8334 2; εL=0.1291 2; εM+=0.03755 5
(889 10)	2147.516	17.2 23	8.18 6	17.2 23	εK=0.8341 2; εL=0.1285 2; εM+=0.03736 4
(908 10)	2128.62	0.106 25	10.41 11	0.106 25	εK=0.8344 2; εL=0.1283 1; εM+=0.03729 4
(926 10)	2111.058	2.7 3	9.02 5	2.7 3	εK=0.8346 2; εL=0.1281 1; εM+=0.03723 4
(941 10)	2095.593	3.34 10	8.941 17	3.34 10	εK=0.8348 2; εL=0.1280 1; εM+=0.03717 4
(1006 10)	2031.423	4.43 16	8.879 19	4.43 16	εK=0.8356 2; εL=0.12739 9; εM+=0.03697 3
(1131 10)	1905.864	10.2 4	8.623 20	10.2 4	εK=0.83692 9; εL=0.12643 7; εM+=0.03664 3
(1142 10)	1894.832	2.62 18	9.22 4	2.62 18	εK=0.83702 9; εL=0.12636 7; εM+=0.03662 3

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^{148}Eu ε decay 1985Si16,1987Ad08 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ #	Iε†#	Log *ft*	I($\varepsilon+\beta^+$)‡#	Comments
(1304 *10*)	1733.476	0.0040 *10*	12.7 *23*	8.65 *8*	12.7 *23*	av Eβ=139.7 *46*; εK=0.8380; εL=0.12539 *6*; εM+=0.03629 *2*
1942 *30*	1180.257	0.09 *7*	4 *3*	9.5 *4*	4 *3*	av Eβ=383.8 *44*; εK=0.8210 *9*; εL=0.12059 *15*; εM+=0.03480 *5*

† From analysis of 1987Ad08 data.
‡ From intensity balance at each level.
# Absolute intensity per 100 decays.

$\gamma(^{148}Sm)$

Iγ normalization: from Σ I(γ+ce) to g.s.=100, assuming ε decay to g.s.=0.0.

E_γ[#]	I_γ[#f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡c]	δ[‡c]	α[†]	Comments
66.72 *9*	0.36 *4*	2214.217	5+	2147.516	5+	M1		5.43	α(K)=4.60 *7*; α(L)=0.656 *10*; α(M)=0.1410 *21*; α(N+..)=0.0370 *6* α(N)=0.0319 *5*; α(O)=0.00478 *7*; α(P)=0.000294 *5*
92.6[@] *5*	0.27[d] *14*	2815.583	4−	2723.517	4+				
98.530 *20*	1.41 *4*	2194.052	6+	2095.593	6+	M1+E2	0.18	1.79 *3*	α(K)=1.486 *21*; α(L)=0.235 *4*; α(M)=0.0511 *8*; α(N+..)=0.01330 *19* α(N)=0.01152 *17*; α(O)=0.001689 *24*; α(P)=9.40×10^{-5} *14* δ: from M1/E2=30 (1968Ha39).
116.01 *4*	2.09 *6*	2147.516	5+	2031.423	4−	E1		0.184	α(K)=0.1556 *22*; α(L)=0.0225 *4*; α(M)=0.00481 *7*; α(N+..)=0.001234 *18* α(N)=0.001073 *15*; α(O)=0.0001528 *22*; α(P)=7.69×10^{-6} *11*
^x151.6 *3*	0.160 *20*								I$_\gamma$: <0.14 (1985Si16).
157.8[g@] *5*	0.14[gd] *7*	2532.38	4−,5−	2374.395	5+,6+				
157.8[g@] *5*	0.14[gd] *7*	2830.665	5+	2673.07	4+				
161.00 *6*	0.400 *20*	2801.736	5+	2641.237	5+				
166.15 *3*	0.94 *3*	2698.531	5−,6−	2532.38	4−,5−	M1,E2		0.397 *8*	α(K)=0.30 *4*; α(L)=0.073 *25*; α(M)=0.016 *6*; α(N+..)=0.0041 *15* α(N)=0.0036 *13*; α(O)=0.00050 *15*; α(P)=1.7×10^{-5} *5*
182.83 *3*	2.1 *4*	2214.217	5+	2031.423	4−	E1		0.0537	α(K)=0.0456 *7*; α(L)=0.00636 *9*; α(M)=0.001359 *19*; α(N+..)=0.000351 *5* α(N)=0.000305 *5*; α(O)=4.42×10^{-5} *7*; α(P)=2.39×10^{-6} *4*
189.721 *16*	2.48 *6*	2095.593	6+	1905.864	6+	M1,E2		0.264 *16*	α(K)=0.21 *3*; α(L)=0.045 *12*; α(M)=0.010 *3*; α(N+..)=0.0025 *7* α(N)=0.0022 *6*; α(O)=0.00031 *7*; α(P)=1.2×10^{-5} *4*
216.16[h] *6*	0.42[h] *3*	2111.058	4+	1894.832	4+	M1		0.195	α(K)=0.1657 *24*; α(L)=0.0232 *4*; α(M)=0.00497 *7*; α(N+..)=0.001307 *19* α(N)=0.001127 *16*; α(O)=0.0001691 *24*; α(P)=1.052×10^{-5} *15*
216.16[h] *6*	0.27[he] *2*	2327.426	4+	2111.058	4+				
^x218.3 *3*	0.110 *20*								
222.71 *12*	0.32 *3*	2128.62	7−	1905.864	6+	E1		0.0318	α(K)=0.0270 *4*; α(L)=0.00373 *6*; α(M)=0.000796 *12*; α(N+..)=0.000206 *3* α(N)=0.000179 *3*; α(O)=2.61×10^{-5} *4*; α(P)=1.448×10^{-6} *21*
241.653 *15*	20.0 *4*	2147.516	5+	1905.864	6+	M1+E2	−0.34 *11*	0.141 *3*	α(K)=0.119 *3*; α(L)=0.0176 *4*; α(M)=0.00379 *10*; α(N+..)=0.000991 *23* α(N)=0.000857 *21*; α(O)=0.0001269 *23*; α(P)=7.41×10^{-6} *25* δ: from $\gamma(\theta$,T) (1984Kr09).
243.83 *4*	4.50 *14*	2147.516	5+	1903.728	3+	E2		0.1086	α(K)=0.0817 *12*; α(L)=0.0210 *3*; α(M)=0.00472 *7*; α(N+..)=0.001192 *17* α(N)=0.001046 *15*; α(O)=0.0001413 *20*; α(P)=4.22×10^{-6} *6*

γ(^{148}Sm) (continued)

E_γ [#]	I_γ [#f]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡c]	δ [‡c]	α [†]	Comments
252.60 *3*	1.86 *6*	2147.516	5^+	1894.832	4^+	M1,E2		0.112 *16*	α(K)=0.091 *18*; α(L)=0.0167 *17*; α(M)=0.0037 *5*; α(N+..)=0.00095 *10* α(N)=0.00083 *9*; α(O)=0.000117 *7*; α(P)=5.4×10^{-6} *16*
[x]255.35 *13*	0.310 *20*								
279.30 *5*	1.17 *5*	1733.476	4^+	1454.143	2^+	E2		0.0703	α(K)=0.0542 *8*; α(L)=0.01261 *18*; α(M)=0.00282 *4*; α(N+..)=0.000715 *10* α(N)=0.000627 *9*; α(O)=8.56×10^{-5} *12*; α(P)=2.87×10^{-6} *4*
288.141 *13*	4.82 *11*	2194.052	6^+	1905.864	6^+	M1+E2	+0.088 *21*	0.0898	α(K)=0.0763 *11*; α(L)=0.01061 *15*; α(M)=0.00228 *4*; α(N+..)=0.000599 *9* α(N)=0.000516 *8*; α(O)=7.75×10^{-5} *11*; α(P)=4.82×10^{-6} *7*
291.3 *3*	0.150 *20*	2815.583	4^-	2524.390	4^+				
296.21 *7*	0.76 *4*	2524.390	4^+	2228.057	4^+	M1		0.0836	α(K)=0.0711 *10*; α(L)=0.00985 *14*; α(M)=0.00211 *3*; α(N+..)=0.000555 *8* α(N)=0.000479 *7*; α(O)=7.19×10^{-5} *10*; α(P)=4.49×10^{-6} *7*
300.65 *7*	0.76 *4*	1894.832	4^+	1594.252	5^-	[E1]		0.01463	α(K)=0.01248 *18*; α(L)=0.001694 *24*; α(M)=0.000362 *5*; α(N+..)=9.40×10^{-5} *14* α(N)=8.14×10^{-5} *12*; α(O)=1.195×10^{-5} *17*; α(P)=6.86×10^{-7} *10*
308.45 [@] *10*	1.04 *10*	2214.217	5^+	1905.864	6^+	E2,M1		0.063 *12*	α(K)=0.052 *12*; α(L)=0.00882 *13*; α(M)=0.00193 *5*; α(N+..)=0.000498 *7* α(N)=0.000433 *7*; α(O)=6.23×10^{-5} *24*; α(P)=3.1×10^{-6} *10* E_γ,I_γ: 307.4 *2*, 0.74 *7* (1987Ad08).
310.14 [h] *10*	2.1 [h] *4*	2214.217	5^+	1903.728	3^+	E2		0.0507	α(K)=0.0397 *6*; α(L)=0.00863 *13*; α(M)=0.00192 *3*; α(N+..)=0.000489 *7* α(N)=0.000428 *6*; α(O)=5.90×10^{-5} *9*; α(P)=2.15×10^{-6} *3* E_γ,I_γ: 309.51 *19*, 2.9 *2* unplaced in 1987Ad08.
310.14 [h] *10*	1.4 [h] *4*	2524.390	4^+	2214.217	5^+	M1		0.0740	α(K)=0.0630 *9*; α(L)=0.00871 *13*; α(M)=0.00187 *3*; α(N+..)=0.000491 *7* α(N)=0.000424 *6*; α(O)=6.36×10^{-5} *9*; α(P)=3.98×10^{-6} *6*
311.570 *20*	24.9 *5*	1905.864	6^+	1594.252	5^-	E1		0.01337	α(K)=0.01141 *16*; α(L)=0.001547 *22*; α(M)=0.000330 *5*; α(N+..)=8.58×10^{-5} *12* α(N)=7.43×10^{-5} *11*; α(O)=1.092×10^{-5} *16*; α(P)=6.29×10^{-7} *9* δ(M2/E1)=+0.03 *7* from γ(θ,T)(1984Kr09).
319.270 *20*	2.16 *6*	2214.217	5^+	1894.832	4^+	M1,E2		0.057 *12*	α(K)=0.047 *11*; α(L)=0.00792 *18*; α(M)=0.001730 *25*; α(N+..)=0.000448 *10* α(N)=0.000389 *7*; α(O)=5.6×10^{-5} *3*; α(P)=2.8×10^{-6} *9*
322 *1*	0.27 *14*	2228.057	4^+	1905.864	6^+				E_γ: from 1968Ha39. Observed also in 1985Si16.
332.91 *13*	0.14 *3*	2723.517	4^+	2390.43	3^+				E_γ: 1985Si16 suggest this γ belongs to ^{150}Eu ε decay.
356.47 *15*	0.17 *4*	2570.794	$4^{(-)}$	2214.217	5^+				
362.5 *3*	0.36 *6*	2095.593	6^+	1733.476	4^+				E_γ,I_γ: 1985Si16 place a 361.5-keV γ from 2886 level based on γγ data.
377.560 *20*	2.2 *5*	2111.058	4^+	1733.476	4^+	M1		0.0442	α(K)=0.0376 *6*; α(L)=0.00518 *8*; α(M)=0.001109 *16*;

$^{148}_{62}Sm_{86}$-5

γ(^{148}Sm) (continued)

E_γ[#]	I_γ[#f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡c]	δ[‡c]	α[†]	Comments
									α(N+..)=0.000292 4 α(N)=0.000251 4; α(O)=3.78×10^{-5} 6; α(P)=2.37×10^{-6} 4 Mult.: M1 from 1985Si16 but E1(E2) in 1987Ad08.
385.9 6	0.20 9	2713.332	$3^+,4^+$	2327.426	4^+				
414.028 12	143 4	1594.252	5^-	1180.257	4^+	E1+M2	−0.013 10	0.00670 11	α=0.00670 11; α(K)=0.00573 9; α(L)=0.000766 13; α(M)=0.000163 3; α(N+..)=4.26×10^{-5} 7 α(N)=3.68×10^{-5} 6; α(O)=5.45×10^{-6} 9; α(P)=3.22×10^{-7} 6
414.057 16	140 7	2147.516	5^+	1733.476	4^+	M1+E2	−1.8 8	0.025 4	α(K)=0.020 4; α(L)=0.00343 23; α(M)=0.00075 5; α(N+..)=0.000194 13 α(N)=0.000168 11; α(O)=2.42×10^{-5} 20; α(P)=1.19×10^{-6} 24 δ: from γ(θ,T). Second possible value δ=−0.38 +16−34 is not compatible with α(K)exp data (1984Kr09). δ=1.9 +25−6 from E2=78% 17 (1987Ad08).
423.5[g] 4	0.53[g] 13	2327.426	4^+	1903.728	3^+				
423.5[g] 4	0.53[g] 13	2570.794	$4^{(-)}$	2147.516	5^+				
432.745[h] 8	39.5[h] 21	1594.252	5^-	1161.534	3^-	E2		0.0190	α(K)=0.01544 22; α(L)=0.00281 4; α(M)=0.000617 9; α(N+..)=0.0001587 23 α(N)=0.0001382 20; α(O)=1.96×10^{-5} 3; α(P)=8.75×10^{-7} 13 δ(M3/E2)=−0.04 8 from γ(θ,T)(1984Kr09).
432.745[h] 8	1.4[h] 7	2327.426	4^+	1894.832	4^+	M1		0.0311	α(K)=0.0265 4; α(L)=0.00363 5; α(M)=0.000776 11; α(N+..)=0.000204 3 α(N)=0.0001761 25; α(O)=2.65×10^{-5} 4; α(P)=1.664×10^{-6} 24
437.18 4	2.66 8	2031.423	4^-	1594.252	5^-	M1		0.0303	α(K)=0.0258 4; α(L)=0.00353 5; α(M)=0.000756 11; α(N+..)=0.000199 3 α(N)=0.0001715 24; α(O)=2.58×10^{-5} 4; α(P)=1.621×10^{-6} 23
441.23 14	0.16 3	2815.583	4^-	2374.395	$5^+,6^+$				
446.52 6	0.56 4	2111.058	4^+	1664.303	2^+	(E2)		0.01744	α(K)=0.01419 20; α(L)=0.00255 4; α(M)=0.000559 8; α(N+..)=0.0001437 21 α(N)=0.0001252 18; α(O)=1.778×10^{-5} 25; α(P)=8.07×10^{-7} 12
449[@] 1	0.7 3	1903.728	3^+	1454.143	2^+				
455.30 15	0.38 4	2683.464	$4^-,5^-$	2228.057	4^+				
460.80[g] 20	0.26[g] 3	2194.052	6^+	1733.476	4^+				Placement proposed only by 1985Si16.
460.80[g] 20	0.26[g] 3	2675.20	$(3^+,4,5^-)$	2214.217	5^+				Placement proposed by 1987Ad08.
468.500 12	5.85 13	2374.395	$5^+,6^+$	1905.864	6^+	M1+E2	≥0.41	0.020 5	α(K)=0.016 4; α(L)=0.0025 4; α(M)=0.00055 7;

$^{148}_{62}Sm_{86}$-6

γ(^{148}Sm) (continued)

E_γ [#]	I_γ [#f]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡c]	δ [‡c]	α [†]	Comments
									α(N+..)=0.000142 *19* α(N)=0.000123 *16*; α(O)=1.8×10^{-5} *3*; α(P)=1.0×10^{-6} *3* δ: from $\gamma(\theta$,T) (1984Kr09).
474.2 *4*	0.07 *4*	2801.736	5$^+$	2327.426	4$^+$				
478.4 *4*	0.30 *4*	2673.07	4$^+$	2194.052	6$^+$				
480.89 *8*	1.31 *6*	2214.217	5$^+$	1733.476	4$^+$	M1		0.0238	α(K)=0.0203 *3*; α(L)=0.00276 *4*; α(M)=0.000591 *9*; α(N+..)=0.0001555 *22* α(N)=0.0001340 *19*; α(O)=2.02×10^{-5} *3*; α(P)=1.269×10^{-6} *18*
485.90[g&] *14*	0.22[g] *4*	2391.77	7$^+$	1905.864	6$^+$	M1+E2	−0.15 *8*	0.0229 *5*	α(K)=0.0195 *4*; α(L)=0.00267 *5*; α(M)=0.000572 *9*; α(N+..)=0.0001505 *24* α(N)=0.0001298 *21*; α(O)=1.95×10^{-5} *4*; α(P)=1.223×10^{-6} *24*
485.90[ga] *14*	0.22[g] *4*	2713.332	3$^+$,4$^+$	2228.057	4$^+$				
485.90[g&] *14*	0.22[g] *4*	2861.08	4$^-$,5$^-$	2374.395	5$^+$,6$^+$				
489.2[@] *5*	0.27 *14*	2683.464	4$^-$,5$^-$	2194.052	6$^+$				
493.51[@] *20*	0.8 *3*	2641.237	5$^+$	2147.516	5$^+$				
495.25 *6*	0.66 *28*	2228.057	4$^+$	1733.476	4$^+$	M1		0.0221	α(K)=0.0188 *3*; α(L)=0.00256 *4*; α(M)=0.000548 *8*; α(N+..)=0.0001442 *21* α(N)=0.0001243 *18*; α(O)=1.87×10^{-5} *3*; α(P)=1.177×10^{-6} *17*
495.25 *6*	3.56[e] *11*	2723.517	4$^+$	2228.057	4$^+$	M1		0.0221	α(K)=0.0188 *3*; α(L)=0.00256 *4*; α(M)=0.000548 *8*; α(N+..)=0.0001442 *21* α(N)=0.0001243 *18*; α(O)=1.87×10^{-5} *3*; α(P)=1.177×10^{-6} *17*
501.312 *11*	13.5 *3*	2095.593	6$^+$	1594.252	5$^-$	E1+M2	−0.017 *14*	0.00431 *8*	α=0.00431 *8*; α(K)=0.00369 *7*; α(L)=0.000489 *9*; α(M)=0.0001041 *20*; α(N+..)=2.72×10^{-5} *5* α(N)=2.35×10^{-5} *5*; α(O)=3.49×10^{-6} *7*; α(P)=2.09×10^{-7} *4* δ(M2/E1)=−0.16 +*15*−*19* from $\gamma(\theta$,T) (1984Kr09); =0.20 from E1/M2=24 (1968Ha39).
504.57 *7*	1.92 *7*	2698.531	5$^-$,6$^-$	2194.052	6$^+$				
516.793 *14*	5.89 *19*	2111.058	4$^+$	1594.252	5$^-$	E1+M2	0.48 *8*	0.015 *3*	α(K)=0.013 *3*; α(L)=0.0019 *4*; α(M)=0.00041 *9*; α(N+..)=0.000108 *23* α(N)=9.3×10^{-5} *20*; α(O)=1.4×10^{-5} *3*; α(P)=8.4×10^{-7} *18* δ: calculated from %E1=81 *5* (1987Ad08).
532[@i] *1*	0.27 *14*	2906.3?	3$^-$,4$^-$	2374.395	5$^+$,6$^+$				
534.38 *7*	1.4 *3*	2128.62	7$^-$	1594.252	5$^-$	E2		0.01077	α(K)=0.00888 *13*; α(L)=0.001480 *21*; α(M)=0.000323 *5*; α(N+..)=8.35×10^{-5} *12* α(N)=7.25×10^{-5} *11*; α(O)=1.043×10^{-5} *15*; α(P)=5.14×10^{-7} *8*
539.1[@] *5*	0.14 *7*	2570.794	4$^{(-)}$	2031.423	4$^-$				

γ(^{148}Sm) (continued)

Eγ[#]	Iγ[#f]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[‡c]	δ[‡c]	α[†]	Comments
550.284 *12*	1370 *30*	550.268	2+	0.0	0+	E2		0.00998 *14*	α=0.00998 *14*; α(K)=0.00825 *12*; α(L)=0.001360 *19*; α(M)=0.000296 *5*; α(N+..)=7.67×10⁻⁵ *11* α(N)=6.66×10⁻⁵ *10*; α(O)=9.59×10⁻⁶ *14*; α(P)=4.78×10⁻⁷ *7*
553.231 *14*	180 *30*	1733.476	4+	1180.257	4+	M1+E2	+1.66 *20*	0.0117 *4*	α(K)=0.0098 *4*; α(L)=0.00150 *4*; α(M)=0.000324 *8*; α(N+..)=8.43×10⁻⁵ *22* α(N)=7.31×10⁻⁵ *18*; α(O)=1.07×10⁻⁵ *3*; α(P)=5.83×10⁻⁷ *24* Mult.: δ from γ(θ,T) (1984Kr09). The mixing ratio,q(E0/E2)=0.55 *14*; and the ratio X(E0/E2)=0.014 *7*, both calculated using the given δ, Rossel conversion coefficients (1978Ro22), and weighted average of α(K)exp= 11.7×10⁻³ *10* (1984Kr09).
553.260 *15*	70 *30*	2147.516	5+	1594.252	5−	E1		0.00344 *5*	α=0.00344 *5*; α(K)=0.00295 *5*; α(L)=0.000389 *6*; α(M)=8.28×10⁻⁵ *12*; α(N+..)=2.16×10⁻⁵ *3* α(N)=1.87×10⁻⁵ *3*; α(O)=2.78×10⁻⁶ *4*; α(P)=1.680×10⁻⁷ *24*
571.962 *7*	133 *3*	1733.476	4+	1161.534	3−	E1		0.00320 *5*	α=0.00320 *5*; α(K)=0.00274 *4*; α(L)=0.000361 *5*; α(M)=7.68×10⁻⁵ *11*; α(N+..)=2.01×10⁻⁵ *3* α(N)=1.735×10⁻⁵ *25*; α(O)=2.58×10⁻⁶ *4*; α(P)=1.564×10⁻⁷ *22* δ(M2/E1)=+0.05 *2* (1984Kr09), −0.10 *10*, +0.00 *5*,>+9, or>+0.65 (1985Si16).
574[@] *1*	0.27 *14*	2801.736	5+	2228.057	4+				
575.97[@] *10*	0.64 *8*	2723.517	4+	2147.516	5+				
583.4[@] *5*	0.27 *14*	2490.017	4+	1905.864	6+				
587.52[g&] *6*	1.63[g] *6*	2683.464	4−,5−	2095.593	6+				
587.52[ga] *6*	1.63[g] *6*	2698.531	5−,6−	2111.058	4+				
587.52[g&a] *6*	1.63[g] *6*	2815.583	4−	2228.057	4+				
594.89 *4*	2.69 *9*	2490.017	4+	1894.832	4+				
599.81 *3*	4.78 *9*	2194.052	6+	1594.252	5−	E1+M2	−0.021 *11*	0.00290 *5*	α=0.00290 *5*; α(K)=0.00249 *4*; α(L)=0.000327 *6*; α(M)=6.96×10⁻⁵ *12*; α(N+..)=1.82×10⁻⁵ *3* α(N)=1.57×10⁻⁵ *3*; α(O)=2.34×10⁻⁶ *4*; α(P)=1.423×10⁻⁷ *24*
602.62[h&] *3*	0.44[he] *22*	2698.531	5−,6−	2095.593	6+				
602.62[h&a] *3*	4.11[he] *8*	2830.665	5+	2228.057	4+				
611.293 *8*	285 *6*	1161.534	3−	550.268	2+	E1		0.00277 *4*	α=0.00277 *4*; α(K)=0.00237 *4*; α(L)=0.000312 *5*; α(M)=6.63×10⁻⁵ *10*; α(N+..)=1.735×10⁻⁵ *25*

From ENSDF

γ(^{148}Sm) (continued)

E_γ[#]	I_γ[#f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡c]	δ[‡c]	α[†]	Comments
									α(N)=1.498×10^{-5} *21*; α(O)=2.23×10^{-6} *4*; α(P)=1.358×10^{-7} *19* δ(M2/E1)=+0.03 *2* from γ(θ,T) (1984Kr09).
620.04[h] *3*	12.5[h] *8*	2214.217	5$^+$	1594.252	5$^-$	E1+M2	+0.13 *5*	0.0033 *5*	α=0.0033 *5*; α(K)=0.0028 *5*; α(L)=0.00037 *7*; α(M)=8.0×10^{-5} *14*; α(N+..)=2.1×10^{-5} *4* α(N)=1.8×10^{-5} *4*; α(O)=2.7×10^{-6} *5*; α(P)=1.6×10^{-7} *3* δ: from 1984Kr09.
620.04[h] *3*	2.8[he] *6*	2524.390	4$^+$	1905.864	6$^+$				
629.987 *8*	1000 *22*	1180.257	4$^+$	550.268	2$^+$	E2		0.00710 *10*	α=0.00710 *10*; α(K)=0.00591 *9*; α(L)=0.000932 *13*; α(M)=0.000202 *3*; α(N+..)=5.25×10^{-5} *8* α(N)=4.55×10^{-5} *7*; α(O)=6.61×10^{-6} *10*; α(P)=3.46×10^{-7} *5* δ(M3/E2)=−0.01 *6* from γ(θ,T) (1984Kr09).
636.86 *7*	0.40 *7*	2830.665	5$^+$	2194.052	6$^+$				
643.90 *20*	0.218 *19*	2675.20	(3$^+$,4,5$^-$)	2031.423	4$^-$				
646.9[@] *5*	0.14 *7*	2861.08	4$^-$,5$^-$	2214.217	5$^+$				
651.5[@] *5*	0.27 *14*	2683.464	4$^-$,5$^-$	2031.423	4$^-$				
654.220 *8*	22.5 *5*	2801.736	5$^+$	2147.516	5$^+$	M1+E2	+0.9 *3*	0.0090 *9*	α=0.0090 *9*; α(K)=0.0076 *8*; α(L)=0.00108 *8*; α(M)=0.000231 *17*; α(N+..)=6.1×10^{-5} *5* α(N)=5.2×10^{-5} *4*; α(O)=7.8×10^{-6} *6*; α(P)=4.7×10^{-7} *5* δ: from γ(θ,T) (1984Kr09).
656.93 *3*	1.96 *12*	2111.058	4$^+$	1454.143	2$^+$				
662.79 *5*	1.39 *5*	2327.426	4$^+$	1664.303	2$^+$				
667.170[h] *20*	1.5[he] *3*	2570.794	4$^{(-)}$	1903.728	3$^+$				
667.170[h] *20*	0.9[he] *3*	2698.531	5$^-$,6$^-$	2031.423	4$^-$				
683.153 *7*	17.8 *4*	2830.665	5$^+$	2147.516	5$^+$	M1+E2		0.0079 *21*	α=0.0079 *21*; α(K)=0.0067 *18*; α(L)=0.00094 *20*; α(M)=0.00020 *4*; α(N+..)=5.3×10^{-5} *11* α(N)=4.6×10^{-5} *10*; α(O)=6.8×10^{-6} *15*; α(P)=4.1×10^{-7} *12* Mult.: δ=+0.85 *+35−50* or −0.06 *+38−18* (1984Kr09).
690.74 *3*	1.69 *4*	2801.736	5$^+$	2111.058	4$^+$				
701.9[@] *5*	0.27 *14*	2830.665	5$^+$	2128.62	7$^-$				
704.4[@] *3*	0.27 *7*	2815.583	4$^-$	2111.058	4$^+$				
705.91 *18*	0.24 *6*	2801.736	5$^+$	2095.593	6$^+$				
714.769 *13*	23.9 *5*	1894.832	4$^+$	1180.257	4$^+$	M1+E2		0.0070 *18*	α=0.0070 *18*; α(K)=0.0060 *16*; α(L)=0.00084 *18*; α(M)=0.00018 *4*; α(N+..)=4.7×10^{-5} *10* α(N)=4.1×10^{-5} *9*; α(O)=6.1×10^{-6} *14*; α(P)=3.6×10^{-7} *11* δ: +0.25 *10* or −1.5 *5*, from γγ(θ) (1985Si16), −0.03≤δ≤+1.02 from γ(θ,T) (1984Kr09). The mixing ratio, 1.1≤q(E$_0$/E$_2$)≤26; and 0.085≤X(E$_0$/E$_2$)≤50; both calculated using

$^{148}_{62}$Sm$_{86}$-9

γ(^{148}Sm) (continued)

E_γ[#]	I_γ[#f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡c]	δ[‡c]	α[†]	Comments
									-0.03≤δ≤1.02, Rossel conversion coefficients (1978Ro22), and weighted average α(K)exp=9.7×10^{-3} 9 (1984Kr09).
719.64 7	3.80 20	2830.665	5$^+$	2111.058	4$^+$				
725.673 9	176 4	1905.864	6$^+$	1180.257	4$^+$	E2		0.00506 7	α=0.00506 7; α(K)=0.00424 6; α(L)=0.000642 9; α(M)=0.0001389 20; α(N+..)=3.61×10^{-5} 5 α(N)=3.13×10^{-5} 5; α(O)=4.58×10^{-6} 7; α(P)=2.50×10^{-7} 4
732.99 7	0.78 7	2327.426	4$^+$	1594.252	5$^-$				
735.00[h] 5	1.7[h] 3	2641.237	5$^+$	1905.864	6$^+$	M1+E2	−1.1 6	0.0064 12	α=0.0064 12; α(K)=0.0055 11; α(L)=0.00077 12; α(M)=0.000165 24; α(N+..)=4.3×10^{-5} 7 α(N)=3.7×10^{-5} 6; α(O)=5.6×10^{-6} 9; α(P)=3.3×10^{-7} 7 δ: from 1984Kr09.
735.00[h] 5	0.44[h] 22	2830.665	5$^+$	2095.593	6$^+$	M1+E2	−1.1 6	0.0064 12	α=0.0064 12; α(K)=0.0055 11; α(L)=0.00077 12; α(M)=0.000165 24; α(N+..)=4.3×10^{-5} 7 α(N)=3.7×10^{-5} 6; α(O)=5.6×10^{-6} 9; α(P)=3.3×10^{-7} 7 δ: from 1984Kr09.
736.90[b] 20	0.29 7	2641.237	5$^+$	1903.728	3$^+$				
742.16[b] 11	0.34 3	1903.728	3$^+$	1161.534	3$^-$				
745.87[b] 5	0.74 5	2641.237	5$^+$	1894.832	4$^+$				
756.581[b] 12	4.23 9	2490.017	4$^+$	1733.476	4$^+$	M1,E2		0.0061 16	α=0.0061 16; α(K)=0.0052 14; α(L)=0.00073 16; α(M)=0.00016 4; α(N+..)=4.1×10^{-5} 9 α(N)=3.5×10^{-5} 8; α(O)=5.3×10^{-6} 12; α(P)=3.2×10^{-7} 9
770.307[b] 10	5.88 13	2801.736	5$^+$	2031.423	4$^-$				
774.2[@] 5	0.14 7	2228.057	4$^+$	1454.143	2$^+$				
780.11[b] 6	1.60 5	2374.395	5$^+$,6$^+$	1594.252	5$^-$				
787.98[b] 18	0.37 5	2683.464	4$^-$,5$^-$	1894.832	4$^+$				
790.20[b] 20	0.57 6	2524.390	4$^+$	1733.476	4$^+$				
792.59[b] 6	1.64 7	2698.531	5$^-$,6$^-$	1905.864	6$^+$				
799.23[b] 3	5.82 16	2830.665	5$^+$	2031.423	4$^-$				
810.12[b] 4	0.95 3	2716.00	(4$^+$,5,6$^+$)	1905.864	6$^+$				
817.5[g@] 5	0.14[g] 7	2723.517	4$^+$	1905.864	6$^+$				
817.5[g@] 5	0.14[g] 7	2928.84	(4,5,6)$^+$	2111.058	4$^+$				
826.30[b] 16	0.36 4	2490.017	4$^+$	1664.303	2$^+$				
828.61 12	0.48 4	2723.517	4$^+$	1894.832	4$^+$				E_γ: placement in 1985Si16.
832.82 14	0.34 2	2727.31	5$^+$	1894.832	4$^+$				
832.9[@] 5	0.14 7	2928.84	(4,5,6)$^+$	2095.593	6$^+$				
851.4[@] 5	0.21 10	2031.423	4$^-$	1180.257	4$^+$				
[x]856.9 2	0.44 6								
859.90 20	0.49 6	2524.390	4$^+$	1664.303	2$^+$				

$^{148}_{62}$Sm$_{86}$-10

γ(^{148}Sm) (continued)

E_γ [#]	I_γ [#f]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡c]	δ [‡c]	α [†]	Comments
869.891 *8*	76.3 *16*	2031.423	4^-	1161.534	3^-	M1+E2	−1.7 *3*	0.00391 *18*	α=0.00391 *18*; α(K)=0.00331 *16*; α(L)=0.000466 *19*; α(M)=0.000100 *4*; α(N+..)=2.62×10^{-5} *11* α(N)=2.26×10^{-5} *9*; α(O)=3.36×10^{-6} *14*; α(P)=2.00×10^{-7} *11* δ: from $\gamma(\theta$,T) (1984Kr09). Others: −2.5 *5*, −4.5 *15*, or −0.55 *20* from $\gamma\gamma(\theta)$ (1985Si16).
895.847 *10*	9.00 *20*	2801.736	5^+	1905.864	6^+	M1+E2	−0.20 *11*	0.00504 *12*	α=0.00504 *12*; α(K)=0.00431 *11*; α(L)=0.000576 *13*; α(M)=0.000123 *3*; α(N+..)=3.24×10^{-5} *8* α(N)=2.79×10^{-5} *7*; α(O)=4.20×10^{-6} *10*; α(P)=2.67×10^{-7} *7* δ: from $\gamma(\theta$,T) (1984Kr09).
903.831 *15*	5.15 *11*	1454.143	2^+	550.268	2^+	M1+E2	+2.32 *10*	0.00339 *6*	α=0.00339 *6*; α(K)=0.00287 *5*; α(L)=0.000406 *7*; α(M)=8.72×10^{-5} *14*; α(N+..)=2.28×10^{-5} *4* α(N)=1.97×10^{-5} *3*; α(O)=2.92×10^{-6} *5*; α(P)=1.72×10^{-7} *3*
906.87 *3*	2.89 *7*	2801.736	5^+	1894.832	4^+				
915.331 *8*	36.1 *8*	2095.593	6^+	1180.257	4^+	E2		0.00300 *5*	α=0.00300 *5*; α(K)=0.00254 *4*; α(L)=0.000364 *5*; α(M)=7.83×10^{-5} *11*; α(N+..)=2.04×10^{-5} *3* α(N)=1.769×10^{-5} *25*; α(O)=2.61×10^{-6} *4*; α(P)=1.508×10^{-7} *22* Mult.: $\gamma\gamma(\theta)$ consistent with pure Q transition (1985Si16).
924.75 *3*	4.38 *11*	2830.665	5^+	1905.864	6^+	M1		0.00474 *7*	α=0.00474 *7*; α(K)=0.00406 *6*; α(L)=0.000541 *8*; α(M)=0.0001155 *17*; α(N+..)=3.04×10^{-5} *5* α(N)=2.62×10^{-5} *4*; α(O)=3.95×10^{-6} *6*; α(P)=2.51×10^{-7} *4*
929.85 *3*	17 *3*	2524.390	4^+	1594.252	5^-	[E1]		0.001184 *17*	α=0.001184 *17*; α(K)=0.001018 *15*; α(L)=0.0001312 *19*; α(M)=2.79×10^{-5} *4*; α(N+..)=7.30×10^{-6} α(N)=6.30×10^{-6} *9*; α(O)=9.43×10^{-7} *14*; α(P)=5.88×10^{-8} *9* Mult.: assumed E1 in order to extract mult for 930.807γ.
930.807 *19*	19 *4*	2111.058	4^+	1180.257	4^+	E2		0.00290 *4*	α=0.00290 *4*; α(K)=0.00245 *4*; α(L)=0.000350 *5*; α(M)=7.53×10^{-5} *11*; α(N+..)=1.97×10^{-5} *3* α(N)=1.701×10^{-5} *24*; α(O)=2.51×10^{-6} *4*; α(P)=1.455×10^{-7} *21*
935.20 *20*	0.74 *7*	2830.665	5^+	1894.832	4^+				
938.10 *9*	1.62 *7*	2532.38	$4^-,5^-$	1594.252	5^-				
949.590 *20*	3.34 *8*	2111.058	4^+	1161.534	3^-				
^{x}961.4 [@] *5*	0.14 *7*								
967.306 *17*	37.6 *8*	2147.516	5^+	1180.257	4^+	M1+E2		0.0035 *8*	α=0.0035 *8*; α(K)=0.0030 *7*; α(L)=0.00040 *9*; α(M)=8.6×10^{-5} *18*; α(N+..)=2.3×10^{-5} *5* α(N)=2.0×10^{-5} *4*; α(O)=2.9×10^{-6} *7*; α(P)=1.8×10^{-7} *5* δ: +0.42 *10* or +2.0 *5* from $\gamma\gamma(\theta)$ (1985Si16); +0.55 *+17−11* or −2.8 *+11−9* from $\gamma(\theta$,T) (1984Kr09).
976.50 *4*	1.13 *3*	2570.794	$4^{(-)}$	1594.252	5^-				
979.843 *15*	2.98 *7*	2713.332	$3^+,4^+$	1733.476	4^+				
989.606 *10*	6.45 *14*	2583.861	$4^{(-)}$	1594.252	5^-	M1,E2		0.0033 *8*	α=0.0033 *8*; α(K)=0.0028 *7*; α(L)=0.00038 *8*; α(M)=8.2×10^{-5} *17*; α(N+..)=2.1×10^{-5} *5* α(N)=1.9×10^{-5} *4*; α(O)=2.8×10^{-6} *6*; α(P)=1.7×10^{-7} *5*

γ(^{148}Sm) (continued)

E_γ[#]	I_γ[#f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡c]	δ[‡c]	α[†]	Comments
1013.808 *11*	7.40 *16*	2194.052	6^+	1180.257	4^+	E2+M3	−0.025 *14*	0.00243 *4*	α=0.00243 *4*; α(K)=0.00206 *4*; α(L)=0.000290 *5*; α(M)=6.22×10^{-5} *10*; α(N+..)=1.62×10^{-5} *3* α(N)=1.404×10^{-5} *22*; α(O)=2.08×10^{-6} *4*; α(P)=1.224×10^{-7} *20*
1033.986 *14*	108.0 *20*	2214.217	5^+	1180.257	4^+	M1+E2	−1.9 *6*	0.00260 *21*	α=0.00260 *21*; α(K)=0.00222 *18*; α(L)=0.000306 *22*; α(M)=6.5×10^{-5} *5*; α(N+..)=1.71×10^{-5} *13* α(N)=1.48×10^{-5} *11*; α(O)=2.21×10^{-6} *17*; α(P)=1.33×10^{-7} *12* δ: from (γ,θ,T) (1984Kr09). Others: 1.1 +*8*−*4*, from %M1=45 *24* (1987Ad08), −1.0 *4*, or −0.8 +*2*−*15* (1985Si16).
1036[@] *1*	1.5 *3*	2490.017	4^+	1454.143	2^+				
1047.570[h] *20*	2.7[h] *4*	2228.057	4^+	1180.257	4^+	M1		0.00353 *5*	α=0.00353 *5*; α(K)=0.00302 *5*; α(L)=0.000401 *6*; α(M)=8.55×10^{-5} *12*; α(N+..)=2.25×10^{-5} *4* α(N)=1.94×10^{-5} *3*; α(O)=2.92×10^{-6} *4*; α(P)=1.87×10^{-7} *3*
1047.570[h] *20*	0.7[he] *4*	2641.237	5^+	1594.252	5^-				
1058.7[@] *5*	0.14 *7*	2723.517	4^+	1664.303	2^+				
1066.75 *3*	5.42 *13*	2228.057	4^+	1161.534	3^-				
1068.25[@] *10*	1.26 *11*	2801.736	5^+	1733.476	4^+				
1069.82 *4*	3.05 *9*	2524.390	4^+	1454.143	2^+				
1082.096 *17*	2.63 *6*	2815.583	4^-	1733.476	4^+				
1089.154 *18*	2.85 *7*	2683.464	$4^-,5^-$	1594.252	5^-	M1		0.00322 *5*	α=0.00322 *5*; α(K)=0.00275 *4*; α(L)=0.000365 *6*; α(M)=7.79×10^{-5} *11*; α(N+..)=2.05×10^{-5} *3* α(N)=1.767×10^{-5} *25*; α(O)=2.66×10^{-6} *4*; α(P)=1.701×10^{-7} *24*
1097.18 *3*	1.73 *6*	2830.665	5^+	1733.476	4^+	M1		0.00316 *5*	α=0.00316 *5*; α(K)=0.00271 *4*; α(L)=0.000359 *5*; α(M)=7.66×10^{-5} *11*; α(N+..)=2.02×10^{-5} *3* α(N)=1.737×10^{-5} *25*; α(O)=2.62×10^{-6} *4*; α(P)=1.672×10^{-7} *24*
1104.321 *16*	5.11 *11*	2698.531	$5^-,6^-$	1594.252	5^-	M1		0.00311 *5*	α=0.00311 *5*; α(K)=0.00267 *4*; α(L)=0.000353 *5*; α(M)=7.54×10^{-5} *11*; α(N+..)=2.02×10^{-5} *3* α(N)=1.710×10^{-5} *24*; α(O)=2.58×10^{-6} *4*; α(P)=1.646×10^{-7} *23*; α(IPF)=4.01×10^{-7} *6*
1107.67 *3*	1.81 *5*	2701.92	$4^{(-)},3^{(-)}$	1594.252	5^-				
1113.92 *3*	1.90 *5*	1664.303	2^+	550.268	2^+	M1+E2	−0.565 *21*	0.00279 *5*	α=0.00279 *5*; α(K)=0.00239 *4*; α(L)=0.000319 *5*; α(M)=6.81×10^{-5} *10*; α(N+..)=1.85×10^{-5} *3* α(N)=1.544×10^{-5} *23*; α(O)=2.32×10^{-6} *4*; α(P)=1.466×10^{-7} *23*; α(IPF)=5.65×10^{-7} *8*
1121.70 *20*	0.29 *3*	2716.00	$(4^+,5,6^+)$	1594.252	5^-				

γ(^{148}Sm) (continued)

E_γ [#]	I_γ [#f]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡c]	δ [‡c]	α [†]	Comments
1127.69 *4*	1.17 *4*	2861.08	4⁻,5⁻	1733.476	4⁺				
1133.12 *8*	0.65 *3*	2727.31	5⁺	1594.252	5⁻				
1138.4[i] *5*	0.27 *7*	2318.5?	+	1180.257	4⁺				E_γ: reported only by 1985Si16; not observed by 1987Ad08.
1146.805 *14*	27.3 *6*	2327.426	4⁺	1180.257	4⁺	M1+E2	−2.0 *5*	0.00207 *11*	α=0.00207 *11*; α(K)=0.00176 *10*; α(L)=0.000240 *12*; α(M)=5.14×10^{-5} *25*; α(N+..)=1.51×10^{-5} *7* α(N)=1.16×10^{-5} *6*; α(O)=1.74×10^{-6} *9*; α(P)=1.06×10^{-7} *7*; α(IPF)=1.61×10^{-6} *3* δ: from 1985Si16. Other: −0.05 *+14−11* or +1.05 *25* (1984Kr09). The mixing ratio,q(E_0/E_2)=0.65 *30*; and the ratio, X(E_0/E_2)=0.07 *7*, both calculated using δ=+1.05 *25*, Rossel conversion coefficients (1978Ro22), and weighted average of α(K)exp=2.39×10^{-3} *33* (1984Kr09).
1151.3[@] *4*	0.27 *14*	2815.583	4⁻	1664.303	2⁺				
1165.54 *5*	1.12 *4*	2327.426	4⁺	1161.534	3⁻				
1183.208 *16*	23.1 *5*	1733.476	4⁺	550.268	2⁺	E2		0.001761 *25*	α=0.001761 *25*; α(K)=0.001496 *21*; α(L)=0.000205 *3*; α(M)=4.40×10^{-5} *7*; α(N+..)=1.555×10^{-5} *2* α(N)=9.94×10^{-6} *14*; α(O)=1.480×10^{-6} *21*; α(P)=8.91×10^{-8} *13*; α(IPF)=4.04×10^{-6} *6* Mult.: γγ(θ) consistent with pure Q transition (1985Si16).
1194.185 *17*	1.78 *4*	2374.395	5⁺,6⁺	1180.257	4⁺				
[x]1201.3[@] *5*	0.14 *7*								
1207.473 *14*	8.76 *19*	2801.736	5⁺	1594.252	5⁻	E1(+M2)		0.003 *3*	α=0.003 *3*; α(K)=0.0029 *23*; α(L)=0.0004 *4*; α(M)=8.E−5 *7*; α(N+..)=3.8×10^{-5} *4* α(N)=1.9×10^{-5} *16*; α(O)=2.9×10^{-6} *24*; α(P)=1.8×10^{-7} *15*; α(IPF)=1.5×10^{-5} *14* δ: −0.36≤δ≤+1.52 (1984Kr09).
1219.01 *9*	0.70 *6*	2673.07	4⁺	1454.143	2⁺				
1221.37 *4*	1.91 *7*	2815.583	4⁻	1594.252	5⁻	M1		0.00247 *4*	α=0.00247 *4*; α(K)=0.00211 *3*; α(L)=0.000278 *4*; α(M)=5.94×10^{-5} *9*; α(N+..)=2.44×10^{-5} *4* α(N)=1.347×10^{-5} *19*; α(O)=2.03×10^{-6} *3*; α(P)=1.299×10^{-7} *19*; α(IPF)=8.80×10^{-6} *13*
1229.6 *5*	0.14 *7*	2390.43	3⁺	1161.534	3⁻				E_γ: observed in 1967Cl01, 1985Si16; not seen in 1987Ad08, 1968Ha39.
1236.374 *16*	5.68 *13*	2830.665	5⁺	1594.252	5⁻	E1		0.000743 *11*	α=0.000743 *11*; α(K)=0.000603 *9*; α(L)=7.69×10^{-5} *11*; α(M)=1.632×10^{-5} *23*; α(N+..)=4.69×10^{-5} *7* α(N)=3.69×10^{-6} *6*; α(O)=5.54×10^{-7} *8*; α(P)=3.50×10^{-8} *5*; α(IPF)=4.26×10^{-5} *6* δ(M2/E1)=−0.2 *+4−3* (1984Kr09), 0.50 *11* from E1=80% 7 (1987Ad08).
1266.76 *5*	2.02 *5*	2861.08	4⁻,5⁻	1594.252	5⁻	M1		0.00228 *4*	α=0.00228 *4*; α(K)=0.00194 *3*; α(L)=0.000255 *4*; α(M)=5.45×10^{-5} *8*; α(N+..)=3.02×10^{-5} *5*

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γ(^{148}Sm) (continued)

E_γ [#]	I_γ [#f]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡c]	δ [‡c]	α [†]	Comments
									α(N)=1.236×10^{-5} *18*; α(O)=1.86×10^{-6} *3*; α(P)=1.193×10^{-7} *17*; α(IPF)=1.581×10^{-5} *23*
1269.3 [g] *4*	0.19 [g] *4*	2723.517	4$^+$	1454.143	2$^+$				E_γ: placement in 1985Si16.
1269.3 [g] *4*	0.19 [g] *4*	2734.45	(3)	1465.19	1$^-$				E_γ: placement of 1987Ad08.
1309.778 *16*	6.61 *15*	2490.017	4$^+$	1180.257	4$^+$	M1(+E2)		0.0018 *4*	α=0.0018 *4*; α(K)=0.0015 *3*; α(L)=0.00020 *4*; α(M)=4.3×10^{-5} *8*; α(N+..)=3.4×10^{-5} *3* α(N)=9.7×10^{-6} *18*; α(O)=1.5×10^{-6} *3*; α(P)=9.2×10^{-8} *19*; α(IPF)=2.31×10^{-5} *9* δ: $-0.21\le\delta\le+1.47$ (1984Kr09).
1328.504 *15*	18.3 *4*	2490.017	4$^+$	1161.534	3$^-$	E1		0.000708 *10*	α=0.000708 *10*; α(K)=0.000531 *8*; α(L)=6.76×10^{-5} *10*; α(M)=1.434×10^{-5} *20*; α(N+..)=9.44×10^{-5} *1* α(N)=3.25×10^{-6} *5*; α(O)=4.87×10^{-7} *7*; α(P)=3.09×10^{-8} *5*; α(IPF)=9.06×10^{-5} *13* δ(M2/E1)=−0.02 *6* (1984Kr09), +0.10 *10* (1985Si16).
1343.87 *3*	23.5 *19*	2524.390	4$^+$	1180.257	4$^+$	M1+E2	+0.20	0.00198 *3*	α=0.00198 *3*; α(K)=0.001668 *24*; α(L)=0.000220 *3*; α(M)=4.69×10^{-5} *7*; α(N+..)=4.41×10^{-5} *7* α(N)=1.064×10^{-5} *15*; α(O)=1.604×10^{-6} *23*; α(P)=1.026×10^{-7} *15*; α(IPF)=3.18×10^{-5} *5* δ: from $\gamma\gamma(\theta)$ (1985Si16).
1344.740 *23*	26.3 *22*	1894.832	4$^+$	550.268	2$^+$	E2		0.001391 *20*	α=0.001391 *20*; α(K)=0.001162 *17*; α(L)=0.0001569 *22*; α(M)=3.35×10^{-5} *5*; α(N+..)=3.86×10^{-5} α(N)=7.59×10^{-6} *11*; α(O)=1.133×10^{-6} *16*; α(P)=6.92×10^{-8} *10*; α(IPF)=2.98×10^{-5} *5* δ(M3/E2)=−0.01 *8* (1984Kr09).
1353.550 *20*	8.70 *20*	1903.728	3$^+$	550.268	2$^+$	M1+E2	+8.2 *12*	0.001385 *20*	α=0.001385 *20*; α(K)=0.001155 *17*; α(L)=0.0001558 *22*; α(M)=3.33×10^{-5} *5*; α(N+..)=4.07×10^{-5} α(N)=7.53×10^{-6} *11*; α(O)=1.125×10^{-6} *16*; α(P)=6.89×10^{-8} *10*; α(IPF)=3.20×10^{-5} *5* δ: +0.58 *+44−20* or +3.4 *+46−18* (1984Kr09).
1362.640 *19*	8.29 *19*	2524.390	4$^+$	1161.534	3$^-$	E1		0.000702 *10*	α=0.000702 *10*; α(K)=0.000509 *8*; α(L)=6.46×10^{-5} *9*; α(M)=1.371×10^{-5} *20*; α(N+..)=0.0001155 α(N)=3.10×10^{-6} *5*; α(O)=4.66×10^{-7} *7*; α(P)=2.95×10^{-8} *5*; α(IPF)=0.0001119 *16* δ(M2/E1)=+0.05 *9* from $\gamma(\theta$,T) (1984Kr09).
1370.97 *17*	0.270 *20*	2532.38	4$^-$,5$^-$	1161.534	3$^-$				
[x]1377.4 [@] *5*	0.14 *7*								
1390.44 *14*	0.136 *16*	2570.794	4$^{(-)}$	1180.257	4$^+$				
1409.160 *20*	1.96 *5*	2570.794	4$^{(-)}$	1161.534	3$^-$	D+Q			δ: +0.04 *12* if J=4$^-$;≥0.47 if J=3$^-$ (1984Kr09).
[x]1419.6 [@] *5*	0.07 *3*								
1422.21 *18*	0.186 *16*	2583.861	4$^{(-)}$	1161.534	3$^-$				
1454.110 *20*	5.13 *12*	1454.143	2$^+$	0.0	0$^+$	E2		0.001230 *18*	α=0.001230 *18*; α(K)=0.001000 *14*; α(L)=0.0001338 *19*;

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γ(^{148}Sm) (continued)

E_γ [#]	I_γ [#f]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡c]	δ [‡c]	α [†]	Comments
									α(M)=2.86×10^{-5} *4*; α(N+..)=6.78×10^{-5} α(N)=6.46×10^{-6} *9*; α(O)=9.66×10^{-7} *14*; α(P)=5.96×10^{-8} *9*; α(IPF)=6.03×10^{-5} *9*
1460.630 *19*	16.2 *4*	2641.237	5$^+$	1180.257	4$^+$	M1+E2	+2.1 *16*	0.0013 *3*	α=0.0013 *3*; α(K)=0.00107 *25*; α(L)=0.00014 *4*; α(M)=3.0×10^{-5} *7*; α(N+..)=7.1×10^{-5} *6* α(N)=6.9×10^{-6} *16*; α(O)=1.03×10^{-6} *24*; α(P)=6.4×10^{-8} *17*; α(IPF)=6.3×10^{-5} *4* Mult.: δ from γ(θ,T) (1984Kr09). Other: −1.25<δ<+0.10 (1985Si16).
1465.2 *3*	0.22 *7*	1465.19	1$^-$	0.0	0$^+$	E1		0.000704 *10*	α=0.000704 *10*; α(K)=0.000449 *7*; α(L)=5.70×10^{-5} *8*; α(M)=1.208×10^{-5} *17*; α(N+..)=0.000186 *3* α(N)=2.73×10^{-6} *4*; α(O)=4.11×10^{-7} *6*; α(P)=2.61×10^{-8} *4*; α(IPF)=0.000183 *3*
1492.81 *4*	1.37 *4*	2673.07	4$^+$	1180.257	4$^+$				
1503.200 *2*	2.59 *6*	2683.464	4$^-$,5$^-$	1180.257	4$^+$				
1511.49 *7*	0.58 *4*	2673.07	4$^+$	1161.534	3$^-$				
1513.9 *4*	0.12 *3*	2675.20	(3$^+$,4,5$^-$)	1161.534	3$^-$				
1521.85 *3*	2.13 *6*	2683.464	4$^-$,5$^-$	1161.534	3$^-$				
1533.10 *20*	0.45 *4*	2713.332	3$^+$,4$^+$	1180.257	4$^+$				
1535.84 *10*	1.27 *5*	2716.00	(4$^+$,5,6$^+$)	1180.257	4$^+$				
1540.27 *15*	1.11 *11*	2701.92	4$^{(-)}$,3$^{(-)}$	1161.534	3$^-$				
1543.289 *27*	10.3 *3*	2723.517	4$^+$	1180.257	4$^+$	M1+E2		0.00133 *21*	α=0.00133 *21*; α(K)=0.00106 *17*; α(L)=0.000140 *22*; α(M)=3.0×10^{-5} *5*; α(N+..)=0.000102 *6* α(N)=6.8×10^{-6} *11*; α(O)=1.02×10^{-6} *16*; α(P)=6.4×10^{-8} *12*; α(IPF)=9.5×10^{-5} *5* Mult.: δ=−0.17 *11* or +1.35 *30* (1984Kr09).
1547.14 [@] *10*	1.23 *20*	2727.31	5$^+$	1180.257	4$^+$				I_γ: from 1987Ad08.
1560.786 *17*	11.7 *3*	2111.058	4$^+$	550.268	2$^+$	E2		0.001118 *16*	α=0.001118 *16*; α(K)=0.000874 *13*; α(L)=0.0001161 *17*; α(M)=2.48×10^{-5} *4*; α(N+..)=0.000103 α(N)=5.61×10^{-6} *8*; α(O)=8.40×10^{-7} *12*; α(P)=5.21×10^{-8} *8*; α(IPF)=9.68×10^{-5} *14* δ(M3/E2)=+0.00 *10* from γγ(θ) (1985Si16).
1565.29 *11*	0.440 *20*	2727.31	5$^+$	1161.534	3$^-$				
1572.90 *20*	0.159 *14*	2734.45	(3)	1161.534	3$^-$				
1621.510 *20*	64.6 *15*	2801.736	5$^+$	1180.257	4$^+$	M1+E2		0.00124 *18*	α=0.00124 *18*; α(K)=0.00096 *15*; α(L)=0.000126 *19*; α(M)=2.7×10^{-5} *4*; α(N+..)=0.000133 *8* α(N)=6.1×10^{-6} *9*; α(O)=9.2×10^{-7} *14*; α(P)=5.8×10^{-8} *10*; α(IPF)=0.000126 *7* δ: =+4.1 *6* (1984Kr09), +1.75 *50* or +0.45 *10* (1985Si16).
1635.31 *3*	2.21 *6*	2815.583	4$^-$	1180.257	4$^+$	E1(+M2)		0.0018 *11*	α=0.0018 *11*; α(K)=0.0014 *11*; α(L)=0.00019 *14*; α(M)=4.E−5 *3*; α(N+..)=0.00019 *12*

γ(^{148}Sm) (continued)

E_γ[#]	I_γ[#f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡c]	δ[‡c]	α[†]	Comments
									α(N)=9.E−6 *7*; α(O)=1.4×10^{-6} *11*; α(P)=9.E−8 *7*; α(IPF)=0.00018 *13* δ: −0.05≤δ≤+1.06 (1984Kr09).
1650.436 *24*	51.6 *16*	2830.665	5$^+$	1180.257	4$^+$	M1+E2		0.00121 *17*	α=0.00121 *17*; α(K)=0.00092 *14*; α(L)=0.000121 *18*; α(M)=2.6×10^{-5} *4*; α(N+..)=0.000145 *8* α(N)=5.9×10^{-6} *9*; α(O)=8.8×10^{-7} *13*; α(P)=5.6×10^{-8} *9*; α(IPF)=0.000138 *7* δ: +0.53 *+6−5* or +2.92 *42* (1984Kr09), +0.50 *15* or +1.75 *50* (1985Si16).
1654.02 *15*	1.63 *19*	2815.583	4$^-$	1161.534	3$^-$				
1664.20 *4*	0.98 *3*	1664.303	2$^+$	0.0	0$^+$	E2		0.001042 *15*	α=0.001042 *15*; α(K)=0.000775 *11*; α(L)=0.0001023 *15*; α(M)=2.18×10^{-5} *3*; α(N+..)=0.000143 α(N)=4.94×10^{-6} *7*; α(O)=7.40×10^{-7} *11*; α(P)=4.62×10^{-8} *7*; α(IPF)=0.0001375 *20*
1677.85 *3*	5.91 *20*	2228.057	4$^+$	550.268	2$^+$	E2		0.001034 *15*	α=0.001034 *15*; α(K)=0.000763 *11*; α(L)=0.0001007 *15*; α(M)=2.15×10^{-5} *3*; α(N+..)=0.000148 α(N)=4.86×10^{-6} *7*; α(O)=7.28×10^{-7} *11*; α(P)=4.55×10^{-8} *7*; α(IPF)=0.0001432 *20* δ(M3/E2)=+0.00 *10* (1985Si16); −0.11 *+27−35* (1984Kr09).
1680.90 *15*	0.41 *5*	2861.08	4$^-$,5$^-$	1180.257	4$^+$				
1699.54 *6*	0.213 *8*	2861.08	4$^-$,5$^-$	1161.534	3$^-$				
1748.58 *5*	0.478 *15*	2928.84	(4,5,6)$^+$	1180.257	4$^+$				
1776.87 *4*	0.91 *3*	2327.426	4$^+$	550.268	2$^+$				
1788.91 *18*	0.078 *8*	2339.19	3$^-$	550.268	2$^+$	E1+M2	+0.06 *4*	0.000804 *15*	α=0.000804 *15*; α(K)=0.000328 *12*; α(L)=4.15×10^{-5} *16*; α(M)=8.8×10^{-6} *4*; α(N+..)=0.000425 *7* α(N)=1.99×10^{-6} *8*; α(O)=2.99×10^{-7} *11*; α(P)=1.91×10^{-8} *7*; α(IPF)=0.000423 *7*
1840.06 *8*	0.236 *15*	2390.43	3$^+$	550.268	2$^+$	M1+E2	−1.37 *12*	0.001047 *18*	α=0.001047 *18*; α(K)=0.000707 *13*; α(L)=9.25×10^{-5} *17*; α(M)=1.97×10^{-5} *4*; α(N+..)=0.000228 *4* α(N)=4.47×10^{-6} *8*; α(O)=6.72×10^{-7} *13*; α(P)=4.26×10^{-8} *8*; α(IPF)=0.000223 *4*
^{x}1843.5[@] *5*	0.03 *1*								
^{x}1917.50 *16*	0.029 *5*								
1939.17 *4*	0.96 *3*	2490.017	4$^+$	550.268	2$^+$				
1973.81 *4*	0.740 *20*	2524.390	4$^+$	550.268	2$^+$				
2122.75 *8*	0.190 *8*	2673.07	4$^+$	550.268	2$^+$				
2163.9 *3*	0.077 *8*	2713.332	3$^+$,4$^+$	550.268	2$^+$				
2173.28 *4*	3.21 *8*	2723.517	4$^+$	550.268	2$^+$				

† Additional information 1.

$^{148}_{62}Sm_{86}$-16

$\gamma(^{148}Sm)$ (continued)

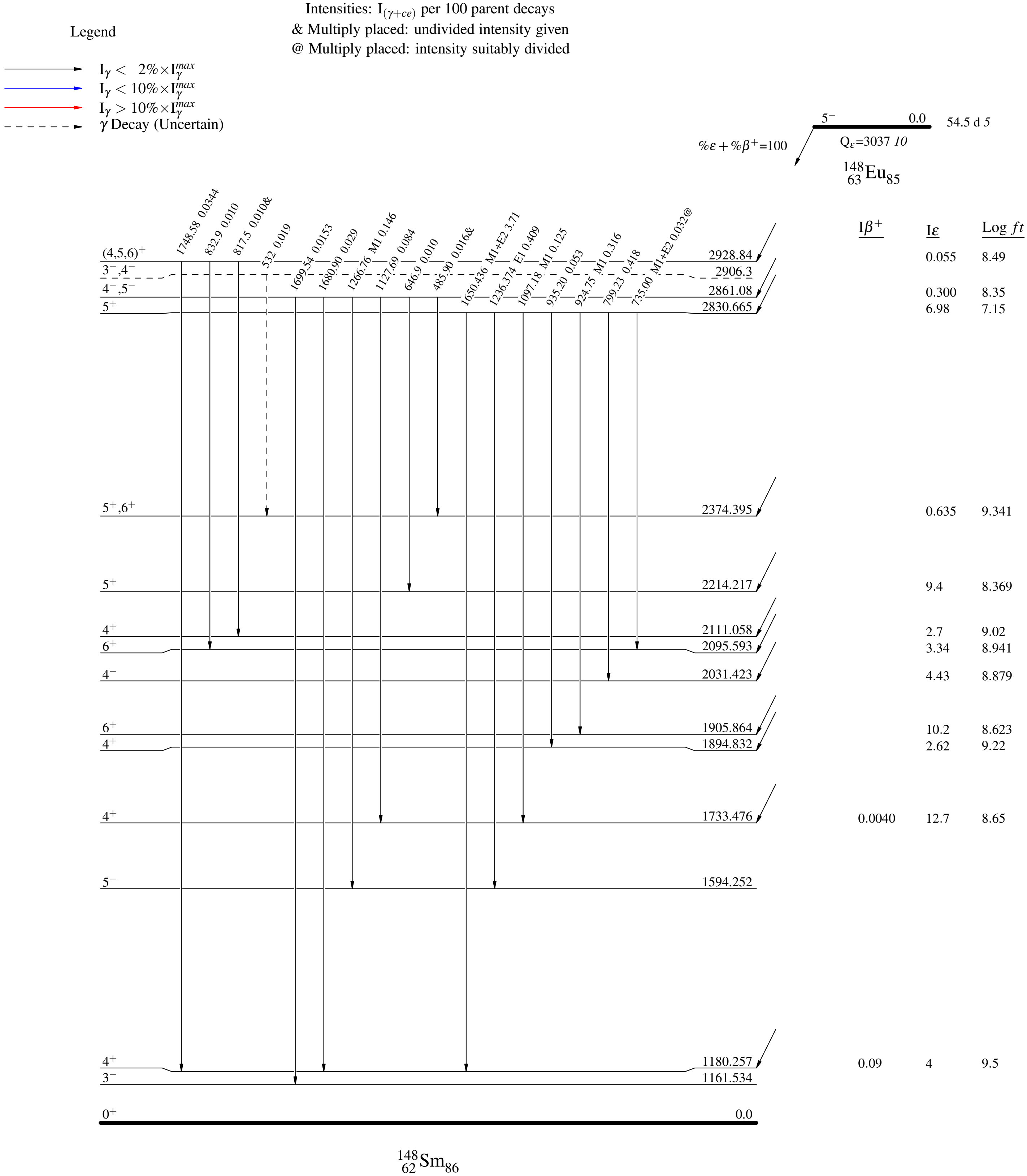
‡ From Ice, $\gamma(\theta)$ of polarized nuclei, and $\gamma\gamma(\theta)$ data of 1968Ha39, 1978Ad07, 1984Kr09, 1985Si16, 1987Ad08.
# From 1987Ad08, except as noted otherwise.
@ From 1985Si16.
& Placement by 1985Si16.
[a] Placement by 1987Ad08.
[b] Placement by 1987Ad08 changed to match level energy differences with Eγ.
[c] From adopted gammas. Supporting data from this decay are given in comments.
[d] Renormalized Iγ from 1985Si16.
[e] From 1987Ad08, divided in the same ratio as in 1985Si16.
[f] For absolute intensity per 100 decays, multiply by 0.0719 *16*.
[g] Multiply placed with undivided intensity.
[h] Multiply placed with intensity suitably divided.
[i] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

$^{148}_{62}Sm_{86}$-17

^{148}Eu ε decay 1985Si16,1987Ad08

Decay Scheme

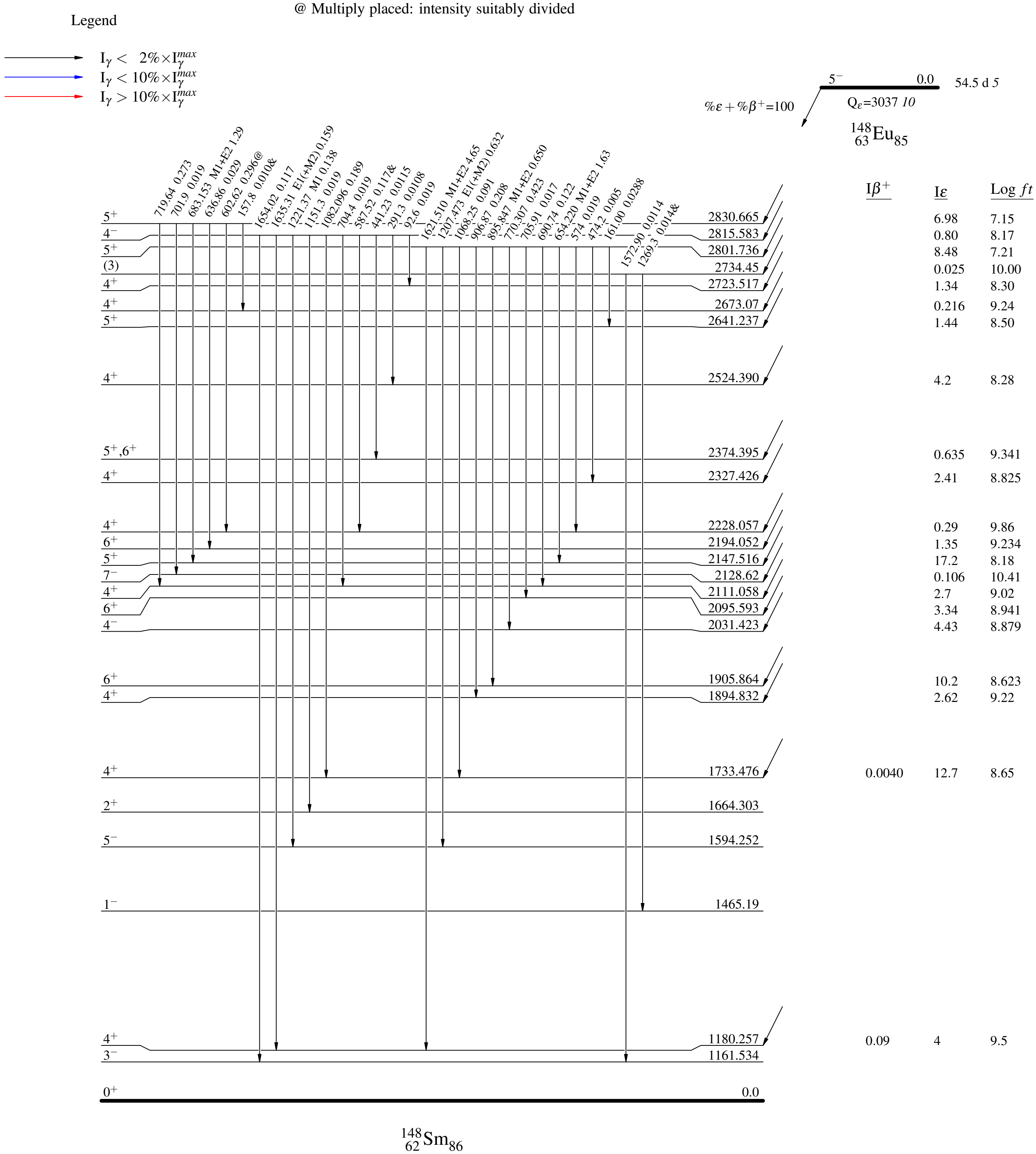
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{148}Eu ε decay 1985Si16,1987Ad08

Decay Scheme (continued)

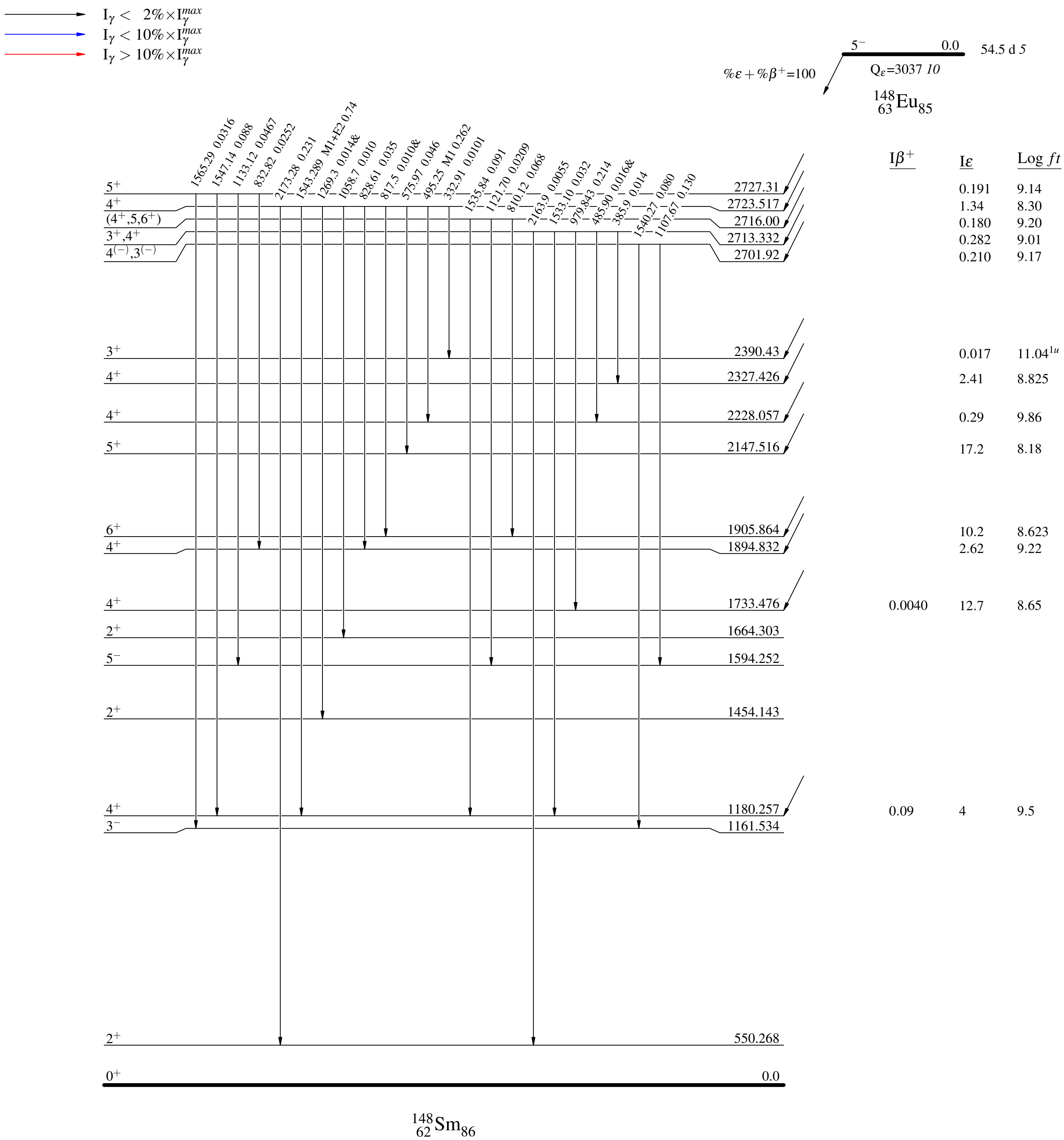
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{148}Eu ε decay 1985Si16,1987Ad08

Decay Scheme (continued)

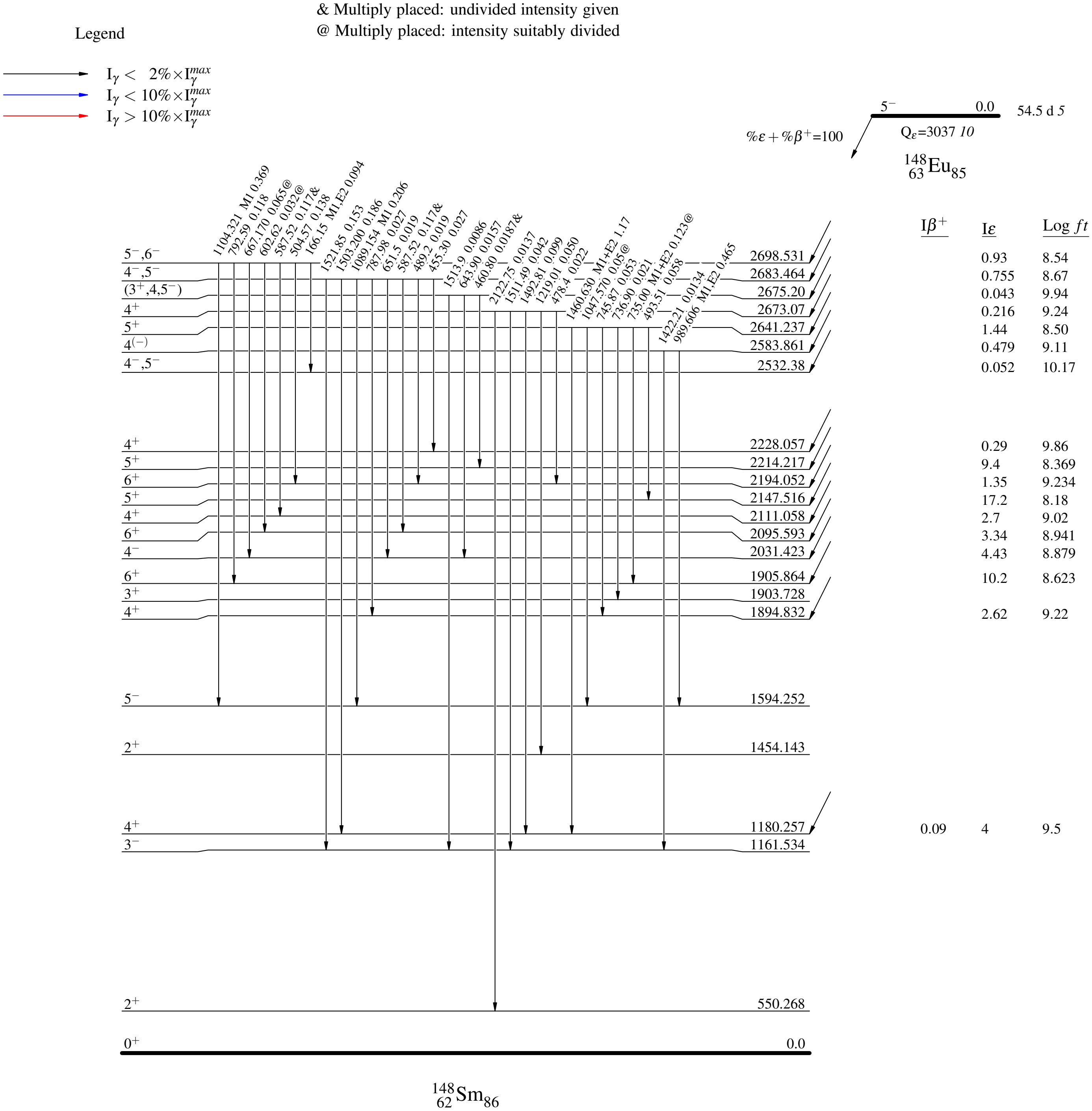
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{148}Eu ε decay 1985Si16,1987Ad08

Decay Scheme (continued)

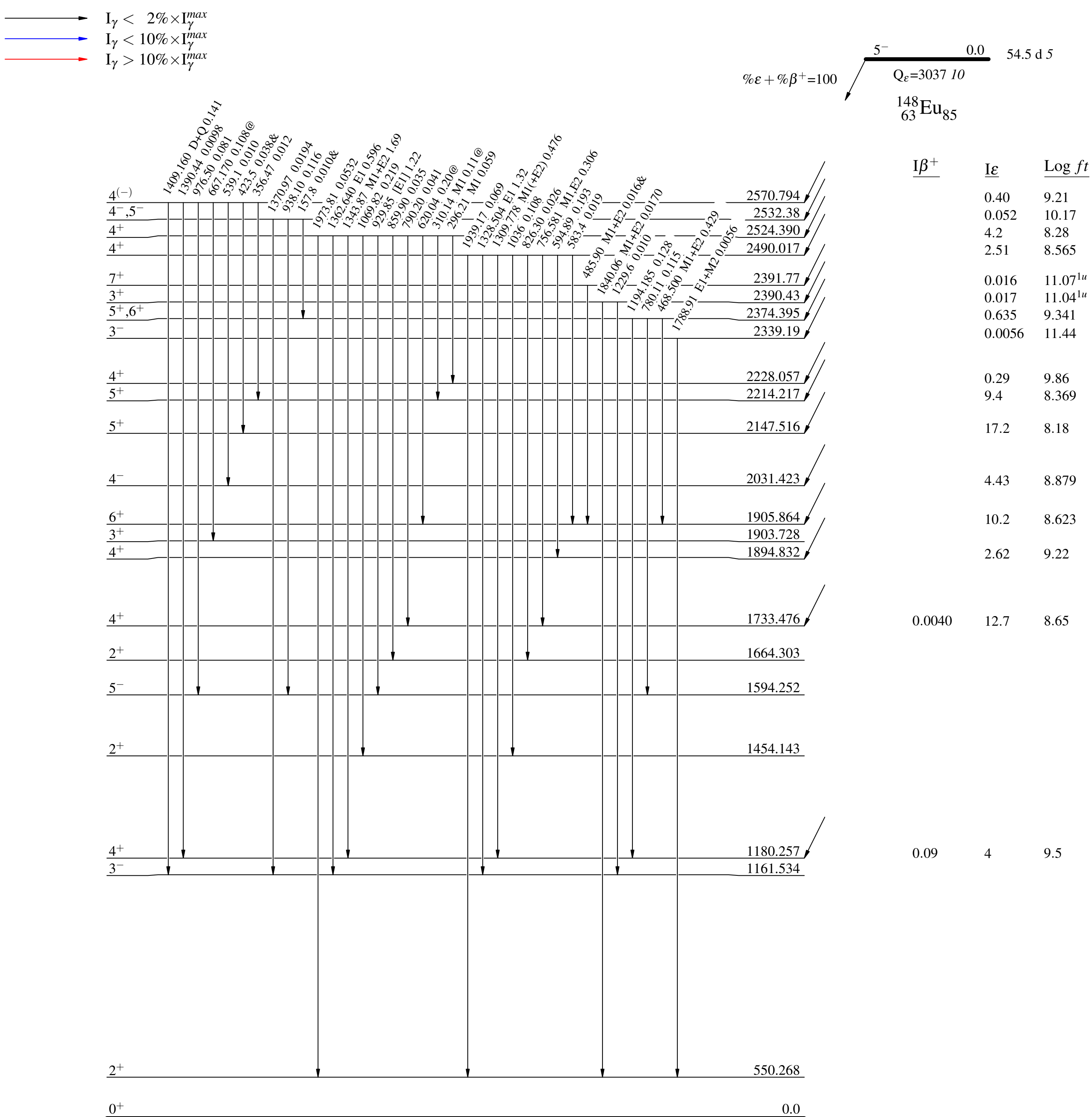
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{148}Eu ε decay 1985Si16,1987Ad08

Decay Scheme (continued)

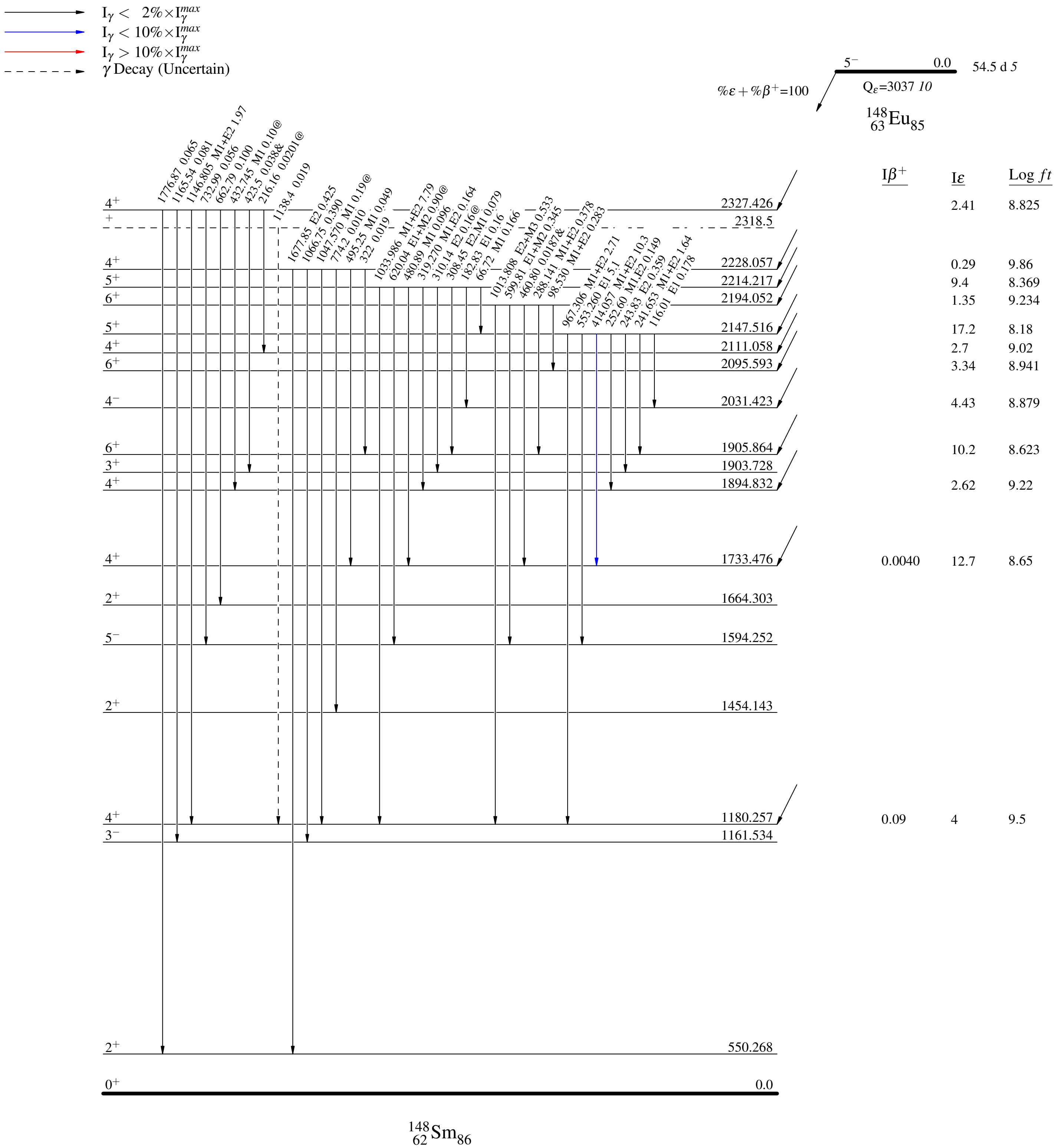
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{148}Eu ε decay 1985Si16,1987Ad08

Decay Scheme (continued)

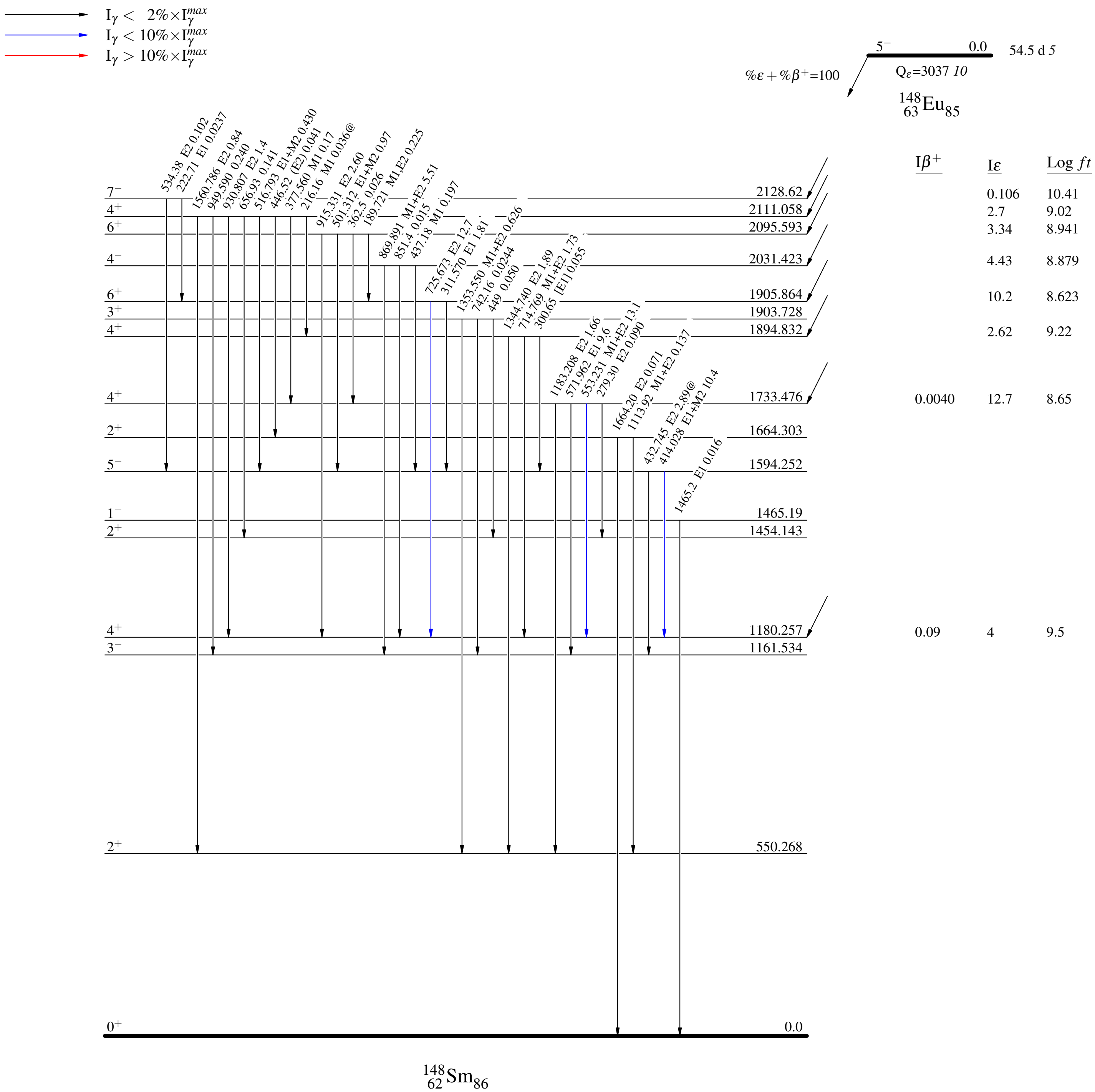
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{148}Eu ε decay 1985Si16,1987Ad08

Decay Scheme (continued)

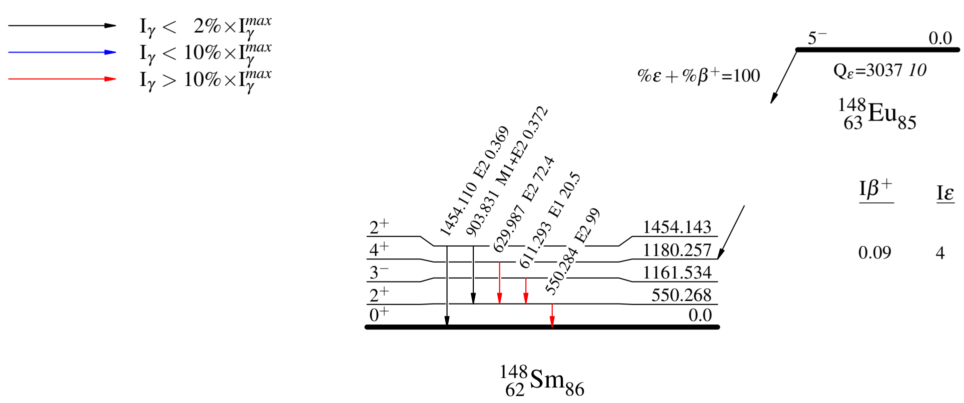
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{148}Eu ε decay 1985Si16,1987Ad08

Decay Scheme (continued)

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



Iβ+	Iε	Log ft
0.09	4	9.5