^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 110, 1 (2009)	20-Nov-2008

Parent: ^{151}Nd: E=0.0; J^π=3/2$^+$; $T_{1/2}$=12.44 min *7*; Q(β^-)=2442 *4*; %β^- decay=100.0

See 1989Ii01 for $\gamma\gamma(\theta)$ data for about 20 $\gamma\gamma$ cascades. See 1995Ik03 for $\beta\gamma$ data and 1997Gr09 and 1996Gr20 for total absorption γ-ray data.

Others: 1977Se06 (a companion publication to 1985Ii01 from the same laboratory), 1978BuZJ (from same laboratory as 1985GlZY), 1969BoZG 1973Se12, 1971Na25, 1969Vo09, 1966Be27, 1968Ma15, 1960Bu06.

1995Ik03: $\beta\gamma$ data, deduced Q(β^-).

1996Gr20, 1997Gr09: total absorption γ-ray data in singles and $\beta\gamma$ coin mode. Deduced relative β feedings as a function of excitation energy.

For levels and radiation data, consult ENSDF database (http://www.nndc.bnl.gov/ensdf/) and/or Nuclear Data Sheets 80, 263 (1997).

^{151}Pm Levels

E(level)[†]	J^π[#]	$T_{1/2}$[‡]
0.0	5/2$^+$	
85.119 *7*	7/2$^+$	
116.794 *6*	5/2$^-$	89[a] ps *15*
175.075 *6*	7/2$^-$	<0.2[&] ns
197.272 *10*	9/2$^+$	
255.692 *7*	3/2$^+$	0.93[b] ns *2*
261.157 *23*	(9/2$^-$)	
324.682 *8*	5/2$^+$	
426.451 *14*	1/2$^+$	<0.2[&] ns
427.150 *15*	(7/2)$^+$	
507.885 *11*	5/2$^+$	
524.339 *12*	(3/2)$^+$[c]	
532.057 *16*	(7/2$^-$)	
540.372 *14*	3/2$^-$	<0.1[&] ns
577.402 *12*	(5/2)$^-$	
746.552 *15*	(3/2$^-$)	
755.569 *18*	(5/2,7/2$^-$)	
773.599 *19*	(1/2,3/2,5/2$^+$)	
809.46[@] *4*	(5/2$^+$,7/2$^-$)	
840.966 *14*	(3/2)$^+$	
852.30[@] *6*	1/2$^+$	
852.994 *15*	5/2$^{(+)}$	<0.1[&] ns
870.58[@] *5*	(5/2$^+$,7/2$^-$)	
874.71 *2*	3/2$^+$	
897.63[@] *7*	(3/2,5/2)	
914.309 *13*	5/2$^+$	
943.11[@] *5*	(3/2$^+$,5/2)	
957.89[@] *6*	5/2$^+$	
989.88 *4*	5/2$^+$	
1010.71[@] *9*		
1072.91[@] *8*	(3/2$^+$)	
1133.214 *21*	(5/2$^+$)	
1175.60[@] *12*		
1183.27[@] *4*	(3/2,5/2)$^+$	
1200.97 *5*	(3/2$^+$,5/2)	
1297.682 *14*	5/2$^+$	48[d] ps *10*
1330.39[@] *8*	(5/2$^+$)	
1355.81[@] *10*		
1394.77[@] *9*	(3/2$^-$)	
1424.57[@] *6*	(5/2$^-$)	
1444.98 *5*	(5/2$^+$)	
1562.1[@] *2*	(3/2$^-$,5/2$^+$)	
1589.91[@] *17*	(3/2$^-$,5/2)	
1617.82[@] *5*	(3/2,5/2)	
1618.42 *3*	(3/2$^+$,5/2$^+$)	
1639.63[@] *9*	(1/2$^+$,3/2,5/2$^+$)	
1651.52[@] *10*	(3/2$^+$,5/2)	
1713.10[@] *13*	(3/2$^+$,5/2)	
1741.25[@] *4*	(1/2$^+$,3/2,5/2$^+$)	
1793.68[@] *20*	(5/2)	
1795.13[@] *8*	(3/2,5/2)	
1805.51[@] *4*	(1/2$^+$,3/2,5/2$^+$)	
1809.80 *4*	(3/2,5/2)$^+$	
1822.17[@] *6*	1/2,3/2,5/2	
1848.57[@] *7*	(5/2)	
1853.70 *4*	(5/2)$^+$	
1854.50[@] *8*	(3/2$^+$,5/2)	
1873.63 *4*	(5/2)$^+$	
1878.60[@] *6*	(5/2)	
1892.05 *2*	(5/2)$^+$	
1897.4[@] *1*	(3/2$^+$,5/2$^+$)	
1903.18 *4*	(5/2)$^+$	
1910.68[@] *7*	(3/2$^+$,5/2$^+$)	
1927.98[@] *6*	(5/2$^+$)	
1933.10 *4*	(1/2$^+$,3/2,5/2)	
1959.61[@] *7*	(1/2$^+$,3/2,5/2)	
1973.32[@] *7*	(1/2$^+$,3/2,5/2)	
1989.71[@] *13*	(3/2,5/2)	
1993.81[@] *5*	(5/2)$^+$	
1998.25[@] *5*	(5/2)$^+$	

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^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01 (continued)

^{151}Pm Levels (continued)

E(level)[†]	Jπ[#]	E(level)[†]	Jπ[#]	E(level)[†]	Jπ[#]
2010.99[@] *5*	(5/2)$^+$	2024.01[@] *14*	(1/2,3/2,5/2)	2119.09[@] *7*	(1/2$^+$,3/2,5/2$^+$)
2015.93[@] *9*	(3/2,5/2)	2038.05 *12*	(1/2,3/2,5/2)	2204.30[@] *15*	(1/2$^+$,3/2$^+$,5/2$^+$)
2018.87[@] *5*	(1/2$^+$,3/2,5/2$^+$)	2053.10[@] *24*	(5/2$^+$)	2268.59[@] *19*	(5/2$^+$)
2022.4[@] *3*	(3/2$^+$,5/2)	2084.92[@] *8*	(1/2,3/2,5/2)	2304.01[@] *15*	1/2$^+$,3/2$^+$,5/2$^+$
2023.15[@] *8*	(5/2)	2106.86[@] *14*	(3/2,5/2)		

[†] From least-squares fit to Eγ′s, γ′s known from γγ only are given negligible weight in determining level energies. Above 1000 keV, many levels are reported only by 1985GlZY.
[‡] From ceγ(t) of 1968Ma15, γγ(t) and βγ(t) of 1965Fo08, 1966Be27 and 1976Be09. The upper limits are suspect because the detectors used were unable to resolve close doublets and the level scheme used was incomplete.
[#] From ‘Adopted Levels’.
[@] Level identified by 1985GlZY only.
[&] From βγ(t) (1966Be27), value considered as half-life instead of mean lifetime (evaluator).
[a] From 1968Ma15. Other: 1966Be27 give 80 ps as mean lifetime but the authors probably meant half-life (in evaluator′s opinion).
[b] Weighted average of 0.91 ns *3* (1965Fo08), 0.93 ns *3* (1966Be27) and 0.95 ns *4* (1966Be27).
[c] (408γ)(116γ)(θ) supports 3/2 over the other possible choice of 5/2, assuming 408γ is E1.
[d] From βγ(t) (1976Be09).

β^- radiations

β and βγ studies (1973Se12) have been carried out with a ce spectrometer using solid state detectors. The most energetic β group observed feeds the 255 level. Although recognizing that a 10% g.s. β group would probably have escaped detection, the evaluator has assumed that no g.s. β exists. Inclusion of a 10% g.s. Component would have negligible effect on the log *ft* values for excited states of ^{151}Pm; it would, however, increase the uncertainty in the normalization. Others: 1959Sc39, 1952Ru10.
From total γ-absorption %Iβ=0.0 for the following levels: 175, 197, 261, 427, 532, 958, 1011, 1073; consistent with those from γ-ray intensity balance.
For 577 level, apparent Iβ(from level scheme)=−0.34 *9*. 1997Gr09 give Iβ=1.16%, from total γ absorption. However, this value may have resulted from the implicit use (in the analysis of total γ absorption data) previous incorrect Iβ(577)=1.32% (1988Si15).

E(decay)	E(level)	Iβ$^-$[†‡]	Log *ft*	Comments
(138 *4*)	2304.01	0.053 *10*	4.96 *10*	av Eβ=36.7 *12* Iβ=0.105% (1997Gr09, total γ absorption).
(173 *4*)	2268.59	0.011 *5*	5.95 *20*	av Eβ=46.8 *12* Iβ=0.023% (1997Gr09, total γ absorption).
(238 *4*)	2204.30	0.036 *13*	5.87 *16*	av Eβ=65.9 *13* Iβ=0.088% (1997Gr09, total γ absorption).
(323 *4*)	2119.09	0.067 *14*	6.03 *10*	av Eβ=92.5 *13* Iβ=0.112% (1997Gr09, total γ absorption).
(335 *4*)	2106.86	0.033 *12*	6.39 *16*	av Eβ=96.4 *13* Iβ=0.053% (1997Gr09, total γ absorption).
(357 *4*)	2084.92	0.051 *6*	6.29 *6*	av Eβ=103.5 *13* Iβ=0.075% (1997Gr09, total γ absorption).
(389 *4*)	2053.10	0.016 *5*	6.91 *14*	av Eβ=114.0 *14* Iβ=0.025% (1997Gr09, total γ absorption).
(404 *4*)	2038.05	0.070 *9*	6.33 *6*	av Eβ=119.0 *14* Iβ=0.080% (1997Gr09, total γ absorption).
(418 *4*)	2024.01	0.104 *15*	6.20 *7*	av Eβ=123.7 *14*

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^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01 (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^- †‡	Log *ft*	Comments
				Iβ=0.121% (1997Gr09, total γ absorption).
(419 *4*)	2023.15	0.113 *22*	6.17 *9*	av Eβ=124.0 *14* Iβ=0.131% (1997Gr09, total γ absorption).
(420 *4*)	2022.4	0.060 *12*	6.45 *9*	av Eβ=124.2 *14* Iβ=0.071% (1997Gr09, total γ absorption).
(423 *4*)	2018.87	0.14 *2*	6.09 *7*	av Eβ=125.4 *14* Iβ=0.161% (1997Gr09, total γ absorption).
(426 *4*)	2015.93	0.08 *2*	6.34 *11*	av Eβ=126.4 *14* Iβ=0.101% (1997Gr09, total γ absorption).
(431 *4*)	2010.99	0.30 *3*	5.79 *5*	av Eβ=128.1 *14* Iβ=0.33% (1997Gr09, total γ absorption).
(444 *4*)	1998.25	0.50 *5*	5.61 *5*	av Eβ=132.4 *14* Iβ=0.56% (1997Gr09, total γ absorption).
(448 *4*)	1993.81	0.30 *3*	5.84 *5*	av Eβ=133.9 *14* Iβ=0.34% (1997Gr09, total γ absorption).
(452 *4*)	1989.71	0.084 *13*	6.41 *7*	av Eβ=135.3 *14* Iβ=0.101% (1997Gr09, total γ absorption).
(469 *4*)	1973.32	0.113 *16*	6.33 *7*	av Eβ=141.0 *14* Iβ=0.131% (1997Gr09, total γ absorption).
(482 *4*)	1959.61	0.146 *15*	6.26 *5*	av Eβ=145.7 *14* Iβ=0.161% (1997Gr09, total γ absorption).
(509 *4*)	1933.10	0.31 *4*	6.01 *6*	av Eβ=154.9 *14* Iβ=0.35% (1997Gr09, total γ absorption).
(514 *4*)	1927.98	0.28 *3*	6.07 *5*	av Eβ=156.7 *14* Iβ=0.31% (1997Gr09, total γ absorption).
(531 *4*)	1910.68	0.043 *17*	6.94 *18*	av Eβ=162.8 *15* Iβ=0.051% (1997Gr09, total γ absorption).
(539 *4*)	1903.18	0.76 *7*	5.71 *5*	av Eβ=165.5 *15* Iβ=0.87% (1997Gr09, total γ absorption).
(545 *4*)	1897.4	0.036 *22*	7.0 *3*	av Eβ=167.5 *15* Iβ=0.040% (1997Gr09, total γ absorption).
(550 *4*)	1892.05	1.49 *10*	5.45 *4*	av Eβ=169.4 *15* Iβ=1.68% (1997Gr09, total γ absorption).
(563 *4*)	1878.60	0.17 *2*	6.43 *6*	av Eβ=174.2 *15* Iβ=0.192% (1997Gr09, total γ absorption).
(568 *4*)	1873.63	0.91 *7*	5.71 *4*	av Eβ=176.0 *15* Iβ=1.03% (1997Gr09, total γ absorption).
(588 *4*)	1854.50	0.28 *4*	6.27 *7*	av Eβ=182.9 *15* Iβ=0.32% (1997Gr09, total γ absorption).
(588 *4*)	1853.70	0.80 *6*	5.82 *4*	av Eβ=183.1 *15* Iβ=0.91% (1997Gr09, total γ absorption).
(593 *4*)	1848.57	0.40 *4*	6.13 *5*	av Eβ=185.0 *15* Iβ=0.45% (1997Gr09, total γ absorption).
(620 *4*)	1822.17	0.12 *3*	6.72 *11*	av Eβ=194.6 *15* Iβ=0.152% (1997Gr09, total γ absorption).
(632 *4*)	1809.80	0.95 *8*	5.85 *4*	av Eβ=199.1 *15* Iβ=1.07% (1997Gr09, total γ absorption).
(636 *4*)	1805.51	0.58 *5*	6.07 *4*	av Eβ=200.7 *15* Iβ=0.67% (1997Gr09, total γ absorption).
(647 *4*)	1795.13	0.25 *3*	6.46 *6*	av Eβ=204.5 *15* Iβ=0.29% (1997Gr09, total γ absorption).
(648 *4*)	1793.68	0.033 *14*	7.35 *19*	av Eβ=205.1 *15* Iβ=0.040% (1997Gr09, total γ absorption).
(701 *4*)	1741.25	0.92 *7*	6.02 *4*	av Eβ=224.5 *15* Iβ=1.79% (1997Gr09, total γ absorption).
(729 *4*)	1713.10	0.028 *4*	7.60 *7*	av Eβ=235.1 *16* Iβ=0.096% (1997Gr09, total γ absorption).

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^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01 (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^-†‡	Log *ft*	Comments
(790 *4*)	1651.52	0.15 *3*	6.99 *9*	av Eβ=258.6 *16* Iβ=0.53% (1997Gr09, total γ absorption).
(802 *4*)	1639.63	0.27 *4*	6.76 *7*	av Eβ=263.1 *16* Iβ=0.88% (1997Gr09, total γ absorption).
(824 *4*)	1618.42	0.73 *5*	6.37 *3*	av Eβ=271.3 *16* Iβ=0.72% (1997Gr09, total γ absorption).
(824 *4*)	1617.82	0.55 *5*	6.49 *4*	av Eβ=271.5 *16* Iβ=0.54% (1997Gr09, total γ absorption).
(852 *4*)	1589.91	0.089 *15*	7.33 *8*	av Eβ=282.4 *16* Iβ=0.088% (1997Gr09, total γ absorption).
(880 *4*)	1562.1	0.060 *18*	7.56 *13*	av Eβ=293.2 *16* Iβ=0.061% (1997Gr09, total γ absorption).
(997 *4*)	1444.98	1.06 *9*	6.50 *4*	av Eβ=339.7 *16* Iβ=1.53% (1997Gr09, total γ absorption).
(1017 *4*)	1424.57	0.40 *4*	6.96 *5*	av Eβ=347.9 *17* Iβ=0.40% (1997Gr09, total γ absorption).
(1047 *4*)	1394.77	0.30 *4*	7.13 *6*	av Eβ=360.0 *17* Iβ=0.30% (1997Gr09, total γ absorption).
(1086 *4*)	1355.81	0.04 *2*	8.06 *22*	av Eβ=375.8 *17* Iβ=0.030% (1997Gr09, total γ absorption).
(1112 *4*)	1330.39	0.22 *5*	7.36 *10*	av Eβ=386.2 *17* Iβ=0.177% (1997Gr09, total γ absorption).
1.18×10^3 *10*	1297.682	17.9 *16*	5.50 *4*	av Eβ=399.6 *17* Iβ^-: average of 19.5 (from γ-ray intensity balance) and Iβ=16.2% (1997Gr09, total γ absorption). E(decay): from $\beta\gamma$ (1995Ik03).
(1241 *4*)	1200.97	0.74	7.0	av Eβ=439.7 *17* Iβ^-: Iβ=1.82% (1997Gr09, total γ absorption). Due to discrepancy in two results, ΔIβ is not given.
(1259 *4*)	1183.27	0.47	7.2	av Eβ=447.1 *17* Iβ^-: Iβ=1.16% (1997Gr09, total γ absorption). Due to large discrepancy in two results, ΔIβ is not given.
(1266 *4*)	1175.60	0.070	8.1	av Eβ=450.3 *17* Iβ^-: Iβ=0.175% (1997Gr09, total γ absorption). Due to large discrepancy in two results, ΔIβ is not given.
(1309 *4*)	1133.214	3.9 *3*	6.38 *4*	av Eβ=468.1 *17* Iβ=3.86% (1997Gr09, total γ absorption).
(1431 *4*)	1010.71	<0.01	>9.1	av Eβ=520.0 *17* Iβ=0.0% (1997Gr09, total γ absorption).
(1452 *4*)	989.88	0.52 *7*	7.42 *6*	av Eβ=528.8 *17* Iβ=0.52% (1997Gr09, total γ absorption).
(1499 *4*)	943.11	0.25 *5*	7.79 *9*	av Eβ=548.9 *18* Iβ=0.22% (1997Gr09, total γ absorption).
(1528 *4*)	914.309	8.7 *6*	6.28 *3*	av Eβ=561.2 *18* Iβ=7.73% (1997Gr09, total γ absorption).
(1544 *4*)	897.63	0.19 *6*	7.96 *14*	av Eβ=568.4 *18* Iβ=0.166% (1997Gr09, total γ absorption).
(1567 *4*)	874.71	0.79 *8*	7.37 *5*	av Eβ=578.3 *18* Iβ=0.73% (1997Gr09, total γ absorption).
(1571 *4*)	870.58	0.16 *5*	8.07 *14*	av Eβ=580.1 *18* Iβ=0.141% (1997Gr09, total γ absorption).
(1589 *4*)	852.994	9.6 *6*	6.31 *3*	av Eβ=587.7 *18* Iβ=8.95% (1997Gr09, total γ absorption).
(1590 *4*)	852.30	0.25 *6*	7.89 *11*	av Eβ=588.0 *18* Iβ=0.24% (1997Gr09, total γ absorption).
(1601 *4*)	840.966	4.4 *3*	6.66 *3*	av Eβ=592.9 *18* Iβ=4.06% (1997Gr09, total γ absorption).

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^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01 (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^- †‡	Log *ft*	Comments
(1633 *4*)	809.46	0.14 *6*	8.19 *19*	av Eβ=606.6 *18* Iβ=0.124% (1997Gr09, total γ absorption).
(1668 *4*)	773.599	0.08 *5*	8.5 *3*	av Eβ=622.2 *18* Iβ=0.088% (1997Gr09, total γ absorption).
(1686 *4*)	755.569	0.09 *7*	8.4 *4*	av Eβ=630.0 *18* Iβ=0.105% (1997Gr09, total γ absorption).
(1695 *4*)	746.552	0.31 *9*	7.91 *13*	av Eβ=634.0 *18* Iβ=0.32% (1997Gr09, total γ absorption).
(1902 *4*)	540.372	3.09 *24*	7.10 *4*	av Eβ=724.5 *18* Iβ=3.07% (1997Gr09, total γ absorption).
(1910# *4*)	532.057	<0.08	>9.7[1u]	av Eβ=723.3 *18* Iβ=0.0% (1997Gr09, total γ absorption).
(1918 *4*)	524.339	0.74	7.7	av Eβ=731.6 *18* Iβ^-: Iβ=0.28% (1997Gr09, total γ absorption). Due to discrepancy in two results, ΔIβ is not given.
(1934 *4*)	507.885	1.8	7.4	av Eβ=738.9 *18* Iβ^-: Iβ=0.64% (1997Gr09, total γ absorption). Due to large discrepancy in two results, ΔIβ is not given.
(2016 *4*)	426.451	2.6 *2*	7.28 *4*	av Eβ=775.0 *18* Iβ=2.63% (1997Gr09, total γ absorption).
(2117 *4*)	324.682	3.9 *5*	7.19 *6*	av Eβ=820.4 *18* Iβ=3.86% (1997Gr09, total γ absorption).
(2181# *4*)	261.157	<0.24	>8.4	av Eβ=848.8 *18* Iβ=0.0% (1997Gr09, total γ absorption).
(2186 *4*)	255.692	7.5 *8*	6.96 *5*	av Eβ=851.3 *18* Iβ=7.45% (1997Gr09, total γ absorption).
(2245# *4*)	197.272	<0.23	>8.5	av Eβ=877.5 *18* Iβ=0.0% (1997Gr09, total γ absorption).
(2267 *4*)	175.075	1.0 *4*	9.06[1u] *18*	av Eβ=877.7 *18* Iβ=0.0% (1997Gr09, total γ absorption).
(2325# *4*)	116.794	<0.9	>8.0	av Eβ=913.7 *18* Iβ=1.40% (1997Gr09, total γ absorption).
(2442 *4*)	0.0	14.6 *18*	6.86 *6*	av Eβ=966.4 *18* Iβ^-: from %Iβ(g.s.+85)=14.6 *18* (1997Gr09,1996Gr20, total γ absorption). β feeding to 85 level is expected to be negligible for ΔJ=2, no.

† From γ-ray intensity balance for excited states. For g.s., the value is from total γ absorption study (1997Gr09,1996Gr20). Relative Iβ′s from total γ absorption (1997Gr09) are given under comments and are in general agreement with those from level scheme. Some differences are as follows: 1. Iβ(507+524) from $4\pi\gamma$ (1997Gr09) is smaller by≈2%. 2. Iβ(1175+1183+1201) from $4\pi\gamma$ (1997Gr09) is larger by≈2%. 3. Iβ(1298) from $4\pi\gamma$ (1997Gr09) is smaller by≈6%. 4. For levels above 2100, additional Iβ=0.18% is indicated by $4\pi\gamma$ data (1997Gr09).

‡ Absolute intensity per 100 decays.

Existence of this branch is questionable.

γ(^{151}Pm)

Iγ normalization: from I(γ+ce) of γ's feeding g.s.=85.4 *18*, with Iβ(g.s.)=14.6 *18* (1997Gr09,1996Gr20), in rough agreement with 0.013 from estimate of absolute intensity of 1181γ from 1293 level (1967Dz08).

$\gamma\gamma(\theta)$: 1989Ii01, 1977Se06, 1973Se12, 1971Be97.

Experimental conversion coefficients

Eγ	α(K)exp	α(L)exp	α(M)exp	other shells
31.67		1.9 12		
58.28		1.09 17		
68.98		0.66 5	0.21 4	
80.74	1.3 9			
85.12	1.99 23	0.86 7	0.18 3	α(N)exp=0.05 1
89.96	0.31 3			
102.45	1.32 14			
116.80	0.167 15	0.0247 27	0.0061 10	α(N)exp=0.0019 9 α(L12)exp=0.0196 23 α(L3)exp=0.0051 11
138.89	0.087 7	0.0134 22		
149.61	0.09 3			
170.76	0.279 24	0.046 5	0.014 3	
175.07	0.047 4	0.009 3		
183.19	0.10 6	0.05 3		
197.27	0.10 6			
199.68	0.17 5			
238.63 + 239.60	0.10 2	0.03 2		
255.68	0.075 5	0.012 1	0.0028 6	
263.56	0.026 10			
300.58	0.011 5			
324.3	0.025 16			
402.33	0.024 5	0.006 2		
423.56	0.019 3	0.005 2		
585.22	0.014 7			
736.2	0.0029 14			
797.5	0.0018 9			
914.3	0.004 2			

$\gamma\gamma(\theta)$ data (from 1989Ii01. Others: 1977Se06,1973Se12,1971Be97)

γ - γ cascade	A_2	A_4	reference
90 - 85	+0.34 2	0.00 5	

$^{151}_{61}$Pm$_{90}$-6

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139 - 117           -0.15 2      +0.01 2
150 - 175           +0.11 6       0.00 12
171 - 139           -0.02 5                     1977Se06
171 - 256           +0.088 5                    1977Se06
271 - 175           +0.17 3      +0.04 7
301 - 424           +0.03 1      +0.01 2
320 - 171           +0.03 3      +0.02 6
333 - 175           +0.15 4      -0.03 8
357 - 175           -0.07 6      -0.03 11
383 - 798           +0.07 2      -0.15 1        1971Be97
402 - 175           +0.13 2      +0.02 4
402 - 90            -0.13 7      +0.05 16
408 - 117           -0.14 8      -0.02 15
424 - 117           -0.04 1      -0.01 2
461 - 117           +0.33 5      +0.01 9
678 - 175           +0.14 3      -0.01 4
736 - 117           +0.22 3      -0.01 4
739 - 175           +0.14 4       0.00 6
798 - 117           +0.21 3       0.00 4
1016 - 117          +0.20 3      +0.02 4
1123 - 175          +0.13 3      -0.02 4
1123 - 175          +0.25 2      -0.12 3        1971Be97
1181 - 117          +0.21 3      +0.02 4
1181 - 117          +0.059 3     +0.025 10      1971Be97
1787 - 117          -0.17 2      + 0.21 2       1971Be97
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E_γ[†]	I_γ[‡j]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ[#]	α[k]	$I_{(\gamma+ce)}$[j]	Comments
(16.5[f])		524.339	$(3/2)^+$	507.885	$5/2^+$				1 *1*	$I_{(\gamma+ce)}$: γ not observed but inferred from several triple cascades like (249γ)(16γ)(333γ) to yield I(γ+ce)=1 *1*.
31.67 *3*	34 *4*	116.794	$5/2^-$	85.119	$7/2^+$	E1		1.068		α(L)=0.843 *12*; α(M)=0.181 *3*; α(N+..)=0.0444 *7* α(N)=0.0391 *6*; α(O)=0.00510 *8*; α(P)=0.000186 *3* Mult.: from α(L)exp, estimated from combined ce(K)(69γ)+ce(L)(32γ) by subtraction of calculated ce(K)(69γ) component.
58.28 *1*	28 *2*	175.075	$7/2^-$	116.794	$5/2^-$	M1+E2	0.14 *+6−9*	7.55 *22*		α(K)=6.19 *10*; α(L)=1.07 *19*; α(M)=0.23 *5*; α(N+..)=0.060 *11* α(N)=0.052 *10*; α(O)=0.0075 *12*; α(P)=0.000399 *7*
63.81 *6*	2.6 *11*	261.157	$(9/2^-)$	197.272	$9/2^+$	[E1]		0.898		α(K)=0.750 *11*; α(L)=0.1167 *17*; α(M)=0.0249 *4*; α(N+..)=0.00626 *9* α(N)=0.00547 *8*; α(O)=0.000761 *11*; α(P)=3.46×10^{-5} *5*
^{x}67.02 *5*	1.4 *4*									
68.98 *1*	95 *4*	324.682	$5/2^+$	255.692	$3/2^+$	M1+E2	0.16 *4*	4.63 *9*		α(K)=3.81 *6*; α(L)=0.64 *6*; α(M)=0.139 *13*; α(N+..)=0.036 *4* α(N)=0.031 *3*; α(O)=0.0045 *4*; α(P)=0.000244 *4* δ: from α(L)exp. ce(K)(69γ) and ce(L)(32γ) superposed.

^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01 (continued)

$\gamma(^{151}$Pm) (continued)

E_γ[†]	I_γ[‡j]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ[#]	α[k]	Comments
80.74 3	18 1	507.885	5/2$^+$	427.150	(7/2)$^+$	M1,E2		3.9 11	α(K)=2.27 17; α(L)=1.3 10; α(M)=0.29 22; α(N+..)=0.07 6 α(N)=0.06 5; α(O)=0.008 6; α(P)=0.00012 4 α(K)exp estimated by subtraction of large KLM Auger contribution.
85.12 1	154 4	85.119	7/2$^+$	0.0	5/2$^+$	M1+E2	+0.88 +15−10	3.16 14	α(K)=1.98 4; α(L)=0.92 12; α(M)=0.21 3; α(N+..)=0.052 7 α(N)=0.046 6; α(O)=0.0060 7; α(P)=0.000110 5 δ: from γγ(θ). δ=0.8 2 from K/L=2.3 4. δ=+1.8 3 is also possible from γγ(θ) but is inconsistent with K/L ratio.
86.08 10	4 2	261.157	(9/2$^-$)	175.075	7/2$^-$	[M1,E2]		3.1 8	α(K)=1.91 12; α(L)=1.0 7; α(M)=0.22 16; α(N+..)=0.05 4 α(N)=0.05 4; α(O)=0.006 5; α(P)=0.00010 3
89.96 1	115 4	175.075	7/2$^-$	85.119	7/2$^+$	E1		0.357	α(K)=0.301 5; α(L)=0.0442 7; α(M)=0.00939 14; α(N+..)=0.00239 4 α(N)=0.00208 3; α(O)=0.000295 5; α(P)=1.455×10^{-5} 21
94.40[g] 15	1.2 2	840.966	(3/2)$^+$	746.552	(3/2$^-$)				
97.87 5	1.1 6	524.339	(3/2)$^+$	426.451	1/2$^+$				
100.1[f] 2	2.6 10	2010.99	(5/2)$^+$	1910.68	(3/2$^+$,5/2$^+$)				
102.45 2	37 2	427.150	(7/2)$^+$	324.682	5/2$^+$	M1(+E2)	<1	1.60 16	α(K)=1.20 4; α(L)=0.31 15; α(M)=0.07 4; α(N+..)=0.018 8 α(N)=0.015 8; α(O)=0.0021 9; α(P)=7.1×10^{-5} 8 For α(K)exp, correction made for ce(M) of 58γ.
104.9[a] 6	3 1	532.057	(7/2$^-$)	427.150	(7/2)$^+$				
112.15 5	8.8 15	197.272	9/2$^+$	85.119	7/2$^+$	[M1,E2]		1.31 20	α(K)=0.91 5; α(L)=0.31 18; α(M)=0.07 5; α(N+..)=0.018 11 α(N)=0.016 10; α(O)=0.0021 11; α(P)=4.9×10^{-5} 12
113.88[g] 19	7 2	540.372	3/2$^-$	426.451	1/2$^+$				
116.80 1	2930 40	116.794	5/2$^-$	0.0	5/2$^+$	E1		0.1751	α(K)=0.1483 21; α(L)=0.0211 3; α(M)=0.00449 7; α(N+..)=0.001148 16 α(N)=0.000998 14; α(O)=0.0001435 20; α(P)=7.44×10^{-6} 11
125.74 8	1.8 11	2023.15	(5/2)	1897.4	(3/2$^+$,5/2$^+$)				
138.89 1	530 16	255.692	3/2$^+$	116.794	5/2$^-$	E1		0.1091	α(K)=0.0927 13; α(L)=0.01302 19; α(M)=0.00276 4; α(N+..)=0.000709 10 α(N)=0.000615 9; α(O)=8.91×10^{-5} 13; α(P)=4.76×10^{-6} 7
149.61 1	22 1	324.682	5/2$^+$	175.075	7/2$^-$	E1		0.0891	α(K)=0.0757 11; α(L)=0.01058 15; α(M)=0.00225 4; α(N+..)=0.000577 8 α(N)=0.000500 7; α(O)=7.26×10^{-5} 11; α(P)=3.93×10^{-6} 6

$^{151}_{61}Pm_{90}$-8

γ(^{151}Pm) (continued)

E_γ [†]	I_γ [‡j]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [@]	δ [#]	α [k]	Comments
158.79 *6*	7.0 *7*	914.309	5/2$^+$	755.569	(5/2,7/2$^-$)	[D,Q]		0.23 *15*	
163.6[f] *2*	1.5 *5*	1973.32	(1/2$^+$,3/2,5/2)	1809.80	(3/2,5/2)$^+$				
165.99 *4*	4.6 *7*	427.150	(7/2)$^+$	261.157	(9/2$^-$)	[E1]		0.0673	α(K)=0.0572 *8*; α(L)=0.00793 *12*; α(M)=0.001685 *24*; α(N+..)=0.000433 *6* α(N)=0.000375 *6*; α(O)=5.47×10^{-5} *8*; α(P)=3.00×10^{-6} *5*
167.88[f] *7*	7.9 *8*	914.309	5/2$^+$	746.552	(3/2$^-$)	[E1]		0.0652	α(K)=0.0555 *8*; α(L)=0.00769 *11*; α(M)=0.001633 *23*; α(N+..)=0.000420 *6* α(N)=0.000364 *6*; α(O)=5.30×10^{-5} *8*; α(P)=2.92×10^{-6} *4*
169.20 *6*	5.6 *8*	746.552	(3/2$^-$)	577.402	(5/2)$^-$	[M1,E2]		0.354 *6*	α(K)=0.27 *3*; α(L)=0.063 *22*; α(M)=0.014 *5*; α(N+..)=0.0035 *12* α(N)=0.0031 *11*; α(O)=0.00043 *13*; α(P)=1.6×10^{-5} *4*
170.76[l]	30[l] *5*	255.692	3/2$^+$	85.119	7/2$^+$	[E2]		0.345	α(K)=0.241 *4*; α(L)=0.0811 *12*; α(M)=0.0183 *3*; α(N+..)=0.00456 *7* α(N)=0.00402 *6*; α(O)=0.000533 *8*; α(P)=1.169×10^{-5} *17*
170.76[l] *2*	216[l] *8*	426.451	1/2$^+$	255.692	3/2$^+$	M1+E2	−0.4 *3*	0.343	α(K)=0.284 *11*; α(L)=0.046 *8*; α(M)=0.0100 *19*; α(N+..)=0.0026 *5* α(N)=0.0022 *4*; α(O)=0.00033 *5*; α(P)=1.77×10^{-5} *14* Ice corrected for E2 transitions from 255.7 and 427.1 levels. δ: from (171γ)(139γ)(θ), consistent with 0.3 *3* from α(K)exp.
171.4 *1*	11 *3*	427.150	(7/2)$^+$	255.692	3/2$^+$	[E2]		0.341	α(K)=0.239 *4*; α(L)=0.0799 *12*; α(M)=0.0180 *3*; α(N+..)=0.00449 *7* α(N)=0.00395 *6*; α(O)=0.000525 *8*; α(P)=1.157×10^{-5} *17*
175.07 *1*	476 *16*	175.075	7/2$^-$	0.0	5/2$^+$	E1		0.0582	α(K)=0.0496 *7*; α(L)=0.00685 *10*; α(M)=0.001454 *21*; α(N+..)=0.000374 *6* α(N)=0.000324 *5*; α(O)=4.73×10^{-5} *7*; α(P)=2.62×10^{-6} *4* ce(M)(175γ) and ce(L)(183γ) superposed.
176.09 *8*	21 *1*	261.157	(9/2$^-$)	85.119	7/2$^+$	[E1]		0.0573	α(K)=0.0488 *7*; α(L)=0.00674 *10*; α(M)=0.001431 *21*; α(N+..)=0.000368 *6* α(N)=0.000319 *5*; α(O)=4.66×10^{-5} *7*; α(P)=2.58×10^{-6} *4*
183.19 *2*	34 *1*	507.885	5/2$^+$	324.682	5/2$^+$	M1,E2		0.277 *7*	α(K)=0.217 *23*; α(L)=0.047 *14*; α(M)=0.010 *4*; α(N+..)=0.0026 *8* α(N)=0.0023 *7*; α(O)=0.00032 *8*; α(P)=1.2×10^{-5} *3* Estimates of α(K)exp and α(L)exp involve large corrections for Ice(M) of 139γ and 176γ, respectively.
197.27 *1*	16 *1*	197.272	9/2$^+$	0.0	5/2$^+$	(E2)		0.212	α(K)=0.1540 *22*; α(L)=0.0450 *7*; α(M)=0.01012 *15*; α(N+..)=0.00253 *4* α(N)=0.00222 *4*; α(O)=0.000298 *5*; α(P)=7.71×10^{-6} *11* α(K)exp estimated (evaluator) from $\beta\gamma$ (1969BoZG), using β^- detection efficiency of 0.5.
199.68 *2*	20 *1*	524.339	(3/2)$^+$	324.682	5/2$^+$	M1,E2		0.213 *10*	α(K)=0.169 *21*; α(L)=0.035 *9*; α(M)=0.0076 *21*;

γ(^{151}Pm) (continued)

E_γ[†]	I_γ[‡][j]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ[#]	α[k]	Comments
									α(N+..)=0.0019 *5* α(N)=0.0017 *5*; α(O)=0.00024 *5*; α(P)=9.8×10^{-6} *24* α(K)exp estimated (evaluator) from βγ (1969BoZG), using detection efficiency of 0.9.
206.16[b] *10*	3.2 *3*	746.552	(3/2$^-$)	540.372	3/2$^-$				
207.7 *1*	3.4 *5*	324.682	5/2$^+$	116.794	5/2$^-$	[E1]		0.0368	α(K)=0.0314 *5*; α(L)=0.00430 *6*; α(M)=0.000912 *13*; α(N+..)=0.000235 *4* α(N)=0.000204 *3*; α(O)=2.99×10^{-5} *5*; α(P)=1.689×10^{-6} *24*
211.36[f] *8*	5.1 *8*	957.89	5/2$^+$	746.552	(3/2$^-$)				
222.18 *6*	3.5 *10*	746.552	(3/2$^-$)	524.339	(3/2)$^+$				
229.90 *5*	2.5 *7*	427.150	(7/2)$^+$	197.272	9/2$^+$				
232.92[f] *13*	2.5 *7*	773.599	(1/2,3/2,5/2$^+$)	540.372	3/2$^-$				
238.63 *2*	36 *2*	746.552	(3/2$^-$)	507.885	5/2$^+$	(E1)[i]		0.0255	α(K)=0.0218 *3*; α(L)=0.00296 *5*; α(M)=0.000628 *9*; α(N+..)=0.0001621 *23* α(N)=0.0001403 *20*; α(O)=2.07×10^{-5} *3*; α(P)=1.187×10^{-6} *17*
239.60 *6*	28 *2*	324.682	5/2$^+$	85.119	7/2$^+$	M1,E2		0.123 *13*	α(K)=0.100 *16*; α(L)=0.018 *3*; α(M)=0.0040 *7*; α(N+..)=0.00103 *15* α(N)=0.00090 *14*; α(O)=0.000128 *13*; α(P)=5.9×10^{-6} *15* Mult.: from α(K)exp, after correcting Ice for E1 contribution of 238.63γ.
249.29 *3*	25 *2*	773.599	(1/2,3/2,5/2$^+$)	524.339	(3/2)$^+$				
252.23 *4*	10 *1*	507.885	5/2$^+$	255.692	3/2$^+$	[M1,E2]		0.106 *12*	α(K)=0.086 *15*; α(L)=0.0156 *18*; α(M)=0.0034 *5*; α(N+..)=0.00087 *10* α(N)=0.00076 *10*; α(O)=0.000109 *8*; α(P)=5.1×10^{-6} *14*
255.68 *1*	1110 *20*	255.692	3/2$^+$	0.0	5/2$^+$	M1+E2	−0.8 *4*	0.105 *7*	α(K)=0.086 *8*; α(L)=0.0146 *8*; α(M)=0.00316 *21*; α(N+..)=0.00081 *5* α(N)=0.00071 *5*; α(O)=0.000102 *4*; α(P)=5.2×10^{-6} *7* δ: from (171γ)(256γ)(θ) using δ(170.76γ)=−0.4 *3*. Value consistent with 0.6 *4* from K/L.
^{x}258.0[g] *3*	2.2 *5*								
263.56 *2*	59 *3*	840.966	(3/2)$^+$	577.402	(5/2)$^-$	E1		0.0197	α(K)=0.01681 *24*; α(L)=0.00227 *4*; α(M)=0.000482 *7*; α(N+..)=0.0001247 *18* α(N)=0.0001079 *16*; α(O)=1.593×10^{-5} *23*; α(P)=9.25×10^{-7} *13* α(K)exp estimated (evaluator) from βγ (1969BoZG), using β detection efficiency of 0.5.
268.67 *4*	12 *1*	524.339	(3/2)$^+$	255.692	3/2$^+$	[M1,E2]		0.088 *12*	α(K)=0.072 *13*; α(L)=0.0127 *10*; α(M)=0.0028 *3*; α(N+..)=0.00071 *6* α(N)=0.00062 *6*; α(O)=8.9×10^{-5} *4*; α(P)=4.3×10^{-6} *12*
270.89 *3*	24 *2*	532.057	(7/2$^-$)	261.157	(9/2$^-$)	[M1,E2]		0.086 *12*	α(K)=0.070 *13*; α(L)=0.0123 *10*; α(M)=0.0027 *3*; α(N+..)=0.00069 *6*

γ(^{151}Pm) (continued)

E_γ [†]	I_γ [‡j]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [@]	α [k]	Comments
								α(N)=0.00060 *5*; α(O)=8.6×10^{-5} *4*; α(P)=4.2×10^{-6} *11* δ: +0.14 *6* or +3.0 *+8−5* from (271γ)(175γ)(θ).
275.52 *3*	17 *2*	852.994	5/2$^{(+)}$	577.402	(5/2)$^-$			
284.7 *1*	3.2 *9*	540.372	3/2$^-$	255.692	3/2$^+$			
292.15[f] *11*	4.2 *10*	1133.214	(5/2$^+$)	840.966	(3/2)$^+$			
297.3[c]	0.8 *5*	874.71	3/2$^+$	577.402	(5/2)$^-$			
300.58 *2*	137 *4*	840.966	(3/2)$^+$	540.372	3/2$^-$	E1	0.01406	α(K)=0.01201 *17*; α(L)=0.001615 *23*; α(M)=0.000342 *5*; α(N+..)=8.87×10^{-5} *13* α(N)=7.67×10^{-5} *11*; α(O)=1.135×10^{-5} *16*; α(P)=6.69×10^{-7} *10*
301.8[f] *2*	4.8 *13*	809.46	(5/2$^+$,7/2$^-$)	507.885	5/2$^+$			
310.40 *11*	2.2 *8*	427.150	(7/2)$^+$	116.794	5/2$^-$			
312.63 *3*	18 *2*	852.994	5/2$^{(+)}$	540.372	3/2$^-$			
316.56 *7*	3.5 *7*	840.966	(3/2)$^+$	524.339	(3/2)$^+$			
320.09 *3*	46 *3*	746.552	(3/2$^-$)	426.451	1/2$^+$			
321.06 *5*	15 *1*	852.994	5/2$^{(+)}$	532.057	(7/2$^-$)			
323.8[c]	1.0 *5*	1133.214	(5/2$^+$)	809.46	(5/2$^+$,7/2$^-$)			
324.68 *2*	36 *2*	324.682	5/2$^+$	0.0	5/2$^+$	[M1,E2]	0.051 *9*	α(K)=0.043 *9*; α(L)=0.00697 *13*; α(M)=0.001509 *24*; α(N+..)=0.000389 *7* α(N)=0.000337 *5*; α(O)=4.91×10^{-5} *22*; α(P)=2.6×10^{-6} *7* α(K)exp would permit E1 or M1+E2.
326.3[f] *2*	2.1 *7*	1200.97	(3/2$^+$,5/2)	874.71	3/2$^+$			
332.78 *2*	52 *3*	507.885	5/2$^+$	175.075	7/2$^-$			
334.65[f] *14*	3.6 *12*	532.057	(7/2$^-$)	197.272	9/2$^+$	[E1]	0.01073	α(K)=0.00918 *13*; α(L)=0.001228 *18*; α(M)=0.000260 *4*; α(N+..)=6.75×10^{-5} *10* α(N)=5.83×10^{-5} *9*; α(O)=8.65×10^{-6} *13*; α(P)=5.15×10^{-7} *8*
337.12[f] *16*	3.1 *9*	914.309	5/2$^+$	577.402	(5/2)$^-$			
341.95 *7*	4.4 *8*	427.150	(7/2)$^+$	85.119	7/2$^+$			
344.99[f] *10*	3.0 *7*	852.994	5/2$^{(+)}$	507.885	5/2$^+$			
347.13 *2*	30 *2*	773.599	(1/2,3/2,5/2$^+$)	426.451	1/2$^+$			
357.00 *2*	29 *2*	532.057	(7/2$^-$)	175.075	7/2$^-$	[M1,E2]	0.040 *8*	α(K)=0.033 *8*; α(L)=0.0052 *3*; α(M)=0.00113 *5*; α(N+..)=0.000291 *15* α(N)=0.000253 *11*; α(O)=3.7×10^{-5} *3*; α(P)=2.0×10^{-6} *6* δ: +0.2 *2* or −1.6 *+6−12* from (357γ)(175γ)(θ).
362.7[f] *2*	1.7 *7*	870.58	(5/2$^+$,7/2$^-$)	507.885	5/2$^+$			
365.35 *11*	6.3 *10*	540.372	3/2$^-$	175.075	7/2$^-$			
366.9[f] *3*	2.0 *8*	874.71	3/2$^+$	507.885	5/2$^+$			
373.57[l]	2[l] *1*	897.63	(3/2,5/2)	524.339	(3/2)$^+$			
373.57[l] *11*	6.1[l] *12*	1183.27	(3/2,5/2)$^+$	809.46	(5/2$^+$,7/2$^-$)			
377.73 *9*	4.1 *9*	1133.214	(5/2$^+$)	755.569	(5/2,7/2$^-$)			
380.1[f] *2*	2.4 *9*	957.89	5/2$^+$	577.402	(5/2)$^-$			

$^{151}_{61}$Pm$_{90}$-11

γ(^{151}Pm) (continued)

E_γ[†]	I_γ[‡j]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ[#]	α[k]	Comments
383.2[f] 3	1.8 8	1297.682	$5/2^+$	914.309	$5/2^+$				
391.13 2	3.5 11	507.885	$5/2^+$	116.794	$5/2^-$				
391.7[c]	1.0 5	1200.97	$(3/2^+,5/2)$	809.46	$(5/2^+,7/2^-)$				
394.6[f] 2	2.2 9	2204.30	$(1/2^+,3/2^+,5/2^+)$	1809.80	$(3/2,5/2)^+$				
402.33 2	19 3	577.402	$(5/2)^-$	175.075	$7/2^-$	M1,E2		0.029 6	α(K)=0.024 6; α(L)=0.0037 4; α(M)=0.00079 7; α(N+..)=0.000205 19 α(N)=0.000177 16; α(O)=2.6×10^{-5} 3; α(P)=1.5×10^{-6} 5 For α(K)exp and α(L)exp, Ice(K,L) reduced to allow for contributions from ce(K) and ce(L) lines of unresolved 407γ. δ: +0.03 3 or +4.1 5 from (402γ)(175γ,90γ)(θ).
407.55 2	38 1	524.339	$(3/2)^+$	116.794	$5/2^-$				
413.5[f] 3	3 1	840.966	$(3/2)^+$	427.150	$(7/2)^+$				
414.63 8	13 1	840.966	$(3/2)^+$	426.451	$1/2^+$				
415.2 3	2 1	532.057	$(7/2^-)$	116.794	$5/2^-$				
418.4[f] 2	4.0 7	943.11	$(3/2^+,5/2)$	524.339	$(3/2)^+$				
421.8 2	10 4	746.552	$(3/2^-)$	324.682	$5/2^+$				
422.6 2	28 4	507.885	$5/2^+$	85.119	$7/2^+$				
423.56[l] 2	445[l] 9	540.372	$3/2^-$	116.794	$5/2^-$	M1+E2	−0.15 1	0.0300	α(K)=0.0256 4; α(L)=0.00349 5; α(M)=0.000743 11; α(N+..)=0.000194 3 α(N)=0.0001675 24; α(O)=2.53×10^{-5} 4; α(P)=1.619×10^{-6} 23 δ: from (424γ)(117γ)(θ) and from (301γ)(424γ)(θ). For α(K)exp and α(L)exp, Ice(K,L) of 1969BoZG reduced by 12% to allow for contributions from ce(K) and ce(L) lines of unresolved 422γ, 426γ, 427γ.
423.56[l]	8.0[l] 4	1297.682	$5/2^+$	874.71	$3/2^+$				
426.47 3	29 3	426.451	$1/2^+$	0.0	$5/2^+$	[E2]		0.0190	α(K)=0.01552 22; α(L)=0.00277 4; α(M)=0.000604 9; α(N+..)=0.0001545 22 α(N)=0.0001344 19; α(O)=1.92×10^{-5} 3; α(P)=8.87×10^{-7} 13
427.2 2	8 3	427.150	$(7/2)^+$	0.0	$5/2^+$				
427.65[f] 5	14 3	1183.27	$(3/2,5/2)^+$	755.569	$(5/2,7/2^-)$				
430.2[f] 3	2.0 6	2304.01	$1/2^+,3/2^+,5/2^+$	1873.63	$(5/2)^+$				
435.9[c]	1.0 5	1998.25	$(5/2)^+$	1562.1	$(3/2^-,5/2^+)$				
439.22 3	24 1	524.339	$(3/2)^+$	85.119	$7/2^+$				
444.7[c]	1 1	1297.682	$5/2^+$	852.994	$5/2^{(+)}$				
445.53[f] 11	7.9 10	1297.682	$5/2^+$	852.30	$1/2^+$				

γ(^{151}Pm) (continued)

Eγ[†]	Iγ[‡j]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[@]	δ[#]	α[k]	Comments
446.88 7	14 1	532.057	(7/2⁻)	85.119	7/2⁺				
449.2[f] 2	2.4 9	989.88	5/2⁺	540.372	3/2⁻				
454.6[f] 2	3.1 6	1200.97	(3/2⁺,5/2)	746.552	(3/2⁻)				
456.68[f] 11	5.4 6	1297.682	5/2⁺	840.966	(3/2)⁺				
459.8[c]	0.4 2	1330.39	(5/2⁺)	870.58	(5/2⁺,7/2⁻)				
460.59 2	72 2	577.402	(5/2)⁻	116.794	5/2⁻	[M1+E2]	−0.6 3	0.0220 17	α(K)=0.0187 16; α(L)=0.00265 13; α(M)=0.000567 25; α(N+..)=0.000148 7 α(N)=0.000127 6; α(O)=1.91×10^{-5} 11; α(P)=1.16×10^{-6} 11 δ: from (461γ)(117γ)(θ).
465.6[f] 5	1.7 8	989.88	5/2⁺	524.339	(3/2)⁺				
ˣ476.5[f] 3	1.2 5								
479.3[f] 3	0.8 5	1809.80	(3/2,5/2)⁺	1330.39	(5/2⁺)				
481.92[f] 13	4.1 7	989.88	5/2⁺	507.885	5/2⁺				
486.98 19	5.1 8	914.309	5/2⁺	427.150	(7/2)⁺				
488.18[f] 12	8.6 8	1297.682	5/2⁺	809.46	(5/2⁺,7/2⁻)				
490.78 11	7.3 7	746.552	(3/2⁻)	255.692	3/2⁺				
492.24 10	7.5 7	577.402	(5/2)⁻	85.119	7/2⁺				
498.0[f] 5	0.5 3	1853.70	(5/2)⁺	1355.81					
503.8[f] 3	0.7 4	1355.81		852.30	1/2⁺				
507.84 12	6.3 9	507.885	5/2⁺	0.0	5/2⁺				
516.21 15	5.4 9	840.966	(3/2)⁺	324.682	5/2⁺				
518.0 2	4.0 8	773.599	(1/2,3/2,5/2⁺)	255.692	3/2⁺				
ˣ522.1[f] 2	1.2 6								
524.31 4	38 1	524.339	(3/2)⁺	0.0	5/2⁺				
527.6[f] 3	1.9 6	1424.57	(5/2⁻)	897.63	(3/2,5/2)				
531.97 6	9.1 7	532.057	(7/2⁻)	0.0	5/2⁺				
ˣ535.7[f] 4	0.5 3								
540.6[f] 3	3.3 7	540.372	3/2⁻	0.0	5/2⁺				
542.06 3	38 1	1297.682	5/2⁺	755.569	(5/2,7/2⁻)				
544.61 16	4.2 7	1989.71	(3/2,5/2)	1444.98	(5/2⁺)				
550.04 3	46 1	874.71	3/2⁺	324.682	5/2⁺				
551.1[c]	1.0 5	1297.682	5/2⁺	746.552	(3/2⁻)				
ˣ557.4[f] 4	1.5 6								
562.73 5	16 1	989.88	5/2⁺	427.150	(7/2)⁺				
573.0[f] 5	1.2 6	897.63	(3/2,5/2)	324.682	5/2⁺				
577.36 4	27 1	577.402	(5/2)⁻	0.0	5/2⁺				
580.2[f] 3	1.2 6	755.569	(5/2,7/2⁻)	175.075	7/2⁻				
585.22 3	98 8	840.966	(3/2)⁺	255.692	3/2⁺	M1,E2		0.011 3	α(K)=0.0091 24; α(L)=0.00130 23; α(M)=0.00028 5;

$\gamma(^{151}Pm)$ (continued)

E_γ [†]	I_γ [‡j]	E_i(level)	J^π_i	E_f	J^π_f	Comments
						α(N+..)=7.3×10^{-5} *13* α(N)=6.3×10^{-5} *11*; α(O)=9.4×10^{-6} *18*; α(P)=5.6×10^{-7} *16* For α(K)exp, Ice(K) of 1969BoZG reduced by 40% to allow for contributions from ce(K) and ce(L) lines of unresolved 550γ, 577γ, 589γ.
589.61 *3*	22 *1*	914.309	5/2$^+$	324.682	5/2$^+$	
592.4[f] *2*	1.8 *6*	1444.98	(5/2$^+$)	852.30	1/2$^+$	
596.64 *8*	32 *2*	852.30	1/2$^+$	255.692	3/2$^+$	
597.6 *2*	16 *2*	852.994	5/2$^{(+)}$	255.692	3/2$^+$	
600.8[f] *3*	1.9 *7*	1133.214	(5/2$^+$)	532.057	(7/2$^-$)	
602.4[f] *2*	2.9 *14*	1933.10	(1/2$^+$,3/2,5/2)	1330.39	(5/2$^+$)	
605.8[f] *3*	1.8 *6*	1183.27	(3/2,5/2)$^+$	577.402	(5/2)$^-$	
612.22 *7*	5.6 *7*	809.46	(5/2$^+$,7/2$^-$)	197.272	9/2$^+$	
615.9[f] *3*	1.3 *6*	2010.99	(5/2)$^+$	1394.77	(3/2$^-$)	
619.01 *4*	25 *2*	874.71	3/2$^+$	255.692	3/2$^+$	
621.3[f] *2*	2.4 *7*	1822.17	1/2,3/2,5/2	1200.97	(3/2$^+$,5/2)	
625.6 *2*	2.3 *6*	1133.214	(5/2$^+$)	507.885	5/2$^+$	
629.74 *5*	11 *1*	746.552	(3/2$^-$)	116.794	5/2$^-$	
634.0[f] *3*	2.0 *5*	809.46	(5/2$^+$,7/2$^-$)	175.075	7/2$^-$	
[x]636.4[f] *2*	2.3 *5*					
639.0[f] *5*	1.6 *7*	755.569	(5/2,7/2$^-$)	116.794	5/2$^-$	
643.11 *13*	5.0 *6*	1183.27	(3/2,5/2)$^+$	540.372	3/2$^-$	
648.4[f] *3*	0.5 *3*	1394.77	(3/2$^-$)	746.552	(3/2$^-$)	
650.8[f] *3*	0.5 *3*	2268.59	(5/2$^+$)	1617.82	(3/2,5/2)	
655.0[f] *2*	2.9 *6*	2010.99	(5/2)$^+$	1355.81		
658.61 *3*	55 *2*	914.309	5/2$^+$	255.692	3/2$^+$	
665.21 *11*	7.0 *8*	989.88	5/2$^+$	324.682	5/2$^+$	
668.1[f] *2*	2.0 *6*	2024.01	(1/2,3/2,5/2)	1355.81		
670.39 *6*	25 *1*	755.569	(5/2,7/2$^-$)	85.119	7/2$^+$	
673.22 *17*	7.0 *9*	870.58	(5/2$^+$,7/2$^-$)	197.272	9/2$^+$	
676.8[f] *5*	4 *2*	1200.97	(3/2$^+$,5/2)	524.339	(3/2)$^+$	
677.88 *3*	179 *4*	852.994	5/2$^{(+)}$	175.075	7/2$^-$	δ: +0.05 *5* or +3.7 *8* from (678γ)(175γ)(θ).
[x]679.6[f] *3*	3.3 *10*					
682.0[f] *5*	2.4 *9*	1639.63	(1/2$^+$,3/2,5/2$^+$)	957.89	5/2$^+$	
687.5[f] *3*	1.6 *5*	943.11	(3/2$^+$,5/2)	255.692	3/2$^+$	
695.7[f] *5*	2.5 *12*	870.58	(5/2$^+$,7/2$^-$)	175.075	7/2$^-$	
702.8 *4*	1.5 *6*	1617.82	(3/2,5/2)	914.309	5/2$^+$	
705.85 *12*	5.7 *6*	1133.214	(5/2$^+$)	427.150	(7/2)$^+$	
709.3[c]	0.6 *5*	1562.1	(3/2$^-$,5/2$^+$)	852.994	5/2$^{(+)}$	

γ(^{151}Pm) (continued)

E_γ[†]	I_γ[‡j]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	α[k]	Comments
715.7[f] 2	3.3 9	1848.57	(5/2)	1133.214	(5/2$^+$)			
[x]717.60[h] 15	9.7 11							
719.6[f] 3	3.5 10	1903.18	(5/2)$^+$	1183.27	(3/2,5/2)$^+$			
720.3[c]	2 1	1297.682	5/2$^+$	577.402	(5/2)$^-$			
724.28[l] 7	14[l] 2	809.46	(5/2$^+$,7/2$^-$)	85.119	7/2$^+$			
724.28[l] 7	8[l] 2	840.966	(3/2)$^+$	116.794	5/2$^-$			
727.5[f] 5	0.8 6	1903.18	(5/2)$^+$	1175.60				
731.9[f] 4	1.5 6	1933.10	(1/2$^+$,3/2,5/2)	1200.97	(3/2$^+$,5/2)			
734.0[f] 2	7.6 20	989.88	5/2$^+$	255.692	3/2$^+$			
736.23 3	445 10	852.994	5/2$^{(+)}$	116.794	5/2$^-$	(E1)	0.00179	α(K)=0.001538 22; α(L)=0.000199 3; α(M)=4.20×10^{-5} 6; α(N+..)=1.094×10^{-5} 16 α(N)=9.44×10^{-6} 14; α(O)=1.419×10^{-6} 20; α(P)=8.95×10^{-8} 13 For α(K)exp, Ice(K) of 1969BoZG reduced by 20% to allow for contribution from ce(K) and ce(L) lines of unresolved 739γ. δ: −0.1 1 or −1.4 2 from (736γ)(117γ)(θ). α(K)exp gives E1 or E2+M1 with δ>2.1. Mult.: from consistency of ce and $\gamma\gamma(\theta)$ data.
739.20 3	114 3	914.309	5/2$^+$	175.075	7/2$^-$			
741.7[f] 2	3.5 8	1639.63	(1/2$^+$,3/2,5/2$^+$)	897.63	(3/2,5/2)			
744.0[c]	2 1	1618.42	(3/2$^+$,5/2$^+$)	874.71	3/2$^+$			
746.5[c]	0.6 4	746.552	(3/2$^-$)	0.0	5/2$^+$			
751.0[c]	1.0 5	1741.25	(1/2$^+$,3/2,5/2$^+$)	989.88	5/2$^+$			
753.0[f] 2	4.5 12	1330.39	(5/2$^+$)	577.402	(5/2)$^-$			
753.8[c]	2 1	870.58	(5/2$^+$,7/2$^-$)	116.794	5/2$^-$			
755.57 3	88 2	755.569	(5/2,7/2$^-$)	0.0	5/2$^+$			
757.9[f] 3	2.8 11	874.71	3/2$^+$	116.794	5/2$^-$			
765.40[f] 6	13 1	1297.682	5/2$^+$	532.057	(7/2$^-$)			E_γ: poor fit. Level energy difference=765.62.
767.89 6	20 1	852.994	5/2$^{(+)}$	85.119	7/2$^+$			
773.62[l] 9	20[l] 2	1200.97	(3/2$^+$,5/2)	427.150	(7/2)$^+$			
773.62[l] 9	5[l] 1	1297.682	5/2$^+$	524.339	(3/2)$^+$			
777.1[f] 3	1.5 6	1617.82	(3/2,5/2)	840.966	(3/2)$^+$			
780.7 3	2.7 7	897.63	(3/2,5/2)	116.794	5/2$^-$			
783.4 3	2.4 7	1741.25	(1/2$^+$,3/2,5/2$^+$)	957.89	5/2$^+$			
785.28 8	11 1	870.58	(5/2$^+$,7/2$^-$)	85.119	7/2$^+$			
787.2[c] 5	1.4 6	1639.63	(1/2$^+$,3/2,5/2$^+$)	852.30	1/2$^+$			
789.95[l] 7	8[l] 1	1297.682	5/2$^+$	507.885	5/2$^+$			
789.95[l] 9	4[l] 1	1330.39	(5/2$^+$)	540.372	3/2$^-$			
792.4[f] 4	2.9 8	989.88	5/2$^+$	197.272	9/2$^+$			

From ENSDF

γ(^{151}Pm) (continued)

E_γ[†]	I_γ[‡j]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	α[k]	Comments
797.53 2	355 8	914.309	5/2$^+$	116.794	5/2$^-$	E1	1.52×10^{-3}	α(K)=0.001309 19; α(L)=0.0001685 24; α(M)=3.56×10^{-5} 5; α(N+..)=9.29×10^{-6} 13 α(N)=8.00×10^{-6} 12; α(O)=1.205×10^{-6} 17; α(P)=7.63×10^{-8} 11 For α(K)exp, Ice(K) of 1969BoZG reduced by 10% to allow for contribution from ce(K) and ce(L) lines of unresolved 798γ. Mult.: from α(K)exp and (798γ)(117γ)(θ).
798.2[f] 5	11 3	1330.39	(5/2$^+$)	532.057	(7/2$^-$)			
801.0[f] 3	1.8 7	1873.63	(5/2)$^+$	1072.91	(3/2$^+$)			
809.23 10	17 2	809.46	(5/2$^+$,7/2$^-$)	0.0	5/2$^+$			
812.6 2	9.4 15	897.63	(3/2,5/2)	85.119	7/2$^+$			
815.4[f] 3	3.2 10	1562.1	(3/2$^-$,5/2$^+$)	746.552	(3/2$^-$)			
819.75 8	8.1 9	1809.80	(3/2,5/2)$^+$	989.88	5/2$^+$			
823.2 4	1.7 8	2024.01	(1/2,3/2,5/2)	1200.97	(3/2$^+$,5/2)			
829.16 5	17 1	914.309	5/2$^+$	85.119	7/2$^+$			
837.5[f] 4	0.8 4	1795.13	(3/2,5/2)	957.89	5/2$^+$			
841.07[l] 4	57[l] 5	840.966	(3/2)$^+$	0.0	5/2$^+$			
841.07[l]	12[l] 2	957.89	5/2$^+$	116.794	5/2$^-$			
847.12[f] 6	6.6 9	1424.57	(5/2$^-$)	577.402	(5/2)$^-$			
848.0[c]	2 1	1805.51	(1/2$^+$,3/2,5/2$^+$)	957.89	5/2$^+$			
851.8[l]	9[l] 3	852.30	1/2$^+$	0.0	5/2$^+$			
851.8[l] 3	12.8[l] 19	1809.80	(3/2,5/2)$^+$	957.89	5/2$^+$			
853.30 12	16 3	852.994	5/2$^{(+)}$	0.0	5/2$^+$			
854.0[f] 5	4 2	1394.77	(3/2$^-$)	540.372	3/2$^-$			
858.3 2	7.9 12	943.11	(3/2$^+$,5/2)	85.119	7/2$^+$			
865.9[f] 5	3 1	1639.63	(1/2$^+$,3/2,5/2$^+$)	773.599	(1/2,3/2,5/2$^+$)			
866.4[l] 3	5.6[l] 19	1741.25	(1/2$^+$,3/2,5/2$^+$)	874.71	3/2$^+$			
866.4[l] 3	1.5[l] 10	1809.80	(3/2,5/2)$^+$	943.11	(3/2$^+$,5/2)			
867.6[f] 5	5 1	1444.98	(5/2$^+$)	577.402	(5/2)$^-$			
870.70[l] 11	8[l] 1	870.58	(5/2$^+$,7/2$^-$)	0.0	5/2$^+$			
870.70[l] 11	6.4[l] 10	1297.682	5/2$^+$	427.150	(7/2)$^+$			
872.5[c]	1 1	957.89	5/2$^+$	85.119	7/2$^+$			
873.1[c]	1 1	989.88	5/2$^+$	116.794	5/2$^-$			
874.5[f] 2	7.8 9	874.71	3/2$^+$	0.0	5/2$^+$			
876.39 7	29 1	1200.97	(3/2$^+$,5/2)	324.682	5/2$^+$			
881.14 16	4.6 7	1892.05	(5/2)$^+$	1010.71				
886.8 3	3.1 7	1394.77	(3/2$^-$)	507.885	5/2$^+$			
889.1 3	3.4 7	1741.25	(1/2$^+$,3/2,5/2$^+$)	852.30	1/2$^+$			
892.7 2	4.9 9	1424.57	(5/2$^-$)	532.057	(7/2$^-$)			

γ(^{151}Pm) (continued)

E_γ[†]	I_γ[‡j]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	α[k]	Comments
897.65 9	21 1	897.63	(3/2,5/2)	0.0	5/2$^+$			
900.2 1	11 1	1741.25	(1/2$^+$,3/2,5/2$^+$)	840.966	(3/2)$^+$			
904.7[l] 2	7[l] 2	989.88	5/2$^+$	85.119	7/2$^+$			
904.7[l] 2	8[l] 2	1444.98	(5/2$^+$)	540.372	3/2$^-$			
905.3[f] 5	3 1	1848.57	(5/2)	943.11	(3/2$^+$,5/2)			
912.5[l] 2	8[l] 2	1444.98	(5/2$^+$)	532.057	(7/2$^-$)			
912.5[l] 2	8[l] 2	1809.80	(3/2,5/2)$^+$	897.63	(3/2,5/2)			
914.28 4	69 6	914.309	5/2$^+$	0.0	5/2$^+$	M1,E2	0.0037 9	α(K)=0.0031 8; α(L)=0.00043 9; α(M)=9.1×10^{-5} 18; α(N+..)=2.4×10^{-5} 5 α(N)=2.0×10^{-5} 4; α(O)=3.1×10^{-6} 7; α(P)=1.9×10^{-7} 5 For α(K)exp, Ice(K) of 1969BoZG reduced by 20% to allow for contribution from ce(K) and ce(L) lines of unresolved 912γ, 913γ, 919γ.
919.93 12	6.9 10	1175.60		255.692	3/2$^+$			
924.4[c]	1 1	1822.17	1/2,3/2,5/2	897.63	(3/2,5/2)			
925.5[l] 1	2[l] 1	1010.71		85.119	7/2$^+$			
925.5[l] 1	8.0[l] 1	1998.25	(5/2)$^+$	1072.91	(3/2$^+$)			
930.4[f] 5	3 1	1873.63	(5/2)$^+$	943.11	(3/2$^+$,5/2)			
934.04 9	8.8 14	1892.05	(5/2)$^+$	957.89	5/2$^+$			
935.1[c]	1 1	1809.80	(3/2,5/2)$^+$	874.71	3/2$^+$			
936.8 3	3.3 14	1444.98	(5/2$^+$)	507.885	5/2$^+$			
943.17 7	28 1	943.11	(3/2$^+$,5/2)	0.0	5/2$^+$			
945.5[f] 5	1 1	1903.18	(5/2)$^+$	957.89	5/2$^+$			
949.05 15	5 1	1892.05	(5/2)$^+$	943.11	(3/2$^+$,5/2)			
950.8[c]	1 1	1848.57	(5/2)	897.63	(3/2,5/2)			
951.85 20	3.9 9	1822.17	1/2,3/2,5/2	870.58	(5/2$^+$,7/2$^-$)			
954.4[f] 3	1.7 8	1897.4	(3/2$^+$,5/2$^+$)	943.11	(3/2$^+$,5/2)			
958.18[l]	4[l] 2	957.89	5/2$^+$	0.0	5/2$^+$			
958.18[l] 4	44[l] 2	1133.214	(5/2$^+$)	175.075	7/2$^-$			
960.5[f] 3	4.3 12	1903.18	(5/2)$^+$	943.11	(3/2$^+$,5/2)			
964.74 13	14 1	1805.51	(1/2$^+$,3/2,5/2$^+$)	840.966	(3/2)$^+$			
967.58[l] 12	14[l] 1	1741.25	(1/2$^+$,3/2,5/2$^+$)	773.599	(1/2,3/2,5/2$^+$)			
967.58[l] 12	1.5[l] 5	1910.68	(3/2$^+$,5/2$^+$)	943.11	(3/2$^+$,5/2)			
969.2[l] 4	4.9[l] 11	1809.80	(3/2,5/2)$^+$	840.966	(3/2)$^+$			
969.2[l] 4	0.6[l] 4	1959.61	(1/2$^+$,3/2,5/2)	989.88	5/2$^+$			
973.23 10	12.9 10	1297.682	5/2$^+$	324.682	5/2$^+$			
979.65 21	4.2 9	1854.50	(3/2$^+$,5/2)	874.71	3/2$^+$			
983.5[f] 2	1.9 8	1973.32	(1/2$^+$,3/2,5/2)	989.88	5/2$^+$			
985.3[f] 3	1.8 8	1927.98	(5/2$^+$)	943.11	(3/2$^+$,5/2)			
989.71 16	3.9 6	989.88	5/2$^+$	0.0	5/2$^+$			

γ(^{151}Pm) (continued)

E_γ[†]	I_γ[‡j]	E_i(level)	J^π_i	E_f	J^π_f	Comments
994.64 *10*	4.2 *3*	1741.25	(1/2$^+$,3/2,5/2$^+$)	746.552	(3/2$^-$)	
999.5 *3*	1.9 *8*	1897.4	(3/2$^+$,5/2$^+$)	897.63	(3/2,5/2)	
1003.24 *13*	4.7 *7*	1873.63	(5/2)$^+$	870.58	(5/2$^+$,7/2$^-$)	
[x]1008.6[g] *10*	2.9 *6*					
1010.8[f] *3*	1.5 *10*	1010.71		0.0	5/2$^+$	
1012.7[c]	0.8 *5*	1853.70	(5/2)$^+$	840.966	(3/2)$^+$	
1016.40 *3*	188 *4*	1133.214	(5/2$^+$)	116.794	5/2$^-$	Mult.: (1016γ)(117γ)(θ) consistent with E1.
1021.05[l]	2[l] *1*	1873.63	(5/2)$^+$	852.994	5/2$^{(+)}$	
1021.05[l] *11*	5[l] *1*	1892.05	(5/2)$^+$	870.58	(5/2$^+$,7/2$^-$)	E_γ: level energy difference=1021.47.
1029.05 *20*	2.7 *6*	2018.87	(1/2$^+$,3/2,5/2$^+$)	989.88	5/2$^+$	
1030.5[c]	1 *1*	1927.98	(5/2$^+$)	897.63	(3/2,5/2)	
1032.4[l] *2*	2[l] *1*	1873.63	(5/2)$^+$	840.966	(3/2)$^+$	
1032.4[l] *2*	3[l] *1*	1903.18	(5/2)$^+$	870.58	(5/2$^+$,7/2$^-$)	
1035.4[c]	1.0 *5*	1933.10	(1/2$^+$,3/2,5/2)	897.63	(3/2,5/2)	
1036.16 *7*	13.4 *7*	1809.80	(3/2,5/2)$^+$	773.599	(1/2,3/2,5/2$^+$)	
1040.4[f] *2*	4.9 *8*	1617.82	(3/2,5/2)	577.402	(5/2)$^-$	
1041.91 *8*	24 *1*	1297.682	5/2$^+$	255.692	3/2$^+$	
1044.3[c]	0.4 *2*	1897.4	(3/2$^+$,5/2$^+$)	852.994	5/2$^{(+)}$	
1045.0[c]	0.6 *4*	1854.50	(3/2$^+$,5/2)	809.46	(5/2$^+$,7/2$^-$)	
1048.11 *5*	46 *2*	1133.214	(5/2$^+$)	85.119	7/2$^+$	
1049.5[f] *2*	6 *1*	1589.91	(3/2$^-$,5/2)	540.372	3/2$^-$	
1051.0[f] *5*	2 *1*	1892.05	(5/2)$^+$	840.966	(3/2)$^+$	
1057.8 *5*	0.8 *5*	1910.68	(3/2$^+$,5/2$^+$)	852.994	5/2$^{(+)}$	
1064.0 *2*	4.2 *5*	1873.63	(5/2)$^+$	809.46	(5/2$^+$,7/2$^-$)	
1066.57[l] *6*	12[l] *7*	1183.27	(3/2,5/2)$^+$	116.794	5/2$^-$	
1066.57[l] *6*	2[l] *1*	1822.17	1/2,3/2,5/2	755.569	(5/2,7/2$^-$)	
1070.03 *13*	4.8 *6*	1394.77	(3/2$^-$)	324.682	5/2$^+$	
1073.1 *1*	8.1 *7*	1072.91	(3/2$^+$)	0.0	5/2$^+$	
1074.0[f] *5*	3.0 *15*	1651.52	(3/2$^+$,5/2)	577.402	(5/2)$^-$	
1077.12 *10*	8.9 *8*	1617.82	(3/2,5/2)	540.372	3/2$^-$	
1079.5[c]	1.0 *5*	2022.4	(3/2$^+$,5/2)	943.11	(3/2$^+$,5/2)	
1080.09[l] *5*	16[l] *1*	1853.70	(5/2)$^+$	773.599	(1/2,3/2,5/2$^+$)	
1080.09[l] *5*	2[l] *1*	1933.10	(1/2$^+$,3/2,5/2)	852.994	5/2$^{(+)}$	
1082.7[f] *5*	2 *1*	1892.05	(5/2)$^+$	809.46	(5/2$^+$,7/2$^-$)	
1084.0 *3*	1.9 *5*	1200.97	(3/2$^+$,5/2)	116.794	5/2$^-$	
1092.0 *2*	2.3 *5*	1933.10	(1/2$^+$,3/2,5/2)	840.966	(3/2)$^+$	
1099.95 *13*	7.3 *10*	1355.81		255.692	3/2$^+$	
[x]1106.0[f] *2*	7.6 *13*					
1107.16 *5*	32 *1*	1853.70	(5/2)$^+$	746.552	(3/2$^-$)	
1111.0 *4*	1.4 *5*	1651.52	(3/2$^+$,5/2)	540.372	3/2$^-$	

$^{151}_{61}$Pm$_{90}$-18

γ(^{151}Pm) (continued)

E_γ [†]	I_γ [‡j]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [@]
1115.4 *3*	4.1 *7*	1639.63	(1/2$^+$,3/2,5/2$^+$)	524.339	(3/2)$^+$	
1118.2[l] *3*	4.0[l] *7*	1873.63	(5/2)$^+$	755.569	(5/2,7/2$^-$)	
1118.2[l] *3*	1[l] *1*	2015.93	(3/2,5/2)	897.63	(3/2,5/2)	
1122.63 *3*	307 *6*	1297.682	5/2$^+$	175.075	7/2$^-$	
1123.5[f] *5*	2 *1*	1998.25	(5/2)$^+$	874.71	3/2$^+$	
1125.4[f] *5*	2 *1*	2023.15	(5/2)	897.63	(3/2,5/2)	
1127.11 *7*	14 *1*	1873.63	(5/2)$^+$	746.552	(3/2$^-$)	
1128.7[f] *4*	0.8 *3*	2304.01	1/2$^+$,3/2$^+$,5/2$^+$	1175.60		
1131.6[f] *2*	4.3 *12*	1639.63	(1/2$^+$,3/2,5/2$^+$)	507.885	5/2$^+$	
[x]1132.55 *10*	6.9 *12*					
1136.58 *8*	13.6 *7*	1892.05	(5/2)$^+$	755.569	(5/2,7/2$^-$)	
1139.0[f] *2*	4.2 *6*	1394.77	(3/2$^-$)	255.692	3/2$^+$	
1145.5 *2*	4 *1*	1892.05	(5/2)$^+$	746.552	(3/2$^-$)	
1145.9 *1*	5 *1*	1998.25	(5/2)$^+$	852.30	1/2$^+$	
1147.8[f] *5*	1.0 *5*	1903.18	(5/2)$^+$	755.569	(5/2,7/2$^-$)	
1151.8 *3*	3.5 *7*	2022.4	(3/2$^+$,5/2)	870.58	(5/2$^+$,7/2$^-$)	
1156.90[l] *15*	8.4[l] *20*	1903.18	(5/2)$^+$	746.552	(3/2$^-$)	
1156.90[l]	5[l] *2*	1998.25	(5/2)$^+$	840.966	(3/2)$^+$	
1159.4 *3*	3.9 *8*	1933.10	(1/2$^+$,3/2,5/2)	773.599	(1/2,3/2,5/2$^+$)	
1165.5[c]	0.7 *3*	2018.87	(1/2$^+$,3/2,5/2$^+$)	852.994	5/2$^{(+)}$	
1169.2 *5*	17 *1*	1424.57	(5/2$^-$)	255.692	3/2$^+$	
1172.53[h] *13*	8.0 *6*	1927.98	(5/2$^+$)	755.569	(5/2,7/2$^-$)	
1174.9[f] *1*	2.6 *7*	2015.93	(3/2,5/2)	840.966	(3/2)$^+$	
1177.7[f] *5*	2.3 *12*	2018.87	(1/2$^+$,3/2,5/2$^+$)	840.966	(3/2)$^+$	
1180.89 *2*	1000 *20*	1297.682	5/2$^+$	116.794	5/2$^-$	&
1184.2[f] *3*	7 *1*	1993.81	(5/2)$^+$	809.46	(5/2$^+$,7/2$^-$)	
1186.0[c]	2.0 *5*	1959.61	(1/2$^+$,3/2,5/2)	773.599	(1/2,3/2,5/2$^+$)	
1186.7[e] *2*	5.6 *4*	1933.10	(1/2$^+$,3/2,5/2)	746.552	(3/2$^-$)	
1189.24 *9*	20 *1*	1444.98	(5/2$^+$)	255.692	3/2$^+$	
1191.1[f] *4*	2.9 *8*	1618.42	(3/2$^+$,5/2$^+$)	427.150	(7/2)$^+$	
1201.03[l] *6*	12.7[l] *10*	1741.25	(1/2$^+$,3/2,5/2$^+$)	540.372	3/2$^-$	
1201.03[l]	2[l] *1*	2010.99	(5/2)$^+$	809.46	(5/2$^+$,7/2$^-$)	
1206.6[c]	0.4 *2*	2015.93	(3/2,5/2)	809.46	(5/2$^+$,7/2$^-$)	
1213.18[l]	1.5[l] *10*	1297.682	5/2$^+$	85.119	7/2$^+$	
1213.18[l] *8*	6.4[l] *5*	1959.61	(1/2$^+$,3/2,5/2)	746.552	(3/2$^-$)	
1217.71 *14*	4.5 *6*	1795.13	(3/2,5/2)	577.402	(5/2)$^-$	
1224.45 *15*	2.4 *5*	1998.25	(5/2)$^+$	773.599	(1/2,3/2,5/2$^+$)	
1232.6 *1*	6.6 *6*	1809.80	(3/2,5/2)$^+$	577.402	(5/2)$^-$	
1234.1[f] *5*	1.0 *5*	1989.71	(3/2,5/2)	755.569	(5/2,7/2$^-$)	

γ(^{151}Pm) (continued)

E_γ[†]	I_γ[‡j]	E_i(level)	J^π_i	E_f	J^π_f
1238.35 *8*	3.7 *5*	1993.81	(5/2)$^+$	755.569	(5/2,7/2$^-$)
1251.60 *15*	3.8 *5*	1998.25	(5/2)$^+$	746.552	(3/2$^-$)
1255.4 *2*	3.1 *5*	2010.99	(5/2)$^+$	755.569	(5/2,7/2$^-$)
1260.86 *27*	1.3 *3*	2015.93	(3/2,5/2)	755.569	(5/2,7/2$^-$)
1264.3 *2*	1.5 *3*	2010.99	(5/2)$^+$	746.552	(3/2$^-$)
1268.5 *2*	4.1	2024.01	(1/2,3/2,5/2)	755.569	(5/2,7/2$^-$)
1269.6[f] *2*	5.1 *14*	1444.98	(5/2$^+$)	175.075	7/2$^-$
1270.9 *2*	4.8 *13*	1795.13	(3/2,5/2)	524.339	(3/2)$^+$
1271.3[f] *5*	2	1848.57	(5/2)	577.402	(5/2)$^-$
1276.9 *3*	1.9 *5*	1854.50	(3/2$^+$,5/2)	577.402	(5/2)$^-$
1282.2 *4*	1.6 *5*	2038.05	(1/2,3/2,5/2)	755.569	(5/2,7/2$^-$)
1285.63 *16*	12.3 *11*	1809.80	(3/2,5/2)$^+$	524.339	(3/2)$^+$
1287.2 *1*	8 *1*	1795.13	(3/2,5/2)	507.885	5/2$^+$
1293.61 *5*	23 *1*	1618.42	(3/2$^+$,5/2$^+$)	324.682	5/2$^+$
1296.4[f] *2*	4.2 *6*	1873.63	(5/2)$^+$	577.402	(5/2)$^-$
1297.61 *5*	15 *1*	1297.682	5/2$^+$	0.0	5/2$^+$
1308.5[f] *4*	1.8 *4*	1848.57	(5/2)	540.372	3/2$^-$
1314.2[l] *2*	12[l] *2*	1854.50	(3/2$^+$,5/2)	540.372	3/2$^-$
1314.2[l] *5*	7.0[l] *6*	1892.05	(5/2)$^+$	577.402	(5/2)$^-$
1316.3 *2*	10 *1*	1848.57	(5/2)	532.057	(7/2$^-$)
1325.9[f] *3*	2.4 *6*	1903.18	(5/2)$^+$	577.402	(5/2)$^-$
1328.22 *8*	19 *2*	1444.98	(5/2$^+$)	116.794	5/2$^-$
1329.5[f] *2*	3.9 *6*	1853.70	(5/2)$^+$	524.339	(3/2)$^+$
1332.3[c]	1.0 *6*	2106.86	(3/2,5/2)	773.599	(1/2,3/2,5/2$^+$)
1333.10 *12*	7.7 *7*	1873.63	(5/2)$^+$	540.372	3/2$^-$
1338.4 *3*	2.2 *10*	1878.60	(5/2)	540.372	3/2$^-$
1341.58 *8*	9.0 *7*	1873.63	(5/2)$^+$	532.057	(7/2$^-$)
1346.55[l] *15*	1.0[l] *5*	1854.50	(3/2$^+$,5/2)	507.885	5/2$^+$
1346.55[l] *15*	1.7[l] *5*	1878.60	(5/2)	532.057	(7/2$^-$)
1349.3 *5*	1.8 *7*	1873.63	(5/2)$^+$	524.339	(3/2)$^+$
1350.4[l] *4*	1.1[l] *6*	1927.98	(5/2$^+$)	577.402	(5/2)$^-$
1350.4[l] *5*	0.8[l] *6*	2106.86	(3/2,5/2)	755.569	(5/2,7/2$^-$)
1351.7[c]	0.2 *1*	1892.05	(5/2)$^+$	540.372	3/2$^-$
1357.0[c]	0.5 *2*	1897.4	(3/2$^+$,5/2$^+$)	540.372	3/2$^-$
1359.94[d] *9*	9.9 *6*	1444.98	(5/2$^+$)	85.119	7/2$^+$
1359.94[d] *9*	9.9 *6*	1892.05	(5/2)$^+$	532.057	(7/2$^-$)
1362.78 *4*	23 *1*	1618.42	(3/2$^+$,5/2$^+$)	255.692	3/2$^+$
1366.1[c]	1.1 *3*	1873.63	(5/2)$^+$	507.885	5/2$^+$
1371.4[f] *1*	2.2 *4*	1903.18	(5/2)$^+$	532.057	(7/2$^-$)
1379.12[l] *7*	7.8[l] *5*	1805.51	(1/2$^+$,3/2,5/2$^+$)	426.451	1/2$^+$

From ENSDF

γ(^{151}Pm) (continued)

E$_\gamma$[†]	I$_\gamma$[‡j]	E$_i$(level)	J^π_i	E$_f$	J^π_f
1379.12[l]	3.6[l] 6	1903.18	$(5/2)^+$	524.339	$(3/2)^+$
1383.37 9	5.8 4	1809.80	$(3/2,5/2)^+$	426.451	$1/2^+$
1387.1 4	1.7 4	1562.1	$(3/2^-,5/2^+)$	175.075	$7/2^-$
1393.0 3	0.8 4	1933.10	$(1/2^+,3/2,5/2)$	540.372	$3/2^-$
1395.0 3	7.4 13	1394.77	$(3/2^-)$	0.0	$5/2^+$
[x]1408.3 2	0.7 2				
1414.9 3	0.7 2	1589.91	$(3/2^-,5/2)$	175.075	$7/2^-$
1425.29 8	3.4 5	1933.10	$(1/2^+,3/2,5/2)$	507.885	$5/2^+$
1427.6 3	0.8 5	1854.50	$(3/2^+,5/2)$	427.150	$(7/2)^+$
[x]1434.4[g] 5	1.4 2				
1439.0[c]	0.9 6	2015.93	$(3/2,5/2)$	577.402	$(5/2)^-$
[x]1442.4[g] 10	1.3 3				
1445.4 2	3.7 3	1444.98	$(5/2^+)$	0.0	$5/2^+$
1446.4[c]	0.6 4	1873.63	$(5/2)^+$	427.150	$(7/2)^+$
1451.5[c]	0.3 2	1878.60	$(5/2)$	427.150	$(7/2)^+$
1457.6[c]	0.2 2	2204.30	$(1/2^+,3/2^+,5/2^+)$	746.552	$(3/2^-)$
1461.6[c]	0.7 5	1993.81	$(5/2)^+$	532.057	$(7/2^-)$
1465.41 8	4.8 4	1973.32	$(1/2^+,3/2,5/2)$	507.885	$5/2^+$
1470.8 2	1.2 3	2010.99	$(5/2)^+$	540.372	$3/2^-$
1473.6[f] 3	1.5 3	1998.25	$(5/2)^+$	524.339	$(3/2)^+$
1475.78 9	5.0 7	1903.18	$(5/2)^+$	427.150	$(7/2)^+$
1485.45[l] 7	15.0[l] 1	1741.25	$(1/2^+,3/2,5/2^+)$	255.692	$3/2^+$
1485.45[l]	3.0[l] 1	1993.81	$(5/2)^+$	507.885	$5/2^+$
1490.93 18	0.7 2	2023.15	$(5/2)$	532.057	$(7/2^-)$
1498.95 15	2.4 3	2023.15	$(5/2)$	524.339	$(3/2)^+$
1501.8 2	2.4 3	1618.42	$(3/2^+,5/2^+)$	116.794	$5/2^-$
1507.48 8	3.2 3	2084.92	$(1/2,3/2,5/2)$	577.402	$(5/2)^-$
1533.6 2	1.6 2	1618.42	$(3/2^+,5/2^+)$	85.119	$7/2^+$
[x]1540.0[f] 4	0.3 2				
1548.9[f] 3	4 1	1873.63	$(5/2)^+$	324.682	$5/2^+$
1549.75 5	20 1	1805.51	$(1/2^+,3/2,5/2^+)$	255.692	$3/2^+$
1553.84 13	5.1 5	1878.60	$(5/2)$	324.682	$5/2^+$
[x]1559.8[f] 6	0.6 3				
1566.41 10	6.8 5	1651.52	$(3/2^+,5/2)$	85.119	$7/2^+$
1571.84 7	7.4 5	1998.25	$(5/2)^+$	426.451	$1/2^+$
1578.36 6	12.1 6	1903.18	$(5/2)^+$	324.682	$5/2^+$
1584.6 2	0.7 2	2010.99	$(5/2)^+$	426.451	$1/2^+$
1585.8 4	0.3 2	1910.68	$(3/2^+,5/2^+)$	324.682	$5/2^+$
1592.5 2	1.6 2	2018.87	$(1/2^+,3/2,5/2^+)$	426.451	$1/2^+$
1598.04 7	6.9 5	1853.70	$(5/2)^+$	255.692	$3/2^+$
1611.5[f] 3	0.3 2	2119.09	$(1/2^+,3/2,5/2^+)$	507.885	$5/2^+$

E$_\gamma$[†]	I$_\gamma$[‡j]	E$_i$(level)	J^π_i	E$_f$	J^π_f
1617.94 6	25 2	1617.82	$(3/2,5/2)$	0.0	$5/2^+$
1618.6[f] 2	2 1	1793.68	$(5/2)$	175.075	$7/2^-$
1622.8 10	0.7 2	1878.60	$(5/2)$	255.692	$3/2^+$
1627.97 13	2.1 2	1713.10	$(3/2^+,5/2)$	85.119	$7/2^+$
1636.34 6	6.6 4	1892.05	$(5/2)^+$	255.692	$3/2^+$
1639.79 13	1.5 1	1639.63	$(1/2^+,3/2,5/2^+)$	0.0	$5/2^+$
[x]1642.7[g] 3	1.0 1				
1647.43 8	2.7 3	1903.18	$(5/2)^+$	255.692	$3/2^+$
[x]1658.9[g] 3	0.6 1				
[x]1664.6 3	0.6 2				
1673.2 2	1.3 2	1848.57	$(5/2)$	175.075	$7/2^-$
1678.4 2	0.4 1	1853.70	$(5/2)^+$	175.075	$7/2^-$
1686.3 2	1.1 1	2010.99	$(5/2)^+$	324.682	$5/2^+$
1693.0 3	0.9 9	2119.09	$(1/2^+,3/2,5/2^+)$	426.451	$1/2^+$
1698.42 14	1.4 2	1873.63	$(5/2)^+$	175.075	$7/2^-$
1703.65[l] 15	0.4[l] 2	1878.60	$(5/2)$	175.075	$7/2^-$
1703.65[l] 15	2.0[l] 2	1959.61	$(1/2^+,3/2,5/2)$	255.692	$3/2^+$
1708.5[c]	0.5 3	1793.68	$(5/2)$	85.119	$7/2^+$
[x]1711.2 2	1.8 2				
1716.92 7	8.2 4	1892.05	$(5/2)^+$	175.075	$7/2^-$
[x]1727.2[f] 2	0.7 1				
1731.82[f] 12	6.4 3	1848.57	$(5/2)$	116.794	$5/2^-$
1737.75 15	1.2 2	1993.81	$(5/2)^+$	255.692	$3/2^+$
1742.4 2	1.0 1	1998.25	$(5/2)^+$	255.692	$3/2^+$
1752.99 8	3.4 3	1927.98	$(5/2^+)$	175.075	$7/2^-$
1756.82 8	3.7 3	1873.63	$(5/2)^+$	116.794	$5/2^-$
1761.77 8	2.3 2	1878.60	$(5/2)$	116.794	$5/2^-$
1767.45 15	0.7 1	2023.15	$(5/2)$	255.692	$3/2^+$
1775.26 6	18 1	1892.05	$(5/2)^+$	116.794	$5/2^-$
1782.36 13	3.5 3	2038.05	$(1/2,3/2,5/2)$	255.692	$3/2^+$
1786.51 8	6.6 5	1903.18	$(5/2)^+$	116.794	$5/2^-$
1788.4[c]	1.1 2	1873.63	$(5/2)^+$	85.119	$7/2^+$
1793.84 9	3.0 2	1910.68	$(3/2^+,5/2^+)$	116.794	$5/2^-$
1795.1[f] 4	0.8 2	1795.13	$(3/2,5/2)$	0.0	$5/2^+$
1797.4[c]	0.3 1	2053.10	$(5/2^+)$	255.692	$3/2^+$
1800.9[f] 4	0.2 1	1998.25	$(5/2)^+$	197.272	$9/2^+$
1807.00 9	4.7 3	1892.05	$(5/2)^+$	85.119	$7/2^+$
1810.9 1	6.0 4	1927.98	$(5/2^+)$	116.794	$5/2^-$
1818.74 8	4.3 3	1993.81	$(5/2)^+$	175.075	$7/2^-$
1825.4[c]	0.2 1	1910.68	$(3/2^+,5/2^+)$	85.119	$7/2^+$
1829.4 2	0.6 1	2084.92	$(1/2,3/2,5/2)$	255.692	$3/2^+$

$^{151}_{61}$Pm$_{90}$-21

$\gamma(^{151}$Pm) (continued)

E_γ[†]	I_γ[‡j]	E_i(level)	J_i^π	E_f	J_f^π
1835.99 *14*	0.7 *1*	2010.99	$(5/2)^+$	175.075	$7/2^-$
1848.55 *10*	1.2 *1*	1848.57	(5/2)	0.0	$5/2^+$
1854.55 *15*	0.9 *1*	1854.50	$(3/2^+,5/2)$	0.0	$5/2^+$
1855.8[f] *4*	0.7 *3*	2053.10	$(5/2^+)$	197.272	$9/2^+$
1863.37 *8*	3.3 *3*	2119.09	$(1/2^+,3/2,5/2^+)$	255.692	$3/2^+$
1873.1 *2*	1.1 *1*	1989.71	(3/2,5/2)	116.794	$5/2^-$
1877.6[f] *2*	1.1 *1*	2304.01	$1/2^+,3/2^+,5/2^+$	426.451	$1/2^+$
1892.15 *6*	12.7 *7*	1892.05	$(5/2)^+$	0.0	$5/2^+$
1894.0[f] *2*	1.9 *3*	2010.99	$(5/2)^+$	116.794	$5/2^-$
1903.35 *14*	0.9 *1*	1903.18	$(5/2)^+$	0.0	$5/2^+$
1908.6 *2*	2.5 *2*	1993.81	$(5/2)^+$	85.119	$7/2^+$
1925.97 *9*	2.7 *3*	2010.99	$(5/2)^+$	85.119	$7/2^+$
[x]1932.5 *2*	1.7 *2*				
1938.0[c]	0.2 *1*	2023.15	(5/2)	85.119	$7/2^+$
[x]1950.3[g] *6*	0.4 *1*				
1973.3 *3*	0.3 *1*	1973.32	$(1/2^+,3/2,5/2)$	0.0	$5/2^+$
[x]1980.2 *2*	0.4 *1*				
1989.3[c]	0.2 *1*	2106.86	(3/2,5/2)	116.794	$5/2^-$
1993.8 *3*	0.4 *1*	1993.81	$(5/2)^+$	0.0	$5/2^+$
1998.1[f] *3*	0.3 *1*	1998.25	$(5/2)^+$	0.0	$5/2^+$
[x]2009.0[f] *4*	0.3 *2*				
2010.92 *15*	0.8 *1*	2010.99	$(5/2)^+$	0.0	$5/2^+$
2018.85 *5*	3.5 *3*	2018.87	$(1/2^+,3/2,5/2^+)$	0.0	$5/2^+$
2023.16 *18*	0.7 *1*	2023.15	(5/2)	0.0	$5/2^+$
2038.1[f] *3*	0.2 *1*	2038.05	(1/2,3/2,5/2)	0.0	$5/2^+$
2053.1[f] *3*	0.2 *1*	2053.10	$(5/2^+)$	0.0	$5/2^+$
[x]2062.5[f] *3*	0.1 *1*				
2093.5[f] *3*	0.2 *1*	2268.59	$(5/2^+)$	175.075	$7/2^-$
2106.96 *15*	0.5 *1*	2106.86	(3/2,5/2)	0.0	$5/2^+$
[x]2113.4[f] *4*	0.1 *1*				
2118.94 *18*	0.5 *1*	2119.09	$(1/2^+,3/2,5/2^+)$	0.0	$5/2^+$
[x]2124.7[f] *4*	0.1 *1*				
[x]2135.3[f] *4*	0.1 *1*				
[x]2153.8[f] *3*	0.3 *1*				
[x]2186.2[f] *4*	0.2 *1*				
2204.2[f] *2*	0.3 *1*	2204.30	$(1/2^+,3/2^+,5/2^+)$	0.0	$5/2^+$
[x]2227.4[f] *4*	0.1 *1*				
[x]2234.6[f] *4*	0.1 *1*				
[x]2254.90 *12*	0.8 *1*				
2268.5[f] *4*	0.1 *1*	2268.59	$(5/2^+)$	0.0	$5/2^+$
2303.8[f] *4*	0.1 *1*	2304.01	$1/2^+,3/2^+,5/2^+$	0.0	$5/2^+$

[†] Weighted average of 1985GlZY and 1977Se06 or 1985Ii01 wherever possible. The agreement between the two sets is excellent, except for close multiplets where 1985GlZY seems to have marginally better resolution. There are very few unplaced γ's, and only a few of these are reported by both groups. For multiply placed transitions energy is given for the composite peak. Uncertainties for weaker members of unresolved lines are not given. These are expected to be≈ 0.5 keV.

[‡] From 1985GlZY unless otherwise indicated. 1985GlZY use $\gamma\gamma$ data to assign Iγ to weak transitions and components of unresolved multiplets.

[#] From $\gamma\gamma(\theta)$, unless stated otherwise.

[@] From ce data. ce data from 1969BoZG combined with γ data of 1985GlZY by the evaluator, using the E1 116.8γ for normalization. α(exp) for 117γ have been established by 1969BoZG, 1969Vo09, 1971Na25, using Si(Li) ce spectrometers calibrated with transitions of known multipolarity in other nuclei. For weak but placed γ's, 1969BoZG derive $\alpha(\exp)'$s from the βce spectra, using β detection efficiencies derived from the level scheme. The estimated uncertainty for the efficiency factor is ≈10%. The evaluator has used this approach to estimate $\alpha(\exp)'$s for γ's unplaced by 1969BoZG. Where no such data exists, mult consistent with ΔJ^π has been assigned to calculate α. Contributions to the electron intensities from neighboring (unresolved) γ rays have been subtracted based on assumed multipolarities suggested by ΔJ^π.

[&] (1181γ)(117γ)(θ) consistent with E1.

[a] From 1977Se06. Eγ and Iγ deduced after subtracting contaminant component.

[b] 1985GlZY quote 206.69.

[c] Observed by 1985GlZY only in $\gamma\gamma$. Uncertainty is≈0.5 keV.

γ(^{151}Pm) (continued)

[d] Assigned to 1445 level by 1985Ii01, presumably from 1360γ-85γ coincidences. Assigned to 1892 level by 1985GlZY, presumably from 1360γ-357γ-175γ coincidences. The evaluator has not attempted to divide Iγ between the two locations.

[e] Masked by 1180.89γ in spectra of 1985Ii01.

[f] Observed only by 1985GlZY.

[g] Observed only by 1977Se06 or 1985Ii01.

[h] Reported only by 1985GlZY but peak present in spectra of 1977Se06 or 1985Ii01.

[i] α(K)exp for unresolved 238.63 + 239.60 doublet is consistent with E1 for 238.6 and M1 for 239.60 or with both transitions being M1+E2. ΔJ^π requires E1 for 238.63γ.

[j] For absolute intensity per 100 decays, multiply by 0.0133 *8*.

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

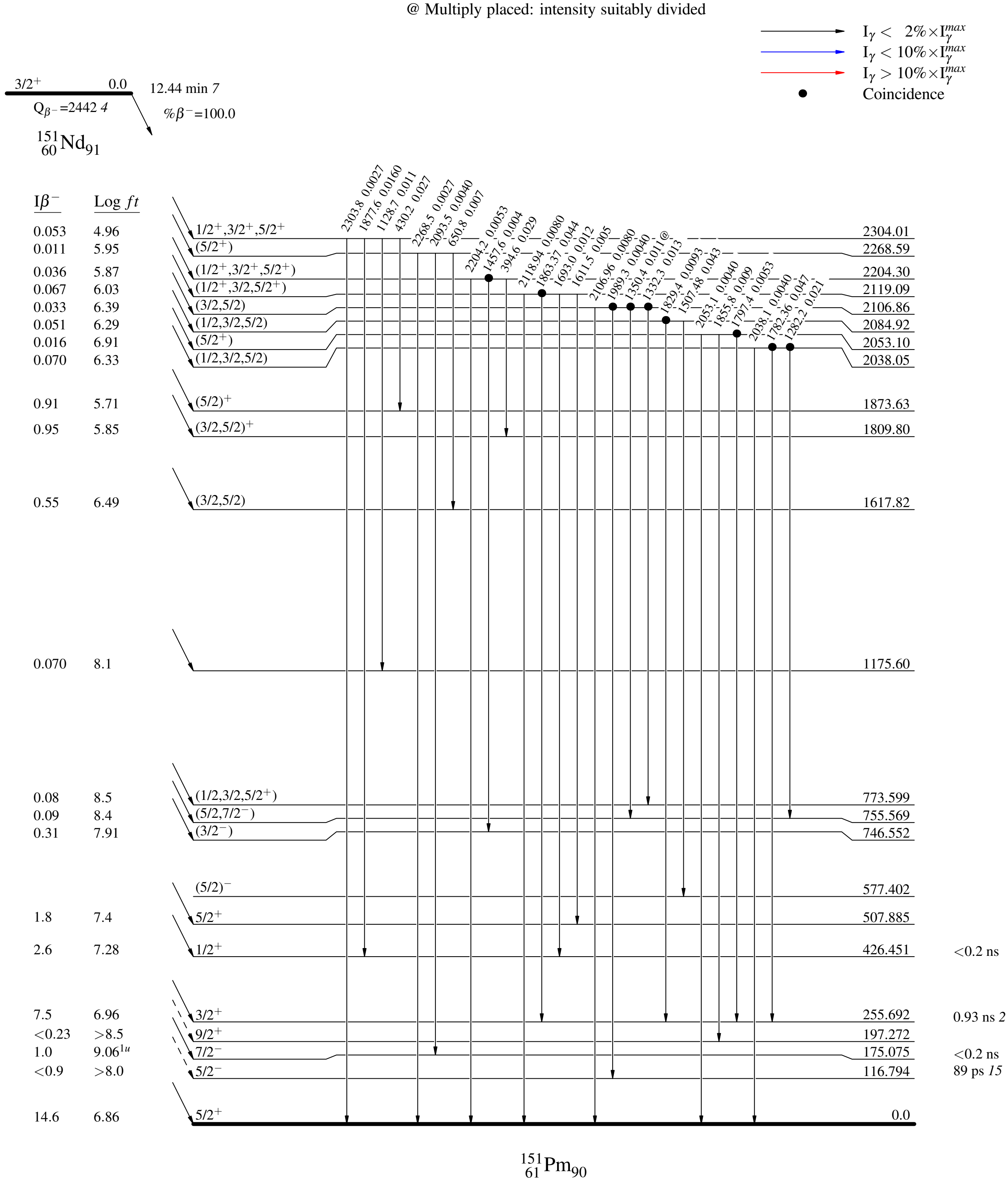
[l] Multiply placed with intensity suitably divided.

[x] γ ray not placed in level scheme.

^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

Decay Scheme

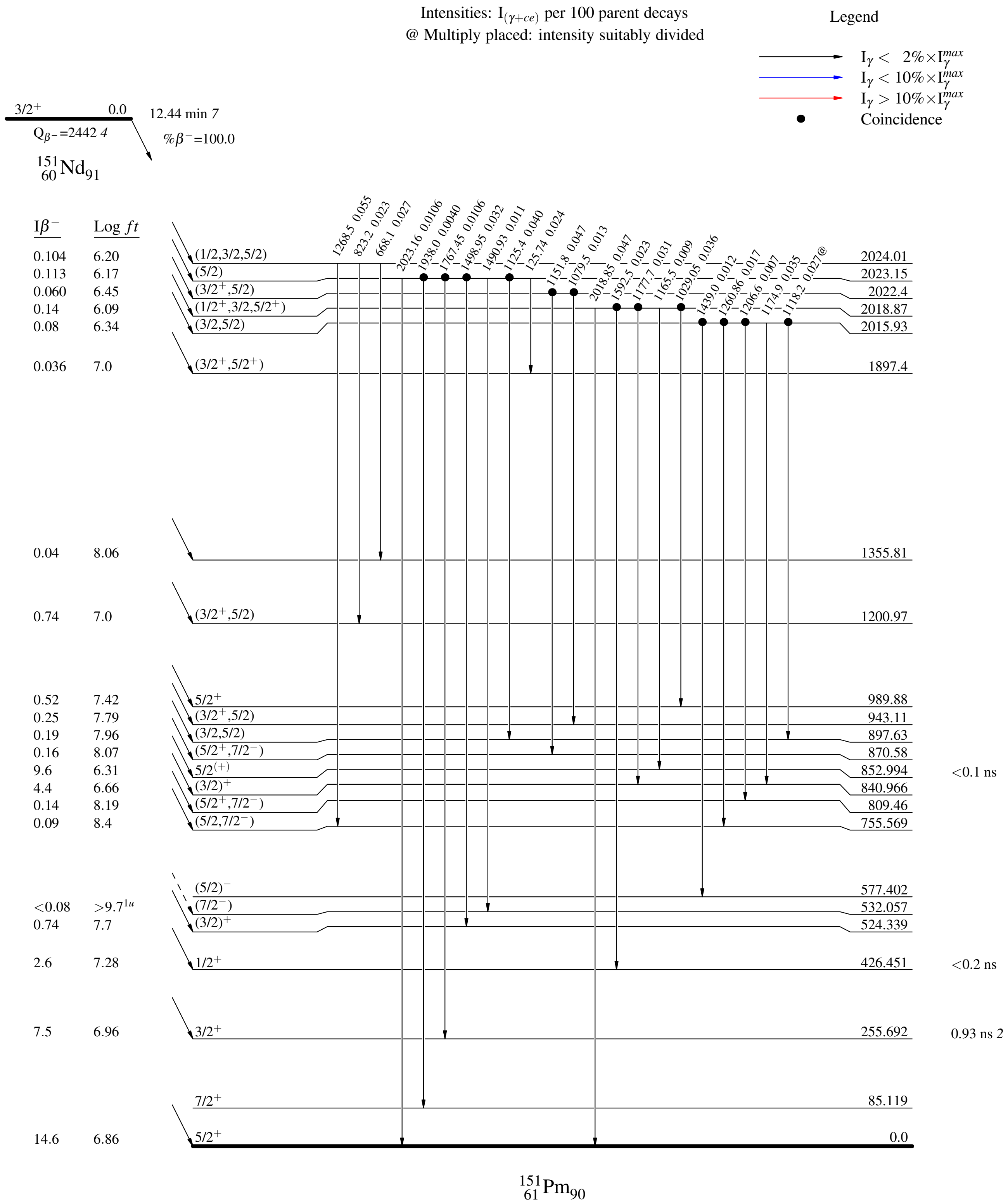
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

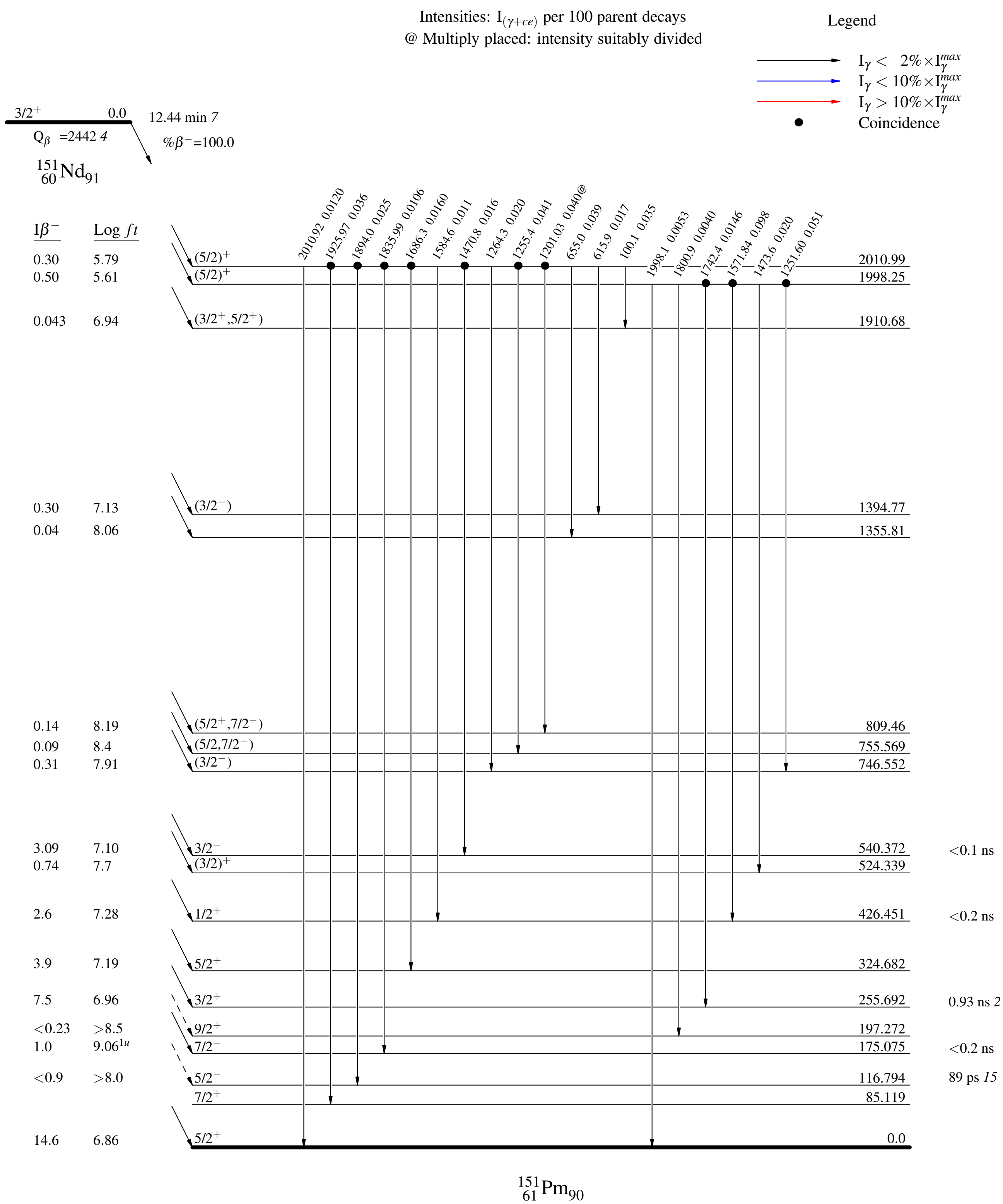
Decay Scheme (continued)

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



^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

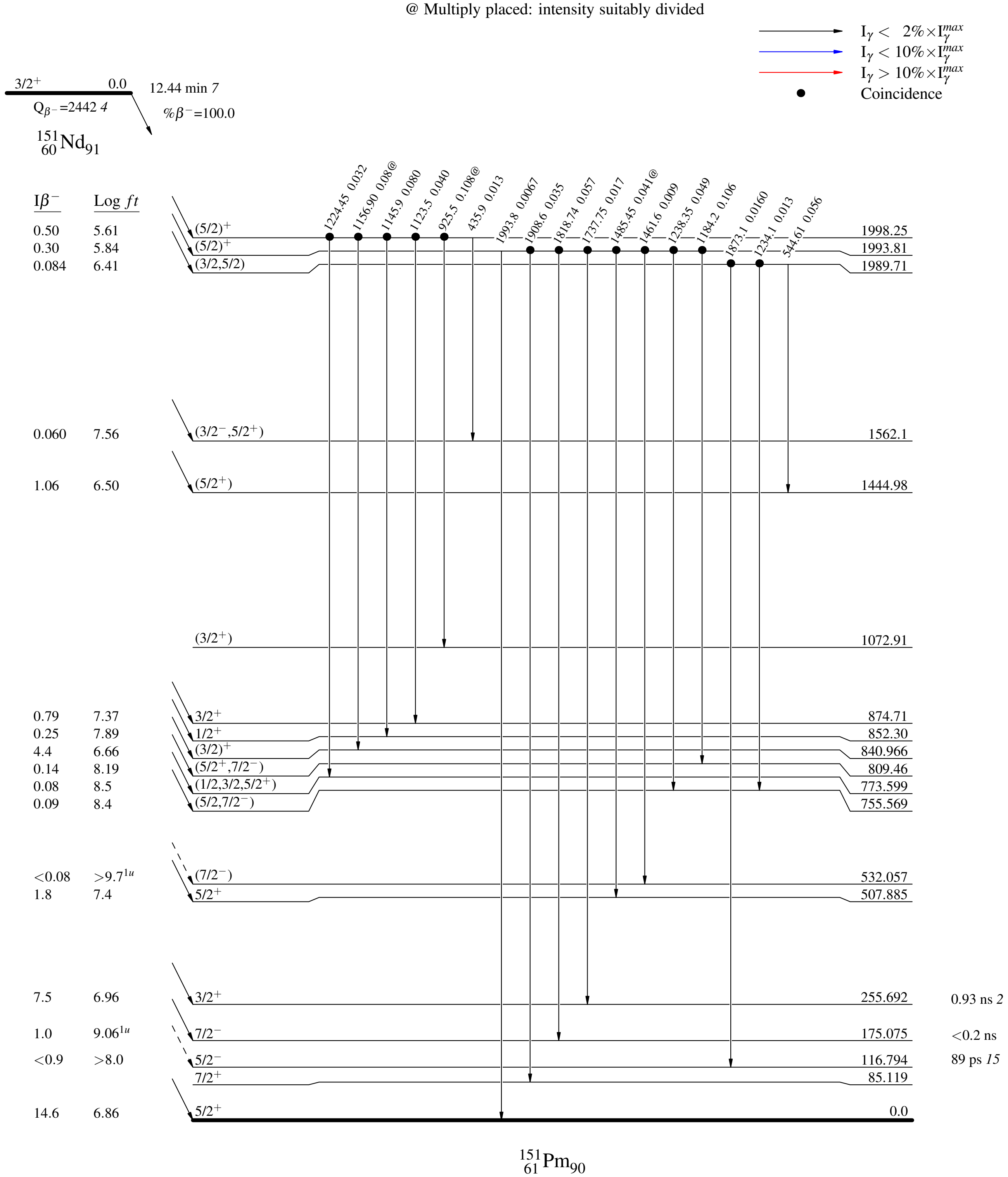
Decay Scheme (continued)



^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

Decay Scheme (continued)

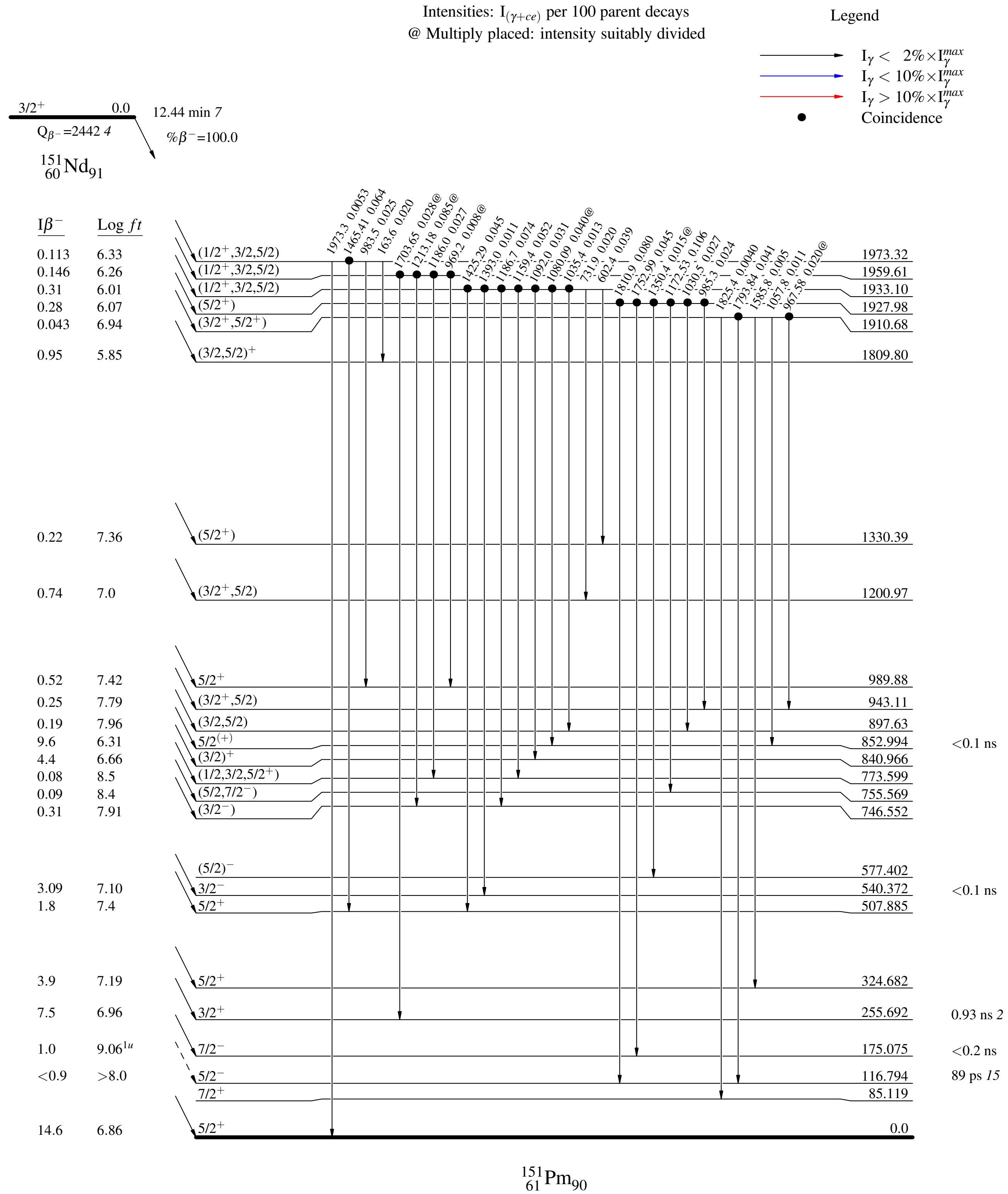
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

Decay Scheme (continued)

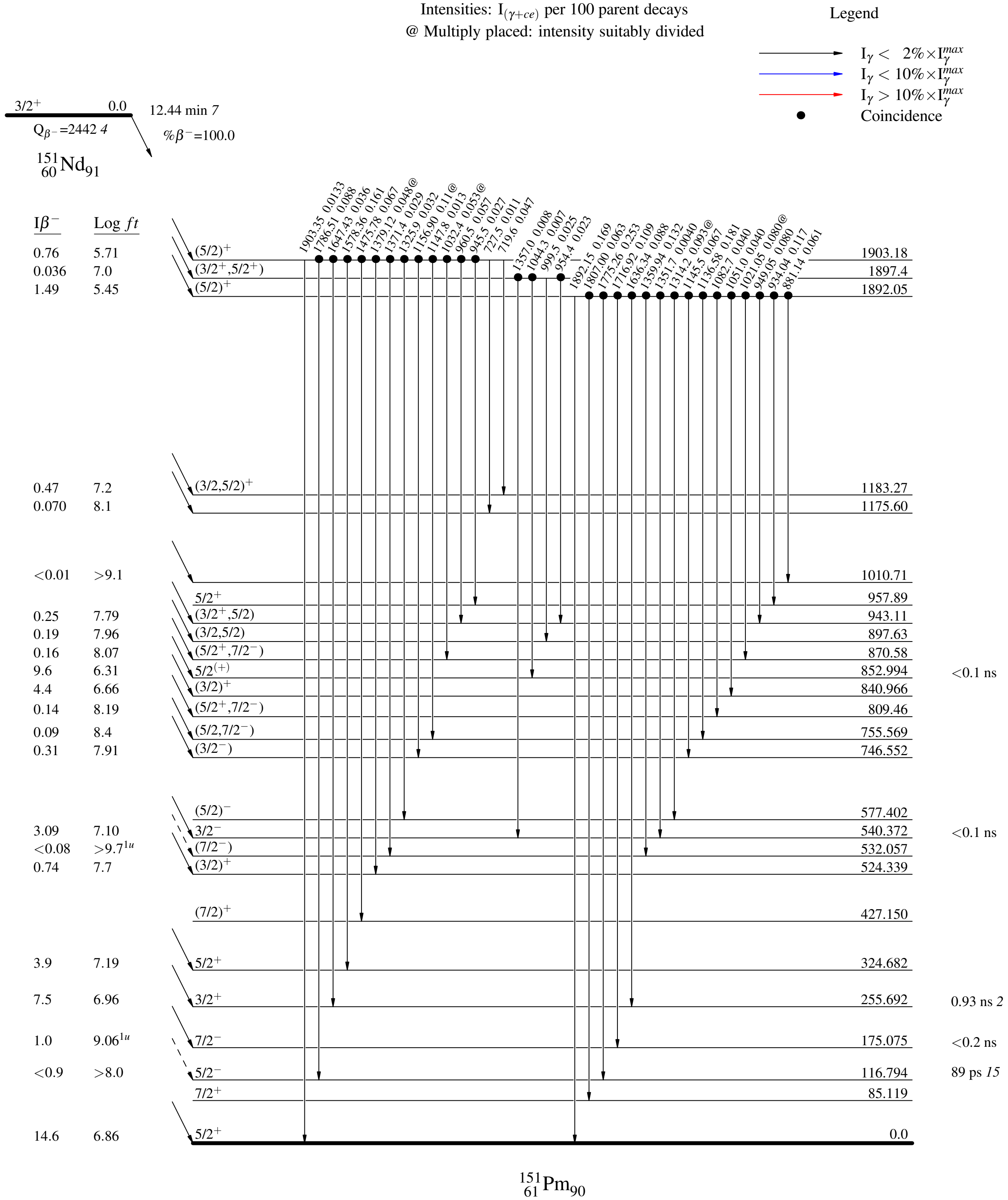
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

Decay Scheme (continued)

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

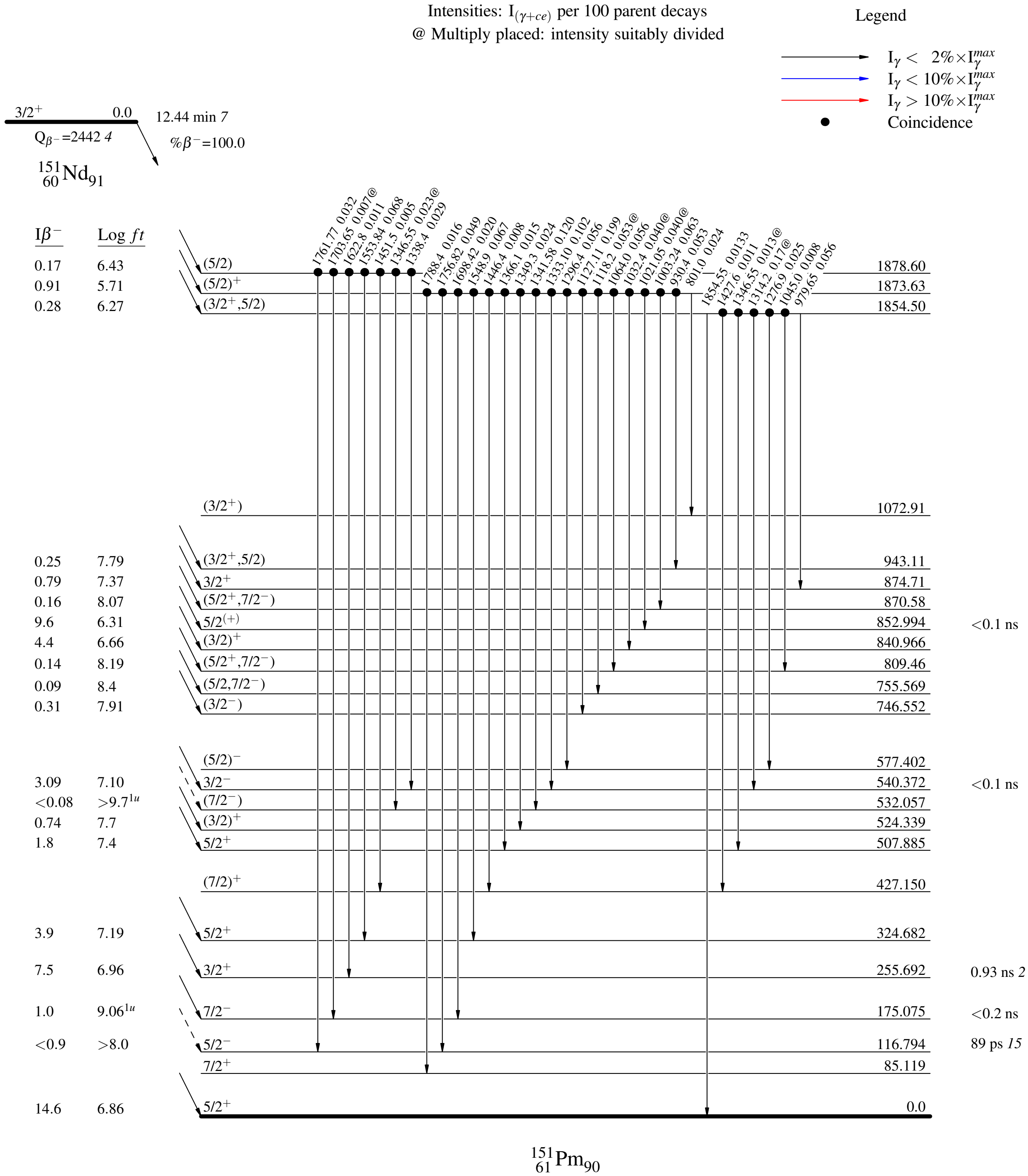


^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

Decay Scheme (continued)

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

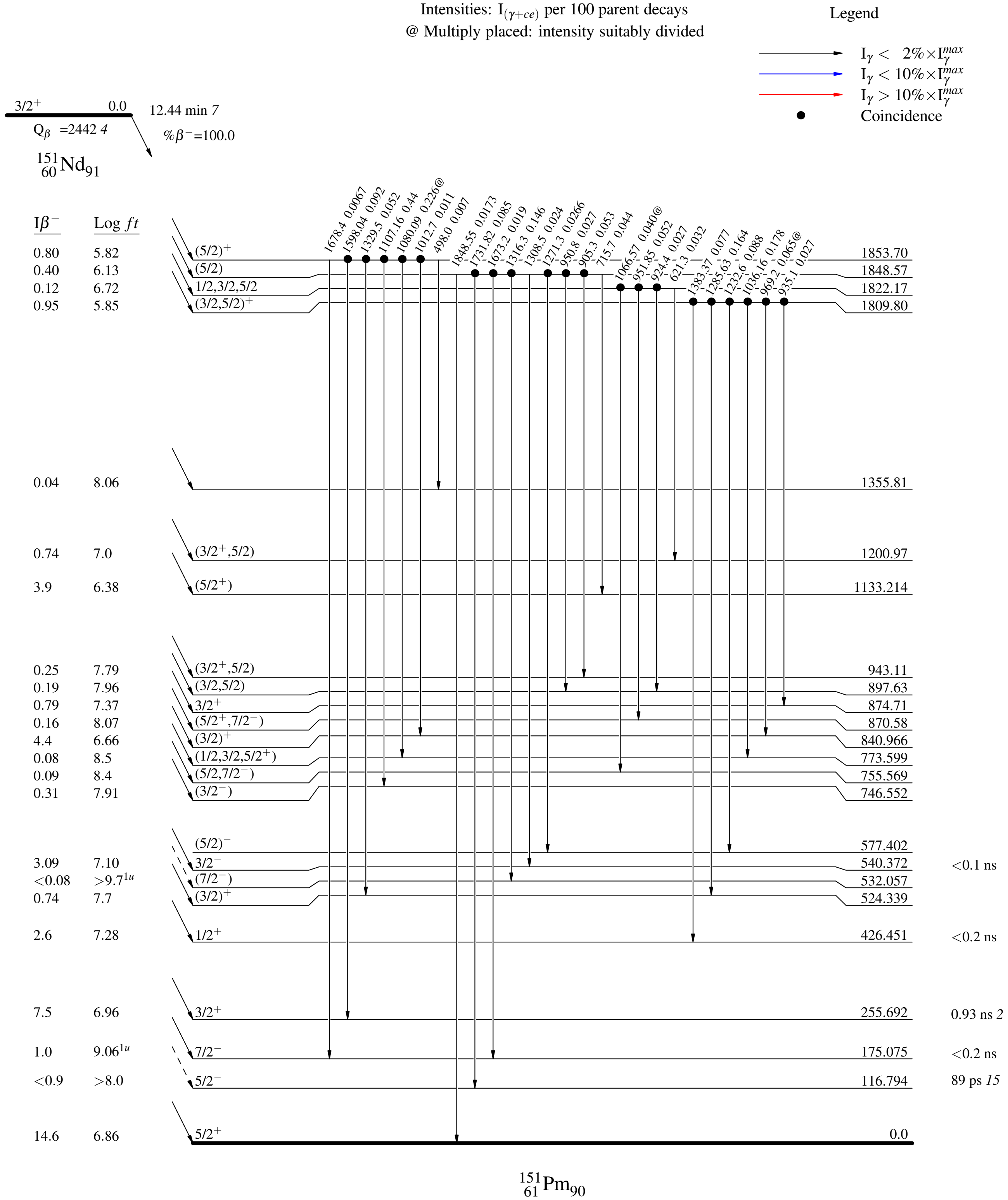
@ Multiply placed: intensity suitably divided



^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

Decay Scheme (continued)

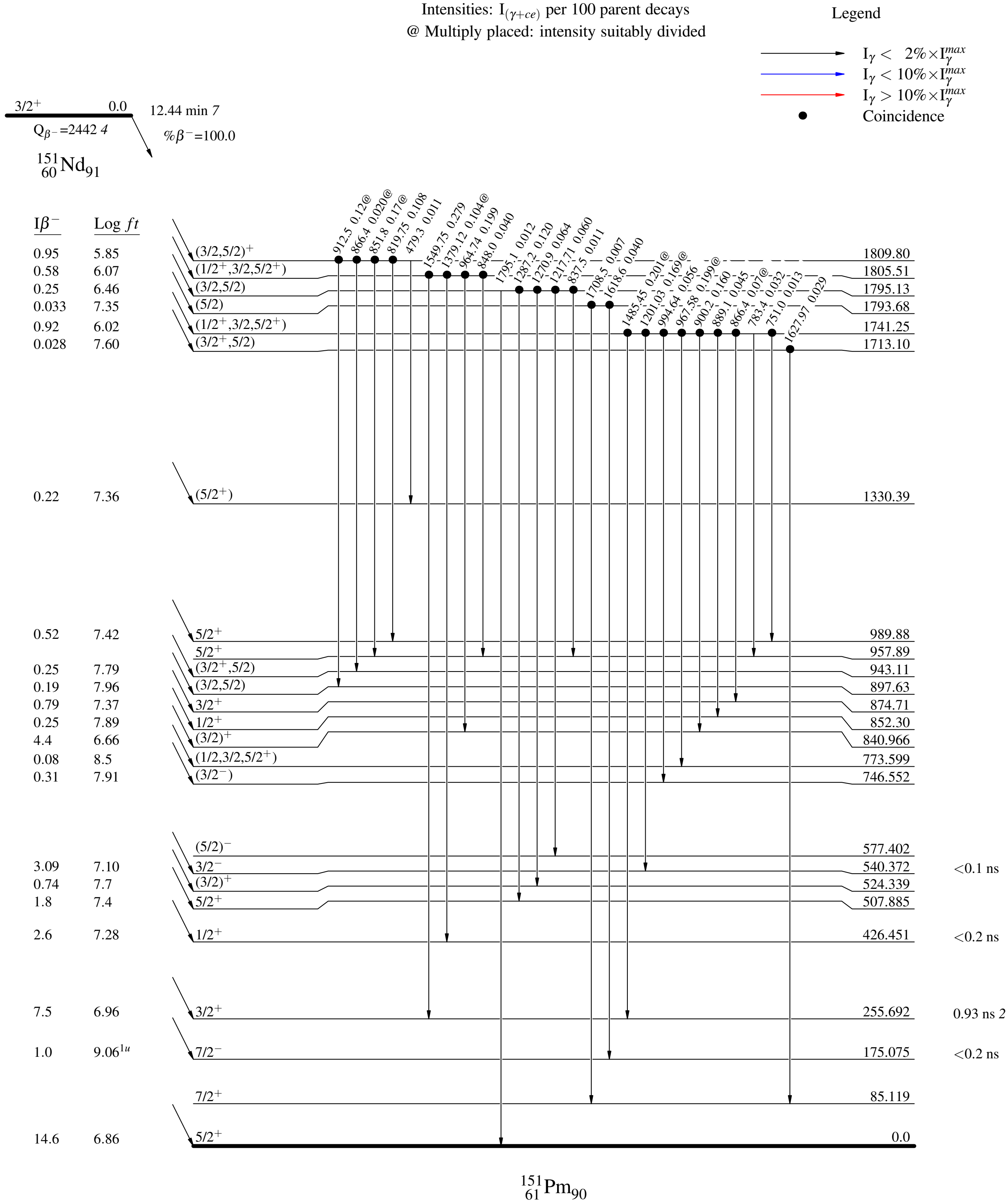
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

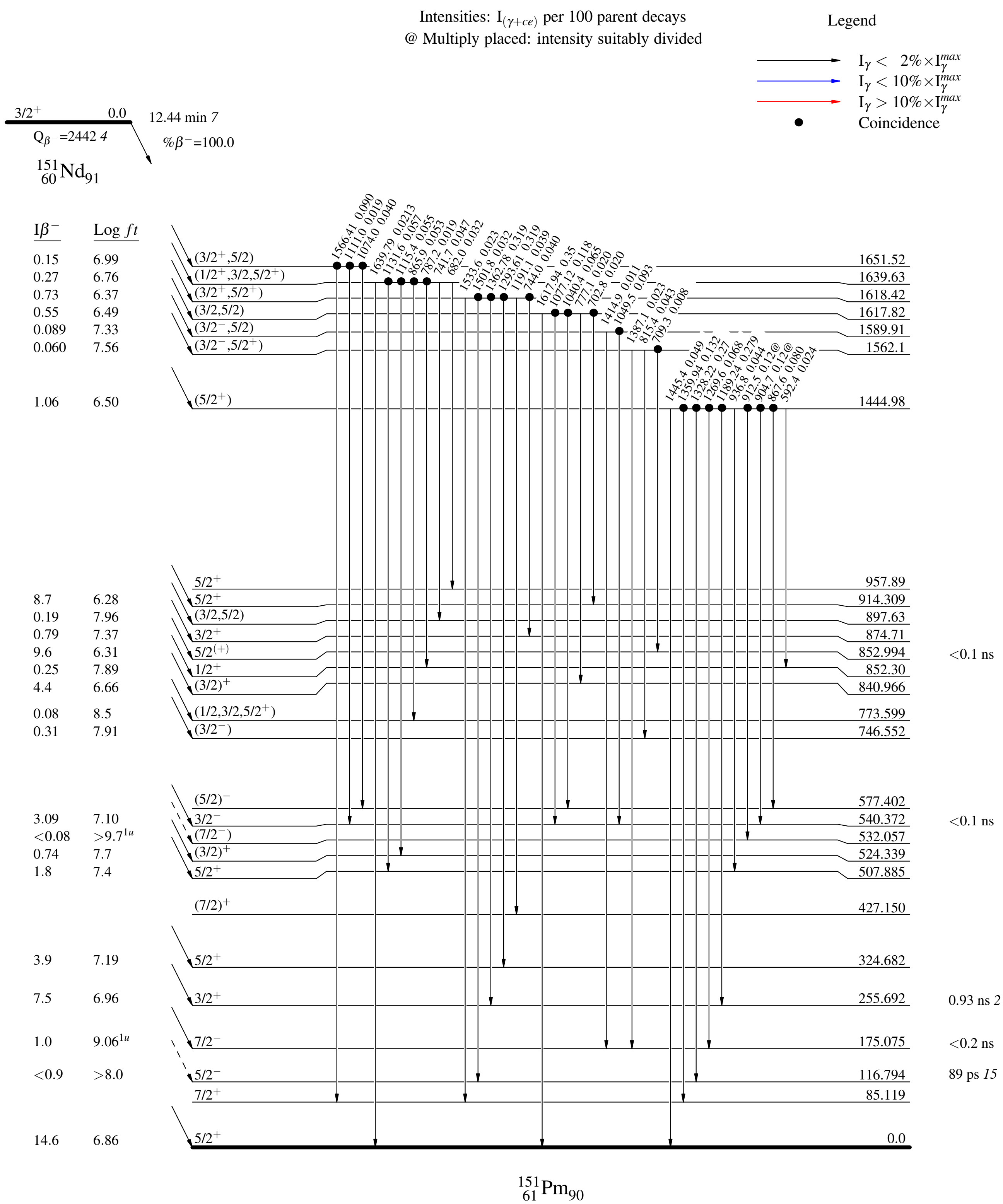
Decay Scheme (continued)

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



^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

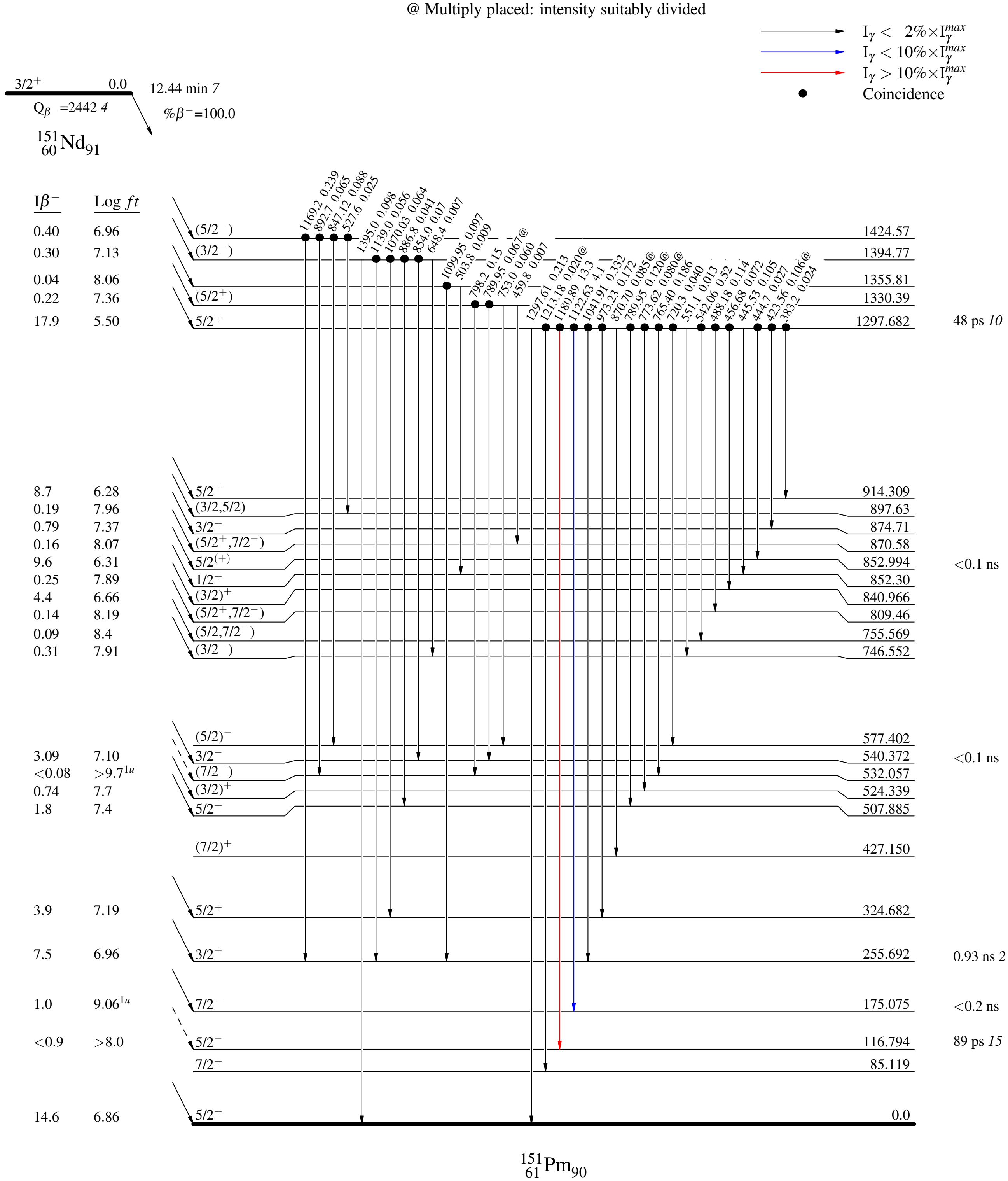
Decay Scheme (continued)



^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

Decay Scheme (continued)

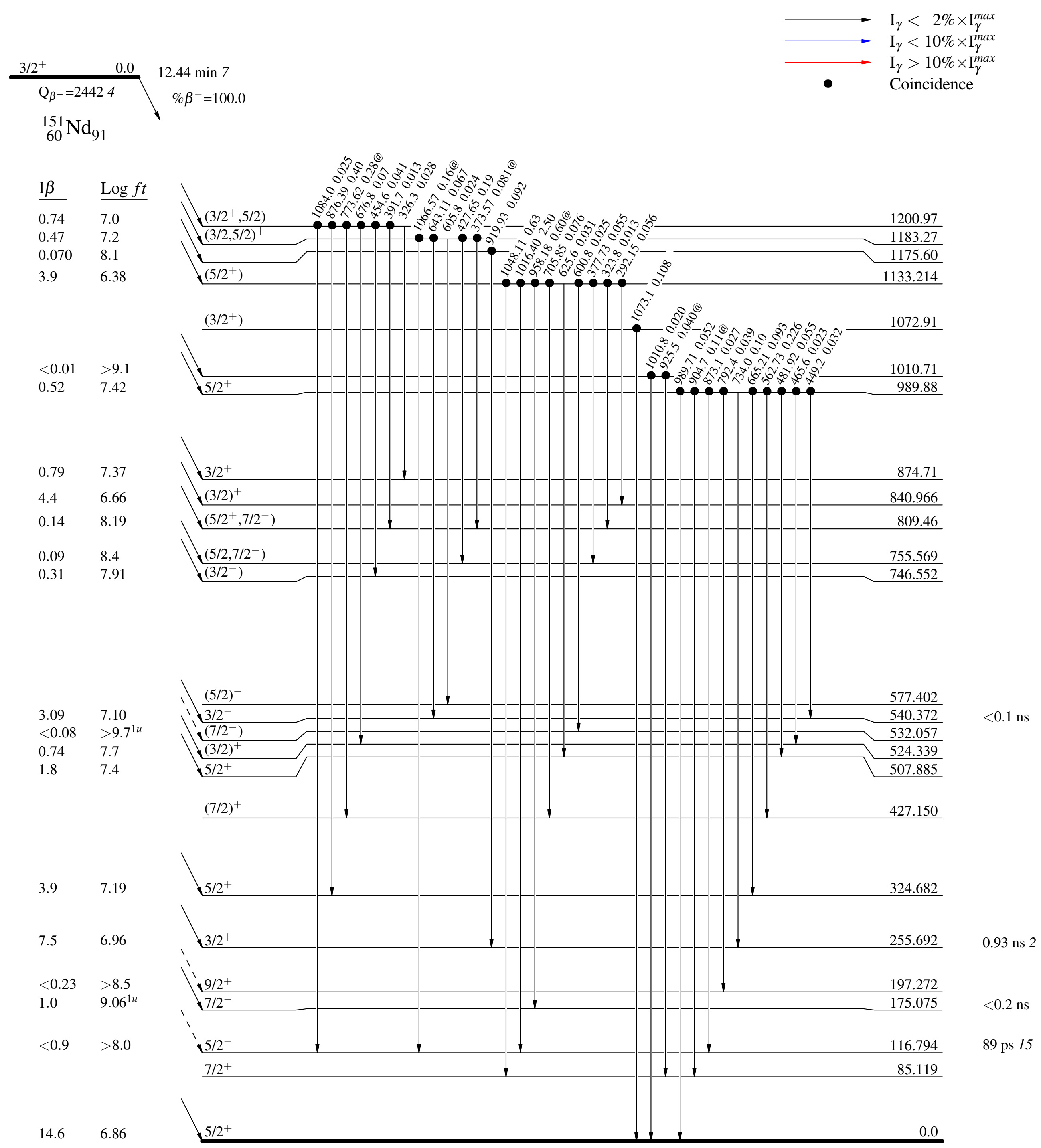
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

Decay Scheme (continued)

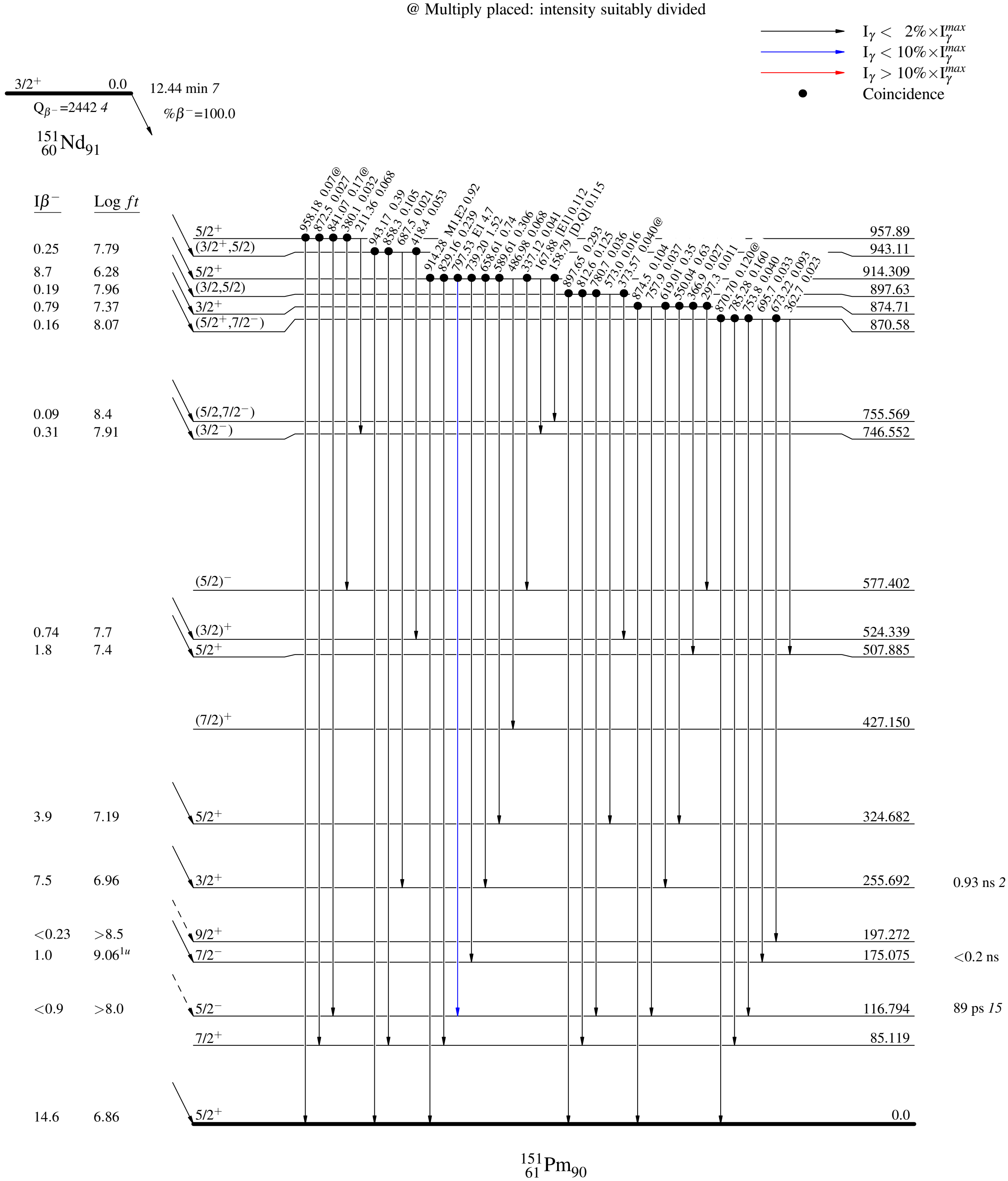
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

Decay Scheme (continued)

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



^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

Decay Scheme (continued)

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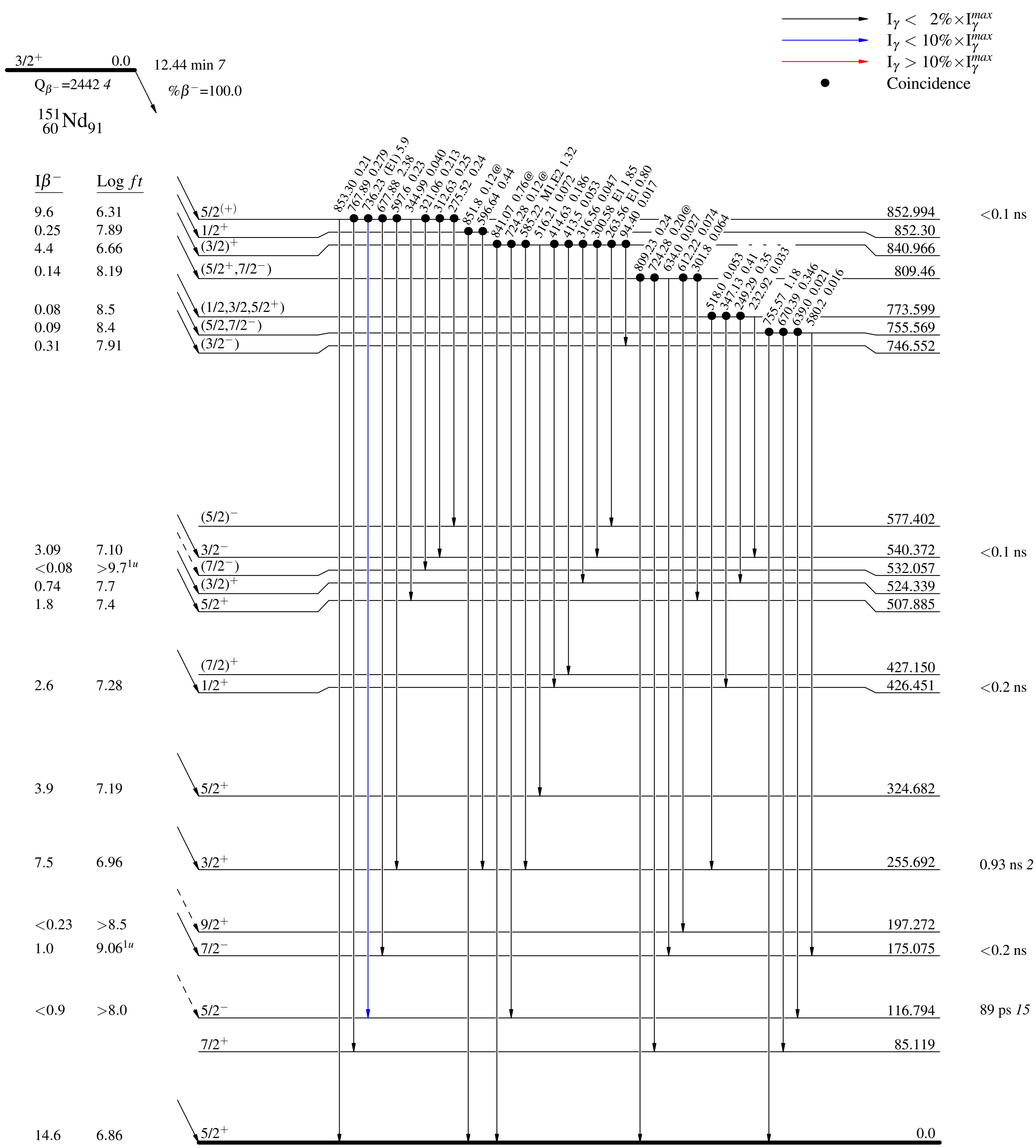
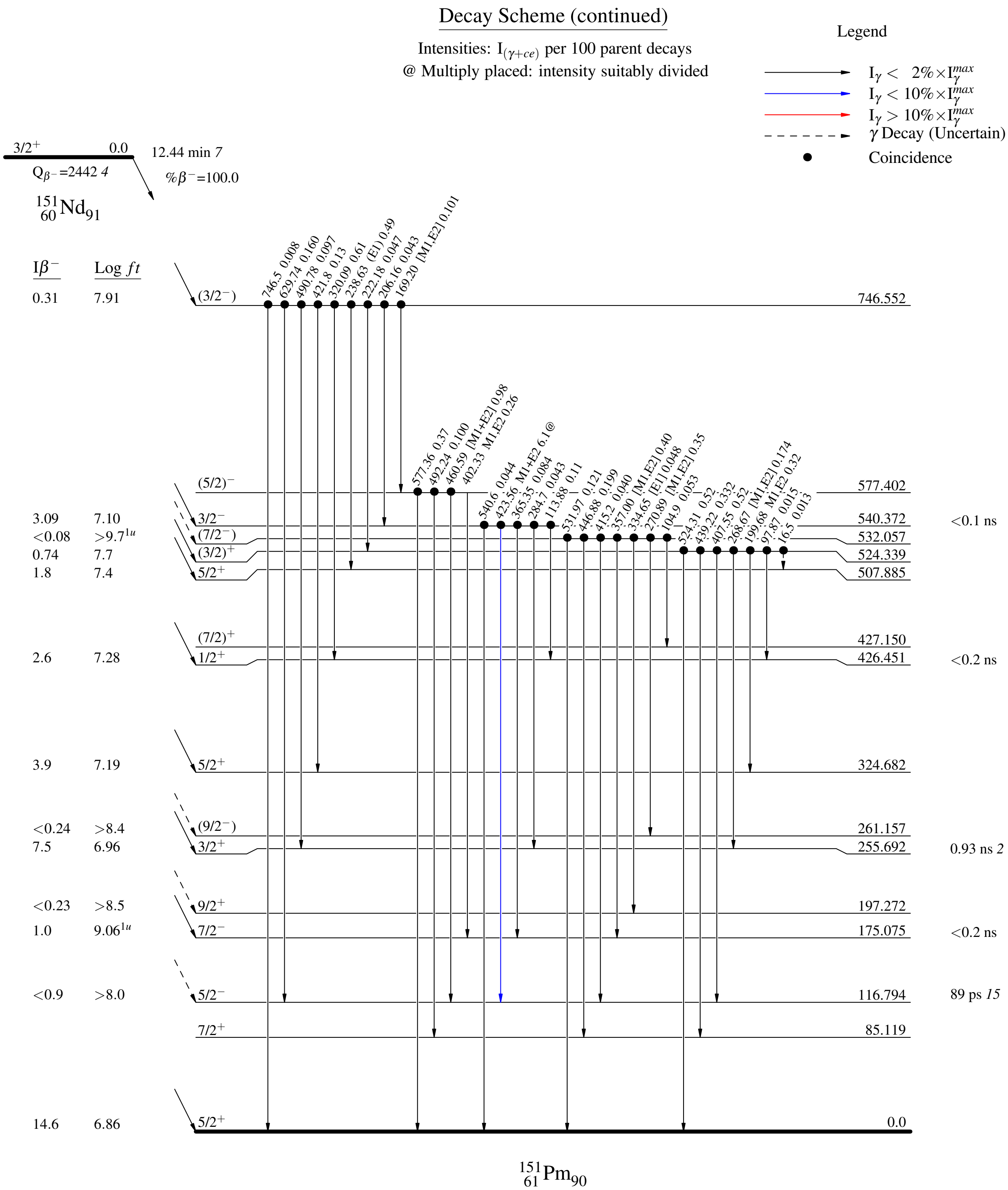
@ Multiply placed: intensity suitably divided



^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01



^{151}Nd β^- decay (12.44 min) 1985GlZY,1985Ii01,1989Ii01

Decay Scheme (continued)

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