Adopted Levels, Gammas

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

Q(β^-)=1190 *4*; S(n)=7860 *20*; S(p)=6995 *4*; Q(α)=−367 *16* 2017Wa10
S(2n)=13464 *20*; S(2p)=16925 *4* 2017Wa10
Additional information 1.
Other reaction: ^{154}Sm(p,α) 1978Sh17, 1974Mi04: mainly reaction mechanism, no levels in ^{151}Pm discussed.
Theoretical calculations (levels, moments, band structure, etc.): 2003Sh38, 1995Af01, 1993Ra03, 1993No01, 1993Af01, 1989So08, 1983Sc20, 1980Se09, 1979St06.
Additional information 2.

^{151}Pm Levels

Cross Reference (XREF) Flags

A	^{151}Nd β^- decay (12.44 min)	D	^{150}Nd(α,t)
B	^{150}Nd(^{3}He,d)	E	^{152}Sm(d,^{3}He)
C	^{150}Nd(α,p2nγ)	F	^{152}Sm(pol t,α), ^{152}Sm(t,α)

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$[#]	XREF	Comments
0.0[@]	5/2$^+$	28.40 h *4*	ABCD F	%β^-=100 μ=1.8 *2*; Q=1.9 *3* (1989Ra17,1963Bu14) μ and Q have same sign. Values from atomic beam magnetic resonance (1963Bu14). See also 2005St24 compilation of moments. The g.s., K$^\pi$=5/2$^+$ and 117, K$^\pi$=5/2$^-$ may form a parity doublet (1989So08,1993No01). Proposed configuration=96% (5/2[413]) + 1% (1/2[431] λ=2 phonon) (1993No01). $T_{1/2}$: from β(t) and γ(t) (1960Bu06). Others: 1963Ho15, 1952Ru10. J$^\pi$: from atomic beam (1963Bu14,1961Ca07) and (pol t,α).
85.119[&] *7*	7/2$^+$		ABCDEF	Most of 5/2[413] strength in transfer reactions is concentrated in this state.
116.794[&] *6*	5/2$^-$	89 ps *15*	ABCD F	Proposed configuration=92% (5/2[532]) + 3% (5/2[402] λ=3 phonon) (1993No01).
175.075[@] *6*	7/2$^-$	<0.2 ns	ABCD F	
197.272[@] *10*	9/2$^+$		ABCD F	
255.692[a] *7*	3/2$^+$	0.93 ns *2*	ABCD	μ=1.77 *24* (1989Ra17,1977Se06) J$^\pi$: E1 γ to 5/2$^-$ and M1+E2 γ from 1/2$^+$. μ: from IPAC (1977Se06). Value agrees with theoretical predictions. Other: 0.62 *27* (IPAC 1972BeWU). 256, K$^\pi$=3/2$^+$ and 540, K$^\pi$=3/2$^-$ may form a parity doublet (1989So08,1993No01). Proposed configuration=90% (3/2[411]) + 1% (3/2[541] λ=3 phonon) + 2% (3/2[402] λ=2 phonon) (1993No01).
261.157[&] *23*	(9/2$^-$)		A CD F	
324.682[a] *8*	5/2$^+$		ABCDEF	XREF: E(320).
329.6[&] *1*	(11/2)$^+$		C	J$^\pi$: ΔJ=2 γ to 7/2$^+$ and γ to 9/2$^+$.
343.8[@] *1*	11/2$^-$		BCDEF	XREF: E(320).
426.451[b] *14*	1/2$^+$	<0.2 ns	AB D F	Proposed configuration=78% (1/2[420]) + 11% (1/2[550] λ=3 phonon) + 2% (5/2[413] λ=2 phonon) (1993No01).
427.150[a] *15*	(7/2)$^+$		A C E	XREF: E(430). J$^\pi$: M1 γ to 5/2$^+$ and γ's to 9/2$^+$, 9/2$^-$. Masked in (t,α) and (^{3}He,d) by strongly excited 426(1/2$^+$) level.

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Adopted Levels, Gammas (continued)

^{151}Pm Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$[#]	XREF	Comments
486.7[@] *1*	13/2$^+$		C	J$^{\pi}$: ΔJ=2 γ to 9/2$^+$, ΔJ=1 γ to 11/2$^-$ and RUL.
497.5[&] *1*	(13/2)$^-$		C	J$^{\pi}$: E1 γ to (11/2)$^+$ and M1,E2 γ to 11/2$^-$.
507.885[b] *11*	5/2$^+$		AB D F	
524.339[b] *12*	(3/2)$^+$		A E	XREF: E(520). Not seen in (t,α) or (^{3}He,d) nor expected from Nilsson assignment. In (d,^{3}He) L=2, 520 level corresponds to 508 or 524 level. J$^{\pi}$: M1,E2 γ to 5/2$^+$ and γ's to 1/2$^+$, 7/2$^+$. $\gamma\gamma(\theta)$ in ^{151}Nd β^- supports 3/2 over 5/2.
532.057[c] *16*	(7/2$^-$)		AB F	XREF: F(530).
540.372[c] *14*	3/2$^-$	<0.1 ns	A D	XREF: D(532). J$^{\pi}$: E2+M1 γ to 5/2$^-$, γ's to 1/2$^+$, 5/2$^+$ not M2 (from RUL). Proposed configuration=88% (3/2[541]) + 2% (3/2[411] λ=3 phonon) + 3% (1/2[550] λ=2 phonon) (1993No01).
552[a] *1*	(9/2$^+$)		BCDEF	XREF: E(560)F(549). J$^{\pi}$: proposed as 9/2$^+$ member of 3/2[411] band (1972Bu22).
577.402[c] *12*	(5/2)$^-$		AB EF	XREF: E(560). J$^{\pi}$: M1,E2 γ to 7/2$^-$; γ to 7/2$^+$ and γ's from 3/2$^+$ and (3/2$^-$).
596 *2*			D F	E(level): this level may be the same as 597.1, but J=15/2 level is not expected in (t,α) and (α,t) reactions.
597.1[@] *2*	(15/2)$^-$		C	J$^{\pi}$: ΔJ=2 γ to 11/2$^-$ and M1 γ to (13/2)$^-$.
640.1[c] *10*	11/2$^-$		B D F	configuration: Strong mixing of 3/2[541] and 5/2[532] bands occurs (1979St06).
657.6[&] *2*	(15/2$^+$)		C	
701[a] *1*	(11/2$^+$)		C	
719.2[b] *9*	7/2$^+$		B D F	
746.552[g] *15*	(3/2$^-$)		A	J$^{\pi}$: (E1) γ to 5/2$^+$ and γ to 1/2$^+$. configuration: Assignment of 773.599 and 746.552 levels to this configuration (1977Se06) placed in doubt by absence of 7/2 and 11/2 members in (t,α) and (^{3}He,d) (1979St06).
755.569 *18*	(5/2,7/2$^-$)		A	J$^{\pi}$: γ's to 5/2$^+$, 5/2$^-$, 7/2$^+$, 7/2$^-$ and log *ft*=8.4 from 3/2$^+$.
773.599 *19*	(1/2,3/2,5/2$^+$)		A	J$^{\pi}$: γ to 1/2$^+$. γ's to 1/2[402] band and absence of γ's to K=5/2 bands favors 1/2 choice. configuration: See comment on 746.5 level.
781.0[d] *8*	7/2$^+$		B D F	Proposed configuration=92% (7/2[404]) + 3% (3/2[402] λ=2 phonon) + 1% (7/2[523] λ=3 phonon) (1993No01).
809.46 *4*	(5/2$^+$,7/2$^-$)		A EF	XREF: E(810). J$^{\pi}$: γ's to 5/2$^+$, 9/2$^+$ and log *ft*=8.2 from 3/2$^+$. γ's to 5/2[413] band suggest 5/2$^+$.
827.5[&] *2*	(17/2$^-$)		C	
840.966[e] *14*	(3/2)$^+$		A	J$^{\pi}$: E1 γ's to 3/2$^-$ and (5/2)$^-$. J=5/2 does not give consistent δ for 423γ from (424γ)(117γ)(θ) and (301γ)(424γ)(θ) (1989Ii01).
852.30[h] *6*	1/2$^+$		AB D F	Proposed configuration=60% (1/2[411]) + 12% (1/2[541] λ=3 phonon) + 18% (5/2[413] λ=2 phonon) + 4% (3/2[411] λ=2 phonon) (1993No01).
852.994 *15*	5/2$^{(+)}$	<0.1 ns	A	J$^{\pi}$: γ's to 3/2$^+$, 3/2$^-$, 7/2$^+$, 7/2$^-$ not M2 (from RUL). 736γ to 7/2$^+$ probably E1 from consistency of ce and $\gamma\gamma(\theta)$ data in ^{151}Nd β^-.
853.9[@] *2*	(17/2$^+$)		C	
866[a] *1*	(13/2$^+$)		C	
870.58 *5*	(5/2$^+$,7/2$^-$)		A	J$^{\pi}$: γ's to 5/2$^+$, 5/2$^-$, 9/2$^+$ and log *ft*=8.1 from 3/2$^+$.
874.71[h] *2*	3/2$^+$		AB DEF	XREF: E(870).
897.63 *7*	(3/2,5/2)		A	J$^{\pi}$: γ's to 3/2$^+$, 5/2$^+$, 5/2$^-$ and log *ft*=8.0 from 3/2$^+$.
914.309[f] *13*	5/2$^+$		AB D F	
943[e] *3*	(7/2$^+$)		F	This level may be the same as 943.1 from ^{151}Nd β^-. However, J$^{\pi}$=7/2$^+$

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Adopted Levels, Gammas (continued)

^{151}Pm Levels (continued)

E(level)[†]	Jπ[‡]	T$_{1/2}$[#]	XREF	Comments
				from (pol t,α) is not consistent with log *ft*=7.8 from 3/2$^+$.
943.11[e] *5*	(3/2$^+$,5/2)		A	Jπ: γ's to 3/2$^+$, 7/2$^+$ and log *ft*=7.8 from 3/2$^+$. See comment on 943 level.
944.7[@] *2*	(19/2$^-$)		C	
957.89[f] *6*	(5/2$^+$)		AB D F	
989.88[h] *4*	5/2$^+$		AB	Jπ: L=2 in (^{3}He,d) and γ to 9/2$^+$.
998 *3*	(5/2$^+$)		B F	
1010.71 *9*	(3/2 to 9/2)		A	Jπ: γ's to 5/2$^+$, 7/2$^+$.
1037[h] *1*	(7/2$^+$)		B D F	
1058.0[&] *2*	(19/2$^+$)		C	
1072.91 *8*	(3/2$^+$)		A F	XREF: F(1078). Probably same as 1067 level seen in (t,α) by 1972Bu22.
1102 *3*	(3/2$^+$)		F	
1133.214 *21*	(5/2$^+$)		AB F	XREF: B(1125).
1175.60 *12*	(≤7/2)		A	Jπ: γ to 3/2$^+$.
1183.27 *4*	(3/2,5/2)$^+$		AB D F	Jπ: L=2 in (^{3}He,d).
1200.97 *5*	(3/2$^+$,5/2)		A	Jπ: from log *ft*=7.0 from 3/2$^+$ and γ to 7/2$^+$.
1205[i] *5*	(11/2$^-$)		B D F	XREF: B(1204)D(1209)F(1200). E(level): the particle reactions identify levels with energies in the 1200 to 1209 range, associated with an L=4, 5 transfer. Jπ: from L=5 in (^{3}He,d) and possible assignment to 7/2[523] band.
1222 *2*	1/2$^+$		B F	Jπ: from L=0 in (^{3}He,d).
1239.0[&] *2*	(21/2$^-$)		C	
1245 *3*			F	
1262 *3*	(3/2,5/2)$^+$		B D F	XREF: B(1258)D(1265)F(1269). Jπ: from L=2 in (^{3}He,d).
1287.5[@] *10*	(21/2$^+$)		C	
1297.682 *14*	5/2$^+$	48 ps *10*	AB	Jπ: L=2 in (^{3}He,d) and γ's to 7/2$^+$, 7/2$^-$, 1/2$^+$ not M2 (from RUL).
1312 *3*			D	
1330.39 *8*	(5/2$^+$)		AB EF	XREF: E(1370).
1355.81 *10*	(≤7/2)		A	Jπ: γ to 3/2$^+$.
1377[@] *1*	(23/2$^-$)		C	
1394.77 *9*	(3/2$^-$)		AB F	XREF: B(1393)F(1388). Jπ: L=(1) in (^{3}He,d) and γ's to 5/2$^+$, 5/2$^-$.
1424.57 *6*	(5/2$^-$)		AB D F	Jπ: L=(3) in (^{3}He,d), γ to 3/2$^+$ and log *ft*=7.0 from 3/2$^+$.
1444.98 *5*	(5/2$^+$)		AB F	XREF: F(1448). Jπ: γ's to 7/2$^+$, 7/2$^-$, 1/2$^+$.
1455 *3*			D	
1464 *3*			F	
1489 *2*	1/2$^+$		B F	XREF: F(1494). Jπ: L=0 in (^{3}He,d).
1520[&] *1*	(23/2$^+$)		C	
1531			B	
1557 *2*	1/2$^+$		B F	Jπ: L=0 in (^{3}He,d).
1562.1 *2*	(3/2$^-$,5/2$^+$)		A	Jπ: γ's to 1/2$^+$, 7/2$^-$.
1570 *4*			F	
1584 *2*	(3/2$^+$,5/2$^+$)		B	Jπ: L=(2) in (^{3}He,d). Possibly same as 1589.9 level.
1589.91 *17*	(3/2$^-$,5/2)		A	Jπ: γ's to 3/2$^-$, 7/2$^-$ and log *ft*=7.3 from 3/2$^+$.
1617.82 *5*	(3/2,5/2)		A	Unresolved from 1618.4 in (t,α) and (^{3}He,d). The evaluator has arbitrarily associated the L=2 level seen in (^{3}He,d) with the 1618.42 level. Jπ: γ's to 3/2$^+$, 3/2$^-$, 5/2$^+$, 5/2$^-$.
1618.42 *3*	(3/2$^+$,5/2$^+$)		AB F	XREF: B(1617)F(1622).

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Adopted Levels, Gammas (continued)

^{151}Pm Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
			See comment on 1617.82 level.
			Jπ: γ's to 3/2, 7/2+. If same level as 1617 in (^{3}He,d) then L=2 gives positive parity. Also, log *ft*=6.4 from 3/2+ suggests J ≠ 7/2.
1639.63 *9*	(1/2+,3/2,5/2+)	A E	XREF: E(1630).
			Jπ: γ's to 1/2+, 5/2+.
1651.52 *10*	(3/2+,5/2)	A	Jπ: γ's to 3/2−, 7/2+ and log *ft*=7.0 from 3/2+.
1673 *2*	(3/2+,5/2+)	B	Jπ: L=(2) in (^{3}He,d).
1711 *2*	1/2+	B	Jπ: L=0 in (^{3}He,d).
1713.10 *13*	(3/2+,5/2)	A	Jπ: γ to 7/2+ and log *ft*=7.6 from 3/2+.
1721[&] *1*	(25/2−)	C	
1734 *2*	3/2+,5/2+	B	May be the same level as 1741.
			Jπ: L=2 in (^{3}He,d).
1741.25 *4*	(1/2+,3/2,5/2+)	A	Jπ: γ's to 1/2+, 5/2+.
1762 *3*		B F	
1779[@] *1*	(25/2+)	C	
1793.68 *20*	(5/2)	A	Jπ: γ's to 7/2+, 7/2− and log *ft*=7.4 from 3/2+.
1795.13 *8*	(3/2,5/2)	AB	Jπ: γ's to 5/2+, 5/2− and log *ft*=6.5 from 3/2+. L=(1) in (^{3}He,d) would favor 3/2.
1805.51 *4*	(1/2+,3/2,5/2+)	A	Jπ: γ's to 1/2+, 5/2+ and log *ft*=6.1 from 3/2+.
1809.80 *4*	(3/2,5/2)+	A	Jπ: γ's to 1/2+, 7/2+ and log *ft*=5.9 from 3/2+.
1822.17 *6*	1/2,3/2,5/2	A	Jπ: log *ft*=6.7 from 3/2+.
1848.57 *7*	(5/2)	A	Jπ: γ's to 3/2−, 7/2+, 7/2− and log *ft*=6.13 from 3/2+.
1853.70 *4*	(5/2)+	A	Jπ: γ's to 3/2+, 3/2−, 7/2− and log *ft*=5.82 from 3/2+.
1854.50 *8*	(3/2+,5/2)	A	Jπ: γ's to 3/2+, 3/2−, 7/2+.
1873.63 *4*	(5/2)+	AB	Jπ: γ's to 1/2+, 7/2+, 7/2− and log *ft*=5.71 form 3/2+.
1878[@] *1*	(27/2−)	C	
1878.60 *6*	(5/2)	A	Jπ: γ's to 3/2+, 3/2−, 7/2+, 7/2−.
1892.05 *2*	(5/2)+	A	Jπ: γ's to 3/2+, 3/2−, 7/2+, 7/2− and log *ft*=5.5 from 3/2+.
1897.4 *1*	(3/2+,5/2+)	A	Jπ: γ's to 1/2+, 7/2+.
1903.18 *4*	(5/2)+	A	Jπ: log *ft*=5.7 from 3/2+ and γ's to 7/2−.
1910.68 *7*	(3/2+,5/2+)	AB	XREF: B(1915).
			Jπ: L=(2) in (^{3}He,d), γ to 7/2+ and log *ft*=6.9 from 3/2+.
1927.98 *6*	(5/2+)	A	Jπ: γ's to 7/2+, 7/2− and log *ft*=6.1 from 3/2+.
1933.10 *4*	(1/2+,3/2,5/2)	AB F	XREF: B(1938).
			Jπ: log *ft*=6.01 from 3/2+ and γ to 5/2+.
1959.61 *7*	(1/2+,3/2,5/2)	A	Jπ: log *ft*=6.3 from 3/2+ and γ to 5/2+.
1973.32 *7*	(1/2+,3/2,5/2)	A F	XREF: F(1980).
			Jπ: log *ft*=6.3 from 3/2+ and γ to 5/2+.
			The 1980 level observed in (pol t,α) may be associated with either the 1973.32 or the 1989.71 level or both.
1989.71 *13*	(3/2,5/2)	A	Jπ: log *ft*=6.4 from 3/2+ and γ's to 5/2+, 5/2−.
			See comment on 1973 level.
1993.81 *5*	(5/2)+	A	Jπ: log *ft*=5.8 from 3/2+ and γ to 7/2−.
1998.25 *5*	(5/2)+	A	Jπ: log *ft*=5.61 from 3/2+ and γ's to 1/2+, 9/2+.
2010.99 *5*	(5/2)+	A	Jπ: log *ft*=5.79 from 3/2+ and γ to 7/2−.
2015.93 *9*	(3/2,5/2)	A	Jπ: log *ft*=6.34 from 3/2+ and γ's to (5/2)+, (5/2)−.
2018.87 *5*	(1/2+,3/2,5/2+)	A	Jπ: γ's to 1/2+, 5/2+ and log *ft*=6.1 from 3/2+.
2022.4 *3*	(3/2+,5/2)	A	Jπ: γ to 7/2+ and log *ft*=6.5 from 3/2+.
2023.15 *8*	(5/2)	A	Jπ: γ's to 7/2+, 7/2− and log *ft*=6.2 from 3/2+.
2024.01 *14*	(1/2,3/2,5/2)	A	Jπ: log *ft*=6.17 from 3/2+.
2030 *80*	(7/2+,9/2+)	E	Jπ: L=4 in (d,^{3}He).
2038.05 *12*	(1/2,3/2,5/2)	A	Jπ: log *ft*=6.33 from 3/2+.
2053.10 *24*	(5/2+)	A	Jπ: γ to 9/2+ and log *ft*=6.9 from 3/2+.
2084.92 *8*	(1/2,3/2,5/2)	A F	XREF: F(2088).
			Jπ: log *ft*=6.3 from 3/2+.
2106.86 *14*	(3/2,5/2)	A	Jπ: γ's to 5/2+, 5/2− and log *ft*=6.4 from 3/2+.

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Adopted Levels, Gammas (continued)

^{151}Pm Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	XREF	Comments
2119.09 *7*	(1/2$^+$,3/2,5/2$^+$)	A F	XREF: F(2115). J$^{\pi}$: γ's to 5/2$^+$, 1/2$^+$.
2204.30 *15*	(1/2$^+$,3/2$^+$,5/2$^+$)	A	J$^{\pi}$: log *ft*=5.9 from 3/2$^+$.
2268.59 *19*	(5/2$^+$)	A	J$^{\pi}$: γ to 7/2$^-$ and log *ft*=5.9 from 3/2$^+$.
2304.01 *15*	1/2$^+$,3/2$^+$,5/2$^+$	A	J$^{\pi}$: log *ft*=5.0 from 3/2$^+$.
2434[@] *1*	(31/2$^-$)	C	
2447 *4*		F	
2700 *80*	(7/2$^+$,9/2$^+$)	E	J$^{\pi}$: L=4 in (d,^{3}He).

[†] From least-squares fitting of adopted γ's for levels populated in γ-ray studies. Weighted averages in other cases.
[‡] From (pol t,α) unless otherwise indicated. Above 650 level, most probable J$^{\pi}$ assignments for high-spin levels (J≥11/2) are from (unlisted) $\gamma\gamma(\theta)$ (DCO) data (1990Ur01) and band structures.
[#] From β(t), γ(t), $\beta\gamma$(t) in ^{151}Nd β^- decay. T$_{1/2}$<5 ns reported for all levels in (α,p2nγ).
[@] Band(A): Parity doublet, s=+i. 5/2[413] and 5/2[532] (1990Ve14,1990Ur01,1979St06).
[&] Band(B): Parity doublet, s=−i. 5/2[413] and 5/2[532] (1990Ve14,1990Ur01,1979St06).
[a] Band(C): 3/2[411] Band from 1979St06. 3/2[411] and 3/2[541] may form a parity doublet (1989So08,1993No01).
[b] Band(D): 1/2[420]. Band from 1979St06.
[c] Band(E): 3/2[541]. Band from 1973Se12 and 1977Se06.
[d] Band(F): 7/2[404]. Band from 1979St06.
[e] Band(G): 3/2[422]. Band from 1979St06.
[f] Band(H): 5/2[402]. Band from 1979St06.
[g] Band(I): 1/2[550]. Band from 1979St06.
[h] Band(J): 1/2[411]. Band from 1979St06.
[i] Band(K): 7/2[523]. Band from 1979St06.

Adopted Levels, Gammas (continued)

γ(^{151}Pm)

E_i(level)	J_i^π	E_γ [†]	I_γ	E_f	J_f^π	Mult.[‡]	δ[‡]	α[a]	Comments
85.119	7/2$^+$	85.12 *1*	100	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*
116.794	5/2$^-$	31.67 *3*	1.2 *1*	85.119	7/2$^+$	E1		1.068	B(E1)(W.u.)=8.4×10^{-4} *17* 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*
		116.80 *1*	100 *1*	0.0	5/2$^+$	E1		0.1751	B(E1)(W.u.)=1.4×10^{-3} *2* 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*
175.075	7/2$^-$	58.28 *1*	5.9 *4*	116.794	5/2$^-$	M1+E2	0.14 *+6−9*	7.55 *22*	B(M1)(W.u.)>0.016; B(E2)(W.u.)>8 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*
		89.96 *1*	24.2 *8*	85.119	7/2$^+$	E1		0.357	B(E1)(W.u.)>2.1×10^{-4} 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*
		175.07 *1*	100 *3*	0.0	5/2$^+$	E1		0.0582	B(E1)(W.u.)>1.2×10^{-4} 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*
197.272	9/2$^+$	112.15 *5*	55 *9*	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*
		197.27 *1*	100 *6*	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*
255.692	3/2$^+$	138.89 *1*	47.7 *14*	116.794	5/2$^-$	E1		0.1091	B(E1)(W.u.)=2.7×10^{-5} *1* 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*
		170.76[b]	2.7[b] *5*	85.119	7/2$^+$	[E2]		0.345	B(E2)(W.u.)=1.4 *3* 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*
		255.68 *1*	100 *2*	0.0	5/2$^+$	M1+E2	−0.8 *4*	0.105 *7*	B(M1)(W.u.)=5.2×10^{-4} *21*; B(E2)(W.u.)=2.7 *17* 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*
261.157	(9/2$^-$)	63.81 *6*	13 *5*	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*
		86.08 *10*	19 *9*	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*

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

Adopted Levels, Gammas (continued)

γ(^{151}Pm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π	Mult.[‡]	δ[‡]	α[a]	Comments
261.157	(9/2$^-$)	176.09 *8*	100 *5*	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*
324.682	5/2$^+$	68.98 *1*	100 *4*	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*
		149.61 *1*	23 *1*	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*
		207.7 *1*	3.6 *5*	116.794	5/2$^-$				
		239.60 *6*	29 *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*
		324.68 *2*	38 *2*	0.0	5/2$^+$				
329.6	(11/2)$^+$	68.5[c]		261.157	(9/2$^-$)				
		132.3 *2*	15 *5*	197.272	9/2$^+$				
		244.5 *1*	100 *10*	85.119	7/2$^+$	Q			
343.8	11/2$^-$	82.6 *2*	40 *12*	261.157	(9/2$^-$)	M1		2.68 *5*	α(K)=2.27 *4*; α(L)=0.320 *5*; α(M)=0.0684 *11*; α(N+..)=0.0179 *3* α(N)=0.01542 *25*; α(O)=0.00232 *4*; α(P)=0.0001464 *23*
		146.6 *1*	100 *10*	197.272	9/2$^+$	E1		0.0942	α(K)=0.0800 *12*; α(L)=0.01120 *16*; α(M)=0.00238 *4*; α(N+..)=0.000610 *9* α(N)=0.000529 *8*; α(O)=7.68×10^{-5} *11*; α(P)=4.14×10^{-6} *6*
		168.7 *2*	11 *4*	175.075	7/2$^-$				
426.451	1/2$^+$	170.76[b] *2*	100[b] *4*	255.692	3/2$^+$	M1+E2	−0.4 *3*	0.343	B(M1)(W.u.)>0.015 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*
		426.47 *3*	13 *2*	0.0	5/2$^+$	[E2]		0.0190	B(E2)(W.u.)>0.37 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*
427.150	(7/2)$^+$	102.45 *2*	100 *5*	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*
		165.99 *4*	12 *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*
		171.4 *1*	30 *8*	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*
		229.90 *5*	7 *2*	197.272	9/2$^+$				
		310.40 *11*	6 *2*	116.794	5/2$^-$				
		341.95 *7*	12 *2*	85.119	7/2$^+$				
		427.2 *2*	22 *8*	0.0	5/2$^+$				
486.7	13/2$^+$	142.9 *2*	48 *15*	343.8	11/2$^-$	D			

$^{151}_{61}Pm_{90}$-7

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π	Mult.[‡]	δ[‡]	α[a]	Comments
486.7	13/2$^+$	157.1[c]		329.6	(11/2)$^+$				
		289.4 *1*	100 *10*	197.272	9/2$^+$	Q			
497.5	(13/2)$^-$	153.6 *1*	100 *10*	343.8	11/2$^-$	M1,E2		0.478 *20*	α(K)=0.36 *3*; α(L)=0.09 *4*; α(M)=0.020 *9*; α(N+..)=0.0051 *21* α(N)=0.0044 *19*; α(O)=0.00061 *22*; α(P)=2.0×10^{-5} *5*
		167.9 *1*	100 *10*	329.6	(11/2)$^+$	E1		0.0652	α(K)=0.0555 *8*; α(L)=0.00769 *11*; α(M)=0.001632 *23*; α(N+..)=0.000420 *6* α(N)=0.000364 *6*; α(O)=5.30×10^{-5} *8*; α(P)=2.92×10^{-6} *5*
		236.3 *2*	39 *12*	261.157	(9/2$^-$)				
507.885	5/2$^+$	80.74 *3*	35 *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*
		183.19 *2*	65 *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*
		252.23 *4*	19 *2*	255.692	3/2$^+$				
		332.78 *2*	100 *6*	175.075	7/2$^-$				
		391.13 *2*	6.7 *21*	116.794	5/2$^-$				
		422.6 *2*	54 *8*	85.119	7/2$^+$				
		507.84 *12*	12.1 *17*	0.0	5/2$^+$				
524.339	(3/2)$^+$	(16.5)		507.885	5/2$^+$				E_γ: inferred from $\gamma\gamma$. Deduced I(γ+ce)=2.6 *26*.
		97.87 *5*	2.9 *15*	426.451	1/2$^+$				
		199.68 *2*	53 *3*	324.682	5/2$^+$	M1,E2		0.213 *10*	α(K)=0.169 *21*; α(L)=0.035 *9*; α(M)=0.0076 *21*; α(N+..)=0.0019 *5* α(N)=0.0017 *5*; α(O)=0.00024 *5*; α(P)=9.8×10^{-6} *24*
		268.67 *4*	32 *3*	255.692	3/2$^+$				
		407.55 *2*	100 *3*	116.794	5/2$^-$				
		439.22 *3*	63 *3*	85.119	7/2$^+$				
		524.31 *4*	100 *3*	0.0	5/2$^+$				
532.057	(7/2$^-$)	104.9 *6*	10 *3*	427.150	(7/2)$^+$				
		270.89 *3*	83 *7*	261.157	(9/2$^-$)				δ: +0.14 *6* or +3.0 *8* from $\gamma\gamma(\theta)$ in ^{151}Nd β^-.
		334.65 *14*	12 *4*	197.272	9/2$^+$				
		357.00 *2*	100 *7*	175.075	7/2$^-$				δ: +0.2 *2* or −1.6 *+6−12* from $\gamma\gamma(\theta)$ in ^{151}Nd β^-.
		415.2 *3*	7 *3*	116.794	5/2$^-$				
		446.88 *7*	48 *3*	85.119	7/2$^+$				
		531.97 *6*	31 *2*	0.0	5/2$^+$				
540.372	3/2$^-$	113.88 *19*	1.6 *5*	426.451	1/2$^+$				
		284.7 *1*	0.72 *20*	255.692	3/2$^+$				
		365.35 *11*	3.7 *2*	175.075	7/2$^-$				
		423.56[b] *2*	100[b] *2*	116.794	5/2$^-$	M1+E2	−0.15 *1*	0.0300	B(M1)(W.u.)>2.6×10^{-3}; B(E2)(W.u.)>0.15 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*
		540.6 *3*	0.74 *16*	0.0	5/2$^+$				
552	(9/2$^+$)	125		427.150	(7/2)$^+$				
		227		324.682	5/2$^+$				

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

Adopted Levels, Gammas (continued)

γ(^{151}Pm) (continued)

E_i(level)	J_i^π	E_γ †	I_γ	E_f	J_f^π	Mult.‡	δ‡	α[a]	Comments
577.402	(5/2)$^-$	402.33 *2*	100 *3*	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* δ: +0.03 *3* or +4.1 *5* from γγ(θ) in ^{151}Nd β$^-$.
		460.59 *2*	56 *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*
		492.24 *10*	5.8 *5*	85.119	7/2$^+$				
		577.36 *4*	20.9 *8*	0.0	5/2$^+$				
597.1	(15/2)$^-$	99.5 *2*	63 *19*	497.5	(13/2)$^-$	M1		1.570	α(K)=1.333 *21*; α(L)=0.187 *3*; α(M)=0.0400 *6*; α(N+..)=0.01046 *16* α(N)=0.00901 *14*; α(O)=0.001359 *21*; α(P)=8.57×10^{-5} *13*
		110.4 *2*	41 *12*	486.7	13/2$^+$				
		253.3 *1*	100 *10*	343.8	11/2$^-$	Q			
657.6	(15/2$^+$)	160.1 *2*	44 *13*	497.5	(13/2)$^-$				
		171.1		486.7	13/2$^+$				
		328.0 *2*	100 *30*	329.6	(11/2)$^+$				
701	(11/2$^+$)	149[c]		552	(9/2$^+$)				
		274		427.150	(7/2)$^+$				
		440		261.157	(9/2$^-$)				
746.552	(3/2$^-$)	169.20 *6*	12.2 *17*	577.402	(5/2)$^-$				
		206.16 *10*	7.0 *7*	540.372	3/2$^-$				
		222.18 *6*	8 *2*	524.339	(3/2)$^+$				
		238.63 *2*	78 *4*	507.885	5/2$^+$	(E1)		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*
		320.09 *3*	100 *6*	426.451	1/2$^+$				
		421.8 *2*	22 *9*	324.682	5/2$^+$				
		490.78 *11*	15.9 *15*	255.692	3/2$^+$				
		629.74 *5*	23.9 *22*	116.794	5/2$^-$				
		746.5	1.3 *8*	0.0	5/2$^+$				
755.569	(5/2,7/2$^-$)	580.2 *3*	1.4 *7*	175.075	7/2$^-$				
		639.0 *5*	1.8 *8*	116.794	5/2$^-$				
		670.39 *6*	28 *1*	85.119	7/2$^+$				
		755.57 *3*	100 *2*	0.0	5/2$^+$				
773.599	(1/2,3/2,5/2$^+$)	232.92 *13*	8 *2*	540.372	3/2$^-$				
		249.29 *3*	83 *7*	524.339	(3/2)$^+$				
		347.13 *2*	100 *7*	426.451	1/2$^+$				
		518.0 *2*	13 *3*	255.692	3/2$^+$				
809.46	(5/2$^+$,7/2$^-$)	301.8 *2*	28 *8*	507.885	5/2$^+$				
		612.22 *7*	33 *4*	197.272	9/2$^+$				

$^{151}_{61}Pm_{90}$-9

Adopted Levels, Gammas (continued)

γ(^{151}Pm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π	Mult.[‡]	α[a]	Comments
809.46	(5/2$^+$,7/2$^-$)	634.0 *3*	11 *3*	175.075	7/2$^-$			
		724.28[b] *7*	83[b] *11*	85.119	7/2$^+$			
		809.23 *10*	100 *11*	0.0	5/2$^+$			
827.5	(17/2$^-$)	169.9 *2*	43 *13*	657.6	(15/2$^+$)			
		230.4 *2*	86 *26*	597.1	(15/2)$^-$			
		330.0 *1*	100 *10*	497.5	(13/2)$^-$	Q		
840.966	(3/2)$^+$	94.40 *15*	0.88 *14*	746.552	(3/2$^-$)			
		263.56 *2*	43 *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*
		300.58 *2*	100 *3*	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*
		316.56 *7*	2.6 *5*	524.339	(3/2)$^+$			
		413.5 *3*	2.2 *7*	427.150	(7/2)$^+$			
		414.63 *8*	9.5 *7*	426.451	1/2$^+$			
		516.21 *15*	3.9 *7*	324.682	5/2$^+$			
		585.22 *3*	72 *6*	255.692	3/2$^+$	M1,E2	0.011 *3*	α(K)=0.0091 *24*; α(L)=0.00130 *23*; α(M)=0.00028 *5*; 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*
		724.28[b] *7*	5.8[b] *15*	116.794	5/2$^-$			
		841.07[b] *4*	42[b] *4*	0.0	5/2$^+$			
852.30	1/2$^+$	596.64 *8*	100 *6*	255.692	3/2$^+$			
		851.8[b]	28[b] *9*	0.0	5/2$^+$			
852.994	5/2$^{(+)}$	275.52 *3*	3.8 *4*	577.402	(5/2)$^-$			
		312.63 *3*	4.0 *4*	540.372	3/2$^-$			
		321.06 *5*	3.4 *2*	532.057	(7/2$^-$)			
		344.99 *10*	0.67 *16*	507.885	5/2$^+$			
		597.6 *2*	3.6 *4*	255.692	3/2$^+$			
		677.88 *3*	40.2 *9*	175.075	7/2$^-$			
		736.23 *3*	100 *2*	116.794	5/2$^-$	(E1)[#]	0.00179	B(E1)(W.u.)>3.6×10^{-6} 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*
		767.89 *6*	4.5 *2*	85.119	7/2$^+$			
		853.30 *12*	3.6 *7*	0.0	5/2$^+$			
853.9	(17/2$^+$)	256.6 *2*	100 *30*	597.1	(15/2)$^-$			
		367.2 *2*	100 *30*	486.7	13/2$^+$			
866	(13/2$^+$)	165		701	(11/2$^+$)			
		314[c]		552	(9/2$^+$)			
870.58	(5/2$^+$,7/2$^-$)	362.7 *2*	15 *6*	507.885	5/2$^+$			

$^{151}_{61}Pm_{90}$-10

Adopted Levels, Gammas (continued)

γ(^{151}Pm) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ	E_f	J_f^π	Mult.[‡]	α[a]	Comments
870.58	(5/2$^+$,7/2$^-$)	673.22 *17*	64 *8*	197.272	9/2$^+$			
		695.7 *5*	23 *11*	175.075	7/2$^-$			
		753.8	18 *9*	116.794	5/2$^-$			
		785.28 *8*	100 *9*	85.119	7/2$^+$			
		870.70[b] *11*	73[b] *9*	0.0	5/2$^+$			
874.71	3/2$^+$	297.3	1.7 *10*	577.402	(5/2)$^-$			
		366.9 *3*	4.3 *17*	507.885	5/2$^+$			
		550.04 *3*	100 *2*	324.682	5/2$^+$			
		619.01 *4*	54 *4*	255.692	3/2$^+$			
		757.9 *3*	6.1 *23*	116.794	5/2$^-$			
		874.5 *2*	17 *2*	0.0	5/2$^+$			
897.63	(3/2,5/2)	373.57[b]	10[b] *5*	524.339	(3/2)$^+$			
		573.0 *5*	6 *3*	324.682	5/2$^+$			
		780.7 *3*	13 *3*	116.794	5/2$^-$			
		812.6 *2*	45 *7*	85.119	7/2$^+$			
		897.65 *9*	100 *5*	0.0	5/2$^+$			
914.309	5/2$^+$	158.79 *6*	2.0 *2*	755.569	(5/2,7/2$^-$)			
		167.88 *7*	2.2 *2*	746.552	(3/2$^-$)			
		337.12 *16*	0.9 *2*	577.402	(5/2)$^-$			
		486.98 *19*	1.4 *2*	427.150	(7/2)$^+$			
		589.61 *3*	6.2 *3*	324.682	5/2$^+$			
		658.61 *3*	15.5 *6*	255.692	3/2$^+$			
		739.20 *3*	32.1 *8*	175.075	7/2$^-$			
		797.53 *2*	100 *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*
		829.16 *5*	4.8 *3*	85.119	7/2$^+$			
		914.28 *4*	19.4 *17*	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*
943.11	(3/2$^+$,5/2)	418.4 *2*	14 *2*	524.339	(3/2)$^+$			
		687.5 *3*	5.7 *17*	255.692	3/2$^+$			
		858.3 *2*	28 *4*	85.119	7/2$^+$			
		943.17 *7*	100 *4*	0.0	5/2$^+$			
944.7	(19/2$^-$)	90.8[c] *2*	<50	853.9	(17/2$^+$)			
		117.2 *2*	20 *6*	827.5	(17/2$^-$)			
		347.5 *1*	100 *10*	597.1	(15/2)$^-$	Q		
957.89	(5/2$^+$)	211.36 *8*	42 *7*	746.552	(3/2$^-$)			
		380.1 *2*	20 *8*	577.402	(5/2)$^-$			
		841.07[b]	100[b] *17*	116.794	5/2$^-$			
		872.5	8 *8*	85.119	7/2$^+$			

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

Adopted Levels, Gammas (continued)

γ(^{151}Pm) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ	E_f	J_f^π	Mult. [‡]
957.89	(5/2$^+$)	958.18[b]	33[b] *16*	0.0	5/2$^+$	
989.88	5/2$^+$	449.2 *2*	15 *6*	540.372	3/2$^-$	
		465.6 *5*	11 *5*	524.339	(3/2)$^+$	
		481.92 *13*	26 *4*	507.885	5/2$^+$	
		562.73 *5*	100 *6*	427.150	(7/2)$^+$	
		665.21 *11*	44 *5*	324.682	5/2$^+$	
		734.0 *2*	48 *12*	255.692	3/2$^+$	
		792.4 *4*	18 *5*	197.272	9/2$^+$	
		873.1	6 *6*	116.794	5/2$^-$	
		904.7[b] *2*	44[b] *12*	85.119	7/2$^+$	
		989.71 *16*	24 *4*	0.0	5/2$^+$	
1010.71	(3/2 to 9/2)	925.5[b] *1*	100[b] *50*	85.119	7/2$^+$	
		1010.8 *3*	75 *50*	0.0	5/2$^+$	
1058.0	(19/2$^+$)	204.1[c]		853.9	(17/2$^+$)	
		230.3 *2*	100 *30*	827.5	(17/2$^-$)	
		400.4 *2*	<125	657.6	(15/2$^+$)	
1072.91	(3/2$^+$)	1073.1 *1*	100	0.0	5/2$^+$	
1133.214	(5/2$^+$)	292.15 *11*	2.2 *5*	840.966	(3/2)$^+$	
		323.8	0.5 *2*	809.46	(5/2$^+$,7/2$^-$)	
		377.73 *9*	2.2 *5*	755.569	(5/2,7/2$^-$)	
		600.8 *3*	1.0 *4*	532.057	(7/2$^-$)	
		625.6 *2*	1.2 *3*	507.885	5/2$^+$	
		705.85 *12*	3.0 *3*	427.150	(7/2)$^+$	
		958.18[b] *4*	23[b] *1*	175.075	7/2$^-$	
		1016.40 *3*	100 *2*	116.794	5/2$^-$	@
		1048.11 *5*	24 *1*	85.119	7/2$^+$	
1175.60	(≤7/2)	919.93 *12*	100 *14*	255.692	3/2$^+$	
1183.27	(3/2,5/2)$^+$	373.57[b] *11*	44[b] *9*	809.46	(5/2$^+$,7/2$^-$)	
		427.65 *5*	100 *21*	755.569	(5/2,7/2$^-$)	
		605.8 *3*	13 *4*	577.402	(5/2)$^-$	
		643.11 *13*	36 *4*	540.372	3/2$^-$	
		1066.57[b] *6*	86[b] *50*	116.794	5/2$^-$	
1200.97	(3/2$^+$,5/2)	326.3 *2*	7.2 *24*	874.71	3/2$^+$	
		391.7	3.4 *17*	809.46	(5/2$^+$,7/2$^-$)	
		454.6 *2*	10 *2*	746.552	(3/2$^-$)	
		676.8 *5*	14 *7*	524.339	(3/2)$^+$	
		773.62[b] *9*	69[b] *7*	427.150	(7/2)$^+$	
		876.39 *7*	100 *3*	324.682	5/2$^+$	
		1084.0 *3*	6.6 *17*	116.794	5/2$^-$	
1239.0	(21/2$^-$)	181.0 *2*	<125	1058.0	(19/2$^+$)	
		294.4		944.7	(19/2$^-$)	

$^{151}_{61}Pm_{90}$-12

Adopted Levels, Gammas (continued)

γ(^{151}Pm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π	Mult.[‡]	δ[‡]	α[a]	Comments
1239.0	(21/2$^-$)	411.5 *2*	100 *30*	827.5	(17/2$^-$)				
1287.5	(21/2$^+$)	342.8		944.7	(19/2$^-$)				
		433.6		853.9	(17/2$^+$)				
1297.682	5/2$^+$	383.2 *3*	0.18 *8*	914.309	5/2$^+$				If M1, B(M1)(W.u.)=1.0×10^{-5} *5*; if E2, B(E2)(W.u.)=0.036 *18*.
		423.56[b]	0.8[b] *4*	874.71	3/2$^+$				If M1, B(M1)(W.u.)=3.2×10^{-5} *16*; if E2, B(E2)(W.u.)=0.10 *5*.
		444.7	0.1 *1*	852.994	5/2$^{(+)}$				If M1, B(M1)(W.u.)=3.5×10^{-6}; if E2, B(E2)(W.u.)=9.6×10^{-3}.
		445.53 *11*	0.79 *10*	852.30	1/2$^+$	[E2]		0.01685	B(E2)(W.u.)=0.08 *2* α(K)=0.01377 *20*; α(L)=0.00241 *4*; α(M)=0.000525 *8*; α(N+..)=0.0001345 *19* α(N)=0.0001170 *17*; α(O)=1.678×10^{-5} *24*; α(P)=7.91×10^{-7} *11*
		456.68 *11*	0.54 *6*	840.966	(3/2)$^+$				If M1, B(M1)(W.u.)=1.8×10^{-5} *4*; if E2, B(E2)(W.u.)=0.046 *11*.
		488.18 *12*	0.86 *8*	809.46	(5/2$^+$,7/2$^-$)				If M1, B(M1)(W.u.)=2.3×10^{-5} *6*; if E2, B(E2)(W.u.)=0.052 *13*.
		542.06 *3*	3.8 *1*	755.569	(5/2,7/2$^-$)				If E1, B(E1)(W.u.)=8.1×10^{-7} *17*; if M1, B(M1)(W.u.)=7.4×10^{-5} *16*; if E2, B(E2)(W.u.)=0.14 *3*.
		551.1	0.10 *5*	746.552	(3/2$^-$)	[E1]		0.00331	B(E1)(W.u.)=2.0×10^{-8} *10* α(K)=0.00284 *4*; α(L)=0.000372 *6*; α(M)=7.87×10^{-5} *11*; α(N+..)=2.05×10^{-5} *3* α(N)=1.767×10^{-5} *25*; α(O)=2.65×10^{-6} *4*; α(P)=1.639×10^{-7} *23*
		720.3	0.2 *1*	577.402	(5/2)$^-$	[E1]		0.00187	B(E1)(W.u.)=1.8×10^{-8} *10* α(K)=0.001608 *23*; α(L)=0.000208 *3*; α(M)=4.39×10^{-5} *7*; α(N+..)=1.146×10^{-5} *16* α(N)=9.88×10^{-6} *14*; α(O)=1.485×10^{-6} *21*; α(P)=9.35×10^{-8} *13*
		765.40 *6*	1.3 *1*	532.057	(7/2$^-$)	[E1]		1.65×10^{-3}	B(E1)(W.u.)=9.7×10^{-8} *22* α(K)=0.001422 *20*; α(L)=0.000183 *3*; α(M)=3.87×10^{-5} *6*; α(N+..)=1.010×10^{-5} *15* α(N)=8.71×10^{-6} *13*; α(O)=1.310×10^{-6} *19*; α(P)=8.28×10^{-8} *12* E_γ: level energy difference=765.62.
		773.62[b] *9*	0.5[b] *1*	524.339	(3/2)$^+$				If M1, B(M1)(W.u.)=3.3×10^{-6} *11*; if E2, B(E2)(W.u.)=3.0×10^{-3} *10*.
		789.95[b] *7*	0.8[b] *1*	507.885	5/2$^+$				If M1, B(M1)(W.u.)=5.0×10^{-6} *12*; if E2, B(E2)(W.u.)=4.
		870.70[b] *11*	0.64[b] *10*	427.150	(7/2)$^+$				If M1, B(M1)(W.u.)=3.0×10^{-6} *8*; if E2, B(E2)(W.u.)=2.1×10^{-3}.

$^{151}_{61}Pm_{90}$-13

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π	Mult.[‡]	α[a]	Comments
1297.682	5/2$^+$	973.23 *10*	1.29 *10*	324.682	5/2$^+$			If M1, B(M1)(W.u.)=4.3×10^{-6} *10*; if E2, B(E2)(W.u.)=2.5×10^{-3} *6*.
		1041.91 *8*	2.4 *1*	255.692	3/2$^+$			If M1, B(M1)(W.u.)=6.6×10^{-6} *14*; if E2, B(E2)(W.u.)=3.3×10^{-3} *7*.
		1122.63 *3*	30.7 *6*	175.075	7/2$^-$	[E1]	7.98×10^{-4}	B(E1)(W.u.)=7.3×10^{-7} *15* α(K)=0.000683 *10*; α(L)=8.68×10^{-5} *13*; α(M)=1.83×10^{-5} *3*; α(N+..)=9.30×10^{-6} *13* α(N)=4.12×10^{-6} *6*; α(O)=6.22×10^{-7} *9*; α(P)=4.01×10^{-8} *6*; α(IPF)=4.52×10^{-6} *7*
		1180.89 *2*	100 *2*	116.794	5/2$^-$	E1	7.43×10^{-4}	B(E1)(W.u.)=2.1×10^{-6} *5* α(K)=0.000624 *9*; α(L)=7.91×10^{-5} *11*; α(M)=1.668×10^{-5} *24*; α(N+..)=2.34×10^{-5} *4* α(N)=3.75×10^{-6} *6*; α(O)=5.67×10^{-7} *8*; α(P)=3.66×10^{-8} *6*; α(IPF)=1.90×10^{-5} *3*
		1213.18[b]	0.15[b] *1*	85.119	7/2$^+$			If M1, B(M1)(W.u.)=2.6×10^{-7} *6*; if E2, B(E2)(W.u.)=9.5×10^{-5} *22*.
		1297.61 *5*	1.5 *1*	0.0	5/2$^+$			If M1, B(M1)(W.u.)=2.1×10^{-6} *5*; if E2, B(E2)(W.u.)=6.8×10^{-4} *15*.
1330.39	(5/2$^+$)	459.8	3.6 *18*	870.58	(5/2$^+$,7/2$^-$)			
		753.0 *2*	41 *11*	577.402	(5/2)$^-$			
		789.95[b] *9*	36[b] *9*	540.372	3/2$^-$			
		798.2 *5*	100 *27*	532.057	(7/2$^-$)			
1355.81	(≤7/2)	503.8 *3*	10 *5*	852.30	1/2$^+$			
		1099.95 *13*	100 *14*	255.692	3/2$^+$			
1377	(23/2$^-$)	138		1239.0	(21/2$^-$)			
		432		944.7	(19/2$^-$)			
1394.77	(3/2$^-$)	648.4 *3*	7 *4*	746.552	(3/2$^-$)			
		854.0 *5*	54 *27*	540.372	3/2$^-$			
		886.8 *3*	42 *9*	507.885	5/2$^+$			
		1070.03 *13*	65 *8*	324.682	5/2$^+$			
		1139.0 *2*	57 *8*	255.692	3/2$^+$			
		1395.0 *3*	100 *17*	0.0	5/2$^+$			
1424.57	(5/2$^-$)	527.6 *3*	11 *4*	897.63	(3/2,5/2)			
		847.12 *6*	39 *5*	577.402	(5/2)$^-$			
		892.7 *2*	29 *5*	532.057	(7/2$^-$)			
		1169.2 *5*	100 *6*	255.692	3/2$^+$			
1444.98	(5/2$^+$)	592.4 *2*	9 *3*	852.30	1/2$^+$			
		867.6 *5*	25 *5*	577.402	(5/2)$^-$			
		904.7[b] *2*	40[b] *10*	540.372	3/2$^-$			
		912.5[b] *2*	40[b] *10*	532.057	(7/2$^-$)			
		936.8 *3*	16 *7*	507.885	5/2$^+$			
		1189.24 *9*	100 *5*	255.692	3/2$^+$			
		1269.6 *2*	26 *7*	175.075	7/2$^-$			
		1328.22 *8*	95 *10*	116.794	5/2$^-$			
		1359.94 *9*	50 *3*	85.119	7/2$^+$			
		1445.4 *2*	18 *2*	0.0	5/2$^+$			

$^{151}_{61}Pm_{90}$-14

Adopted Levels, Gammas (continued)

γ(^{151}Pm) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ	E_f	J_f^π
1520	(23/2$^+$)	462		1058.0	(19/2$^+$)
1562.1	(3/2$^-$,5/2$^+$)	709.3	19 *15*	852.994	5/2$^{(+)}$
		815.4 *3*	100 *31*	746.552	(3/2$^-$)
		1387.1 *4*	53 *12*	175.075	7/2$^-$
1589.91	(3/2$^-$,5/2)	1049.5 *2*	100 *17*	540.372	3/2$^-$
		1414.9 *3*	12 *3*	175.075	7/2$^-$
1617.82	(3/2,5/2)	702.8 *4*	6 *2*	914.309	5/2$^+$
		777.1 *3*	6 *2*	840.966	(3/2)$^+$
		1040.4 *2*	20 *3*	577.402	(5/2)$^-$
		1077.12 *10*	36 *3*	540.372	3/2$^-$
		1617.94 *6*	100 *8*	0.0	5/2$^+$
1618.42	(3/2$^+$,5/2$^+$)	744.0	9 *4*	874.71	3/2$^+$
		1191.1 *4*	13 *3*	427.150	(7/2)$^+$
		1293.61 *5*	100 *4*	324.682	5/2$^+$
		1362.78 *4*	100 *4*	255.692	3/2$^+$
		1501.8 *2*	10.0 *13*	116.794	5/2$^-$
		1533.6 *2*	7.0 *9*	85.119	7/2$^+$
1639.63	(1/2$^+$,3/2,5/2$^+$)	682.0 *5*	56 *20*	957.89	(5/2$^+$)
		741.7 *2*	81 *18*	897.63	(3/2,5/2)
		787.2 *5*	32 *14*	852.30	1/2$^+$
		865.9 *5*	70 *23*	773.599	(1/2,3/2,5/2$^+$)
		1115.4 *3*	95 *16*	524.339	(3/2)$^+$
		1131.6 *2*	100 *28*	507.885	5/2$^+$
		1639.79 *13*	35 *23*	0.0	5/2$^+$
1651.52	(3/2$^+$,5/2)	1074.0 *5*	44 *22*	577.402	(5/2)$^-$
		1111.0 *4*	21 *7*	540.372	3/2$^-$
		1566.41 *10*	100 *7*	85.119	7/2$^+$
1713.10	(3/2$^+$,5/2)	1627.97 *13*	100	85.119	7/2$^+$
1721	(25/2$^-$)	344		1377	(23/2$^-$)
		482		1239.0	(21/2$^-$)
1741.25	(1/2$^+$,3/2,5/2$^+$)	751.0	7 *3*	989.88	5/2$^+$
		783.4 *3*	16 *5*	957.89	(5/2$^+$)
		866.4[b] *3*	37[b] *12*	874.71	3/2$^+$
		889.1 *3*	23 *5*	852.30	1/2$^+$
		900.2 *1*	73 *7*	840.966	(3/2)$^+$
		967.58[b] *12*	93[b] *7*	773.599	(1/2,3/2,5/2$^+$)
		994.64 *10*	28 *2*	746.552	(3/2$^-$)
		1201.03[b] *6*	85[b] *7*	540.372	3/2$^-$
		1485.45[b] *7*	100[b] *7*	255.692	3/2$^+$
1779	(25/2$^+$)	402[c]		1377	(23/2$^-$)
		491		1287.5	(21/2$^+$)
1793.68	(5/2)	1618.6 *2*	100 *50*	175.075	7/2$^-$

$^{151}_{61}Pm_{90}$-15

Adopted Levels, Gammas (continued)

γ(^{151}Pm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π
1793.68	(5/2)	1708.5	25 *15*	85.119	$7/2^+$
1795.13	(3/2,5/2)	837.5 *4*	10 *5*	957.89	$(5/2^+)$
		1217.71 *14*	56 *7*	577.402	$(5/2)^-$
		1270.9 *2*	60 *16*	524.339	$(3/2)^+$
		1287.2 *1*	100 *12*	507.885	$5/2^+$
		1795.1 *4*	10 *3*	0.0	$5/2^+$
1805.51	$(1/2^+,3/2,5/2^+)$	848.0	10 *5*	957.89	$(5/2^+)$
		964.74 *13*	70 *5*	840.966	$(3/2)^+$
		1379.12[b] *7*	39[b] *25*	426.451	$1/2^+$
		1549.75 *5*	100 *5*	255.692	$3/2^+$
1809.80	$(3/2,5/2)^+$	479.3 *3*	6 *4*	1330.39	$(5/2^+)$
		819.75 *8*	60 *6*	989.88	$5/2^+$
		851.8[b] *3*	96[b] *14*	957.89	$(5/2^+)$
		866.4[b] *3*	11[b] *7*	943.11	$(3/2^+,5/2)$
		912.5[b] *2*	60[b] *15*	897.63	(3/2,5/2)
		935.1	7 *7*	874.71	$3/2^+$
		969.2[b] *4*	37[b] *8*	840.966	$(3/2)^+$
		1036.16 *7*	100 *5*	773.599	$(1/2,3/2,5/2^+)$
		1232.6 *1*	49 *4*	577.402	$(5/2)^-$
		1285.63 *16*	92 *8*	524.339	$(3/2)^+$
		1383.37 *9*	43 *3*	426.451	$1/2^+$
1822.17	1/2,3/2,5/2	621.3 *2*	62 *18*	1200.97	$(3/2^+,5/2)$
		924.4	25 *25*	897.63	(3/2,5/2)
		951.85 *20*	100 *23*	870.58	$(5/2^+,7/2^-)$
		1066.57[b] *6*	51[b] *25*	755.569	$(5/2,7/2^-)$
1848.57	(5/2)	715.7 *2*	51 *14*	1133.214	$(5/2^+)$
		905.3 *5*	47 *16*	943.11	$(3/2^+,5/2)$
		950.8	16 *16*	897.63	(3/2,5/2)
		1271.3 *5*	31 *16*	577.402	$(5/2)^-$
		1308.5 *4*	28 *6*	540.372	$3/2^-$
		1316.3 *2*	15.6 *16*	532.057	$(7/2^-)$
		1673.2 *2*	20 *3*	175.075	$7/2^-$
		1731.82 *12*	100 *5*	116.794	$5/2^-$
		1848.55 *10*	18.7 *16*	0.0	$5/2^+$
1853.70	$(5/2)^+$	498.0 *5*	1.6 *9*	1355.81	$(\leq 7/2)$
		1012.7	2.5 *15*	840.966	$(3/2)^+$
		1080.09[b] *5*	50[b] *3*	773.599	$(1/2,3/2,5/2^+)$
		1107.16 *5*	100 *3*	746.552	$(3/2^-)$
		1329.5 *2*	12 *2*	524.339	$(3/2)^+$
		1598.04 *7*	22 *2*	255.692	$3/2^+$
		1678.4 *2*	1.2 *3*	175.075	$7/2^-$
1854.50	$(3/2^+,5/2)$	979.65 *21*	35 *7*	874.71	$3/2^+$

$^{151}_{61}Pm_{90}$-16

Adopted Levels, Gammas (continued)

γ(^{151}Pm) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ	E_f	J_f^π
1854.50	(3/2$^+$,5/2)	1045.0	5 *3*	809.46	(5/2$^+$,7/2$^-$)
		1276.9 *3*	16 *4*	577.402	(5/2)$^-$
		1314.2[b] *2*	100[b] *17*	540.372	3/2$^-$
		1346.55[b] *15*	8[b] *4*	507.885	5/2$^+$
		1427.6 *3*	7 *4*	427.150	(7/2)$^+$
		1854.55 *15*	7.5 *8*	0.0	5/2$^+$
1873.63	(5/2)$^+$	801.0 *3*	13 *5*	1072.91	(3/2$^+$)
		930.4 *5*	21 *7*	943.11	(3/2$^+$,5/2)
		1003.24 *13*	34 *5*	870.58	(5/2$^+$,7/2$^-$)
		1021.05[b]	14[b] *7*	852.994	5/2$^{(+)}$
		1032.4[b] *2*	14[b] *7*	840.966	(3/2)$^+$
		1064.0 *2*	30 *3*	809.46	(5/2$^+$,7/2$^-$)
		1118.2[b] *3*	29[b] *5*	755.569	(5/2,7/2$^-$)
		1127.11 *7*	100 *7*	746.552	(3/2$^-$)
		1296.4 *2*	30 *4*	577.402	(5/2)$^-$
		1333.10 *12*	55 *5*	540.372	3/2$^-$
		1341.58 *8*	64 *7*	532.057	(7/2$^-$)
		1349.3 *5*	13 *7*	524.339	(3/2)$^+$
		1366.1	8 *2*	507.885	5/2$^+$
		1446.4	4 *3*	427.150	(7/2)$^+$
		1548.9 *3*	2.8 *7*	324.682	5/2$^+$
		1698.42 *14*	10 *2*	175.075	7/2$^-$
		1756.82 *8*	26 *2*	116.794	5/2$^-$
		1788.4	8 *1*	85.119	7/2$^+$
1878	(27/2$^-$)	157[c]		1721	(25/2$^-$)
		501		1377	(23/2$^-$)
1878.60	(5/2)	1338.4 *3*	43 *20*	540.372	3/2$^-$
		1346.55[b] *15*	33[b] *10*	532.057	(7/2$^-$)
		1451.5	6 *4*	427.150	(7/2)$^+$
		1553.84 *13*	100 *10*	324.682	5/2$^+$
		1622.8 *10*	14 *4*	255.692	3/2$^+$
		1703.65[b] *15*	8[b] *4*	175.075	7/2$^-$
		1761.77 *8*	45 *4*	116.794	5/2$^-$
1892.05	(5/2)$^+$	881.14 *16*	26 *4*	1010.71	(3/2 to 9/2)
		934.04 *9*	49 *8*	957.89	(5/2$^+$)
		949.05 *15*	28 *6*	943.11	(3/2$^+$,5/2)
		1021.05[b&] *11*	28[b] *6*	870.58	(5/2$^+$,7/2$^-$)
		1051.0 *5*	11 *6*	840.966	(3/2)$^+$
		1082.7 *5*	11 *6*	809.46	(5/2$^+$,7/2$^-$)
		1136.58 *8*	76 *4*	755.569	(5/2,7/2$^-$)
		1145.5 *2*	22 *6*	746.552	(3/2$^-$)

$^{151}_{61}Pm_{90}$-17

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ [†]	I_γ	E_f	J_f^π
1892.05	$(5/2)^+$	1314.2[b] *5*	39[b] *3*	577.402	$(5/2)^-$
		1351.7	1.1 *6*	540.372	$3/2^-$
		1359.94 *9*	55 *3*	532.057	$(7/2^-)$
		1636.34 *6*	37 *2*	255.692	$3/2^+$
		1716.92 *7*	46 *2*	175.075	$7/2^-$
		1775.26 *6*	100 *6*	116.794	$5/2^-$
		1807.00 *9*	26 *2*	85.119	$7/2^+$
		1892.15 *6*	71 *4*	0.0	$5/2^+$
1897.4	$(3/2^+,5/2^+)$	954.4 *3*	89 *42*	943.11	$(3/2^+,5/2)$
		999.5 *3*	100 *42*	897.63	(3/2,5/2)
		1044.3	21 *11*	852.994	$5/2^{(+)}$
		1357.0	26 *11*	540.372	$3/2^-$
1903.18	$(5/2)^+$	719.6 *3*	29 *8*	1183.27	$(3/2,5/2)^+$
		727.5 *5*	7 *5*	1175.60	$(\leq 7/2)$
		945.5 *5*	8 *8*	957.89	$(5/2^+)$
		960.5 *3*	36 *10*	943.11	$(3/2^+,5/2)$
		1032.4[b] *2*	25[b] *8*	870.58	$(5/2^+,7/2^-)$
		1147.8 *5*	8 *4*	755.569	$(5/2,7/2^-)$
		1156.90[b] *15*	69[b] *16*	746.552	$(3/2^-)$
		1325.9 *3*	20 *5*	577.402	$(5/2)^-$
		1371.4 *1*	18 *3*	532.057	$(7/2^-)$
		1379.12[b]	30[b] *5*	524.339	$(3/2)^+$
		1475.78 *9*	41 *6*	427.150	$(7/2)^+$
		1578.36 *6*	100 *5*	324.682	$5/2^+$
		1647.43 *8*	22 *2*	255.692	$3/2^+$
		1786.51 *8*	54 *4*	116.794	$5/2^-$
		1903.35 *14*	7.4 *8*	0.0	$5/2^+$
1910.68	$(3/2^+,5/2^+)$	967.58[b] *12*	50[b] *17*	943.11	$(3/2^+,5/2)$
		1057.8 *5*	27 *17*	852.994	$5/2^{(+)}$
		1585.8 *4*	10 *7*	324.682	$5/2^+$
		1793.84 *9*	100 *7*	116.794	$5/2^-$
		1825.4	7 *3*	85.119	$7/2^+$
1927.98	$(5/2^+)$	985.3 *3*	23 *10*	943.11	$(3/2^+,5/2)$
		1030.5	12 *12*	897.63	(3/2,5/2)
		1172.53 *13*	100 *8*	755.569	$(5/2,7/2^-)$
		1350.4[b] *4*	14[b] *8*	577.402	$(5/2)^-$
		1752.99 *8*	43 *4*	175.075	$7/2^-$
		1810.9 *1*	75 *5*	116.794	$5/2^-$
1933.10	$(1/2^+,3/2,5/2)$	602.4 *2*	51 *25*	1330.39	$(5/2^+)$
		731.9 *4*	27 *11*	1200.97	$(3/2^+,5/2)$
		1035.4	18 *9*	897.63	(3/2,5/2)

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

Adopted Levels, Gammas (continued)

γ(^{151}Pm) (continued)

E_i(level)	J_i^π	E_γ †	I_γ	E_f	J_f^π
1933.10	(1/2$^+$,3/2,5/2)	1080.09[b] *5*	36[b] *18*	852.994	5/2$^{(+)}$
		1092.0 *2*	41 *9*	840.966	(3/2)$^+$
		1159.4 *3*	70 *14*	773.599	(1/2,3/2,5/2$^+$)
		1186.7 *2*	100 *7*	746.552	(3/2$^-$)
		1393.0 *3*	14 *7*	540.372	3/2$^-$
		1425.29 *8*	61 *9*	507.885	5/2$^+$
1959.61	(1/2$^+$,3/2,5/2)	969.2[b] *4*	9[b] *6*	989.88	5/2$^+$
		1186.0	31 *8*	773.599	(1/2,3/2,5/2$^+$)
		1213.18[b] *8*	100[b] *8*	746.552	(3/2$^-$)
		1703.65[b] *15*	31[b] *3*	255.692	3/2$^+$
1973.32	(1/2$^+$,3/2,5/2)	163.6 *2*	31 *10*	1809.80	(3/2,5/2)$^+$
		983.5 *2*	40 *17*	989.88	5/2$^+$
		1465.41 *8*	100 *8*	507.885	5/2$^+$
		1973.3 *3*	6 *2*	0.0	5/2$^+$
1989.71	(3/2,5/2)	544.61 *16*	100 *16*	1444.98	(5/2$^+$)
		1234.1 *5*	23 *12*	755.569	(5/2,7/2$^-$)
		1873.1 *2*	26 *3*	116.794	5/2$^-$
1993.81	(5/2)$^+$	1184.2 *3*	100 *14*	809.46	(5/2$^+$,7/2$^-$)
		1238.35 *8*	53 *7*	755.569	(5/2,7/2$^-$)
		1461.6	10 *7*	532.057	(7/2$^-$)
		1485.45[b]	43[b] *14*	507.885	5/2$^+$
		1737.75 *15*	17 *3*	255.692	3/2$^+$
		1818.74 *8*	61 *4*	175.075	7/2$^-$
		1908.6 *2*	36 *3*	85.119	7/2$^+$
		1993.8 *3*	5.7 *14*	0.0	5/2$^+$
1998.25	(5/2)$^+$	435.9	12 *6*	1562.1	(3/2$^-$,5/2$^+$)
		925.5[b] *1*	100[b] *12*	1072.91	(3/2$^+$)
		1123.5 *5*	25 *12*	874.71	3/2$^+$
		1145.9 *1*	62 *12*	852.30	1/2$^+$
		1156.90[b]	62[b] *25*	840.966	(3/2)$^+$
		1224.45 *15*	30 *6*	773.599	(1/2,3/2,5/2$^+$)
		1251.60 *15*	48 *6*	746.552	(3/2$^-$)
		1473.6 *3*	19 *4*	524.339	(3/2)$^+$
		1571.84 *7*	92 *6*	426.451	1/2$^+$
		1742.4 *2*	12.5 *12*	255.692	3/2$^+$
		1800.9 *4*	2.5 *12*	197.272	9/2$^+$
		1998.1 *3*	3.8 *12*	0.0	5/2$^+$
2010.99	(5/2)$^+$	100.1 *2*	84 *32*	1910.68	(3/2$^+$,5/2$^+$)
		615.9 *3*	42 *19*	1394.77	(3/2$^-$)
		655.0 *2*	94 *19*	1355.81	(≤7/2)
		1201.03[b]	64[b] *32*	809.46	(5/2$^+$,7/2$^-$)

$^{151}_{61}Pm_{90}$-19

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π
2010.99	$(5/2)^+$	1255.4 *2*	100 *16*	755.569	$(5/2,7/2^-)$
		1264.3 *2*	48 *10*	746.552	$(3/2^-)$
		1470.8 *2*	39 *10*	540.372	$3/2^-$
		1584.6 *2*	22 *6*	426.451	$1/2^+$
		1686.3 *2*	35 *3*	324.682	$5/2^+$
		1835.99 *14*	39 *3*	175.075	$7/2^-$
		1894.0 *2*	61 *10*	116.794	$5/2^-$
		1925.97 *9*	87 *10*	85.119	$7/2^+$
		2010.92 *15*	26 *3*	0.0	$5/2^+$
2015.93	(3/2,5/2)	1118.2[b] *3*	38[b] *38*	897.63	(3/2,5/2)
		1174.9 *1*	100 *26*	840.966	$(3/2)^+$
		1206.6	15 *8*	809.46	$(5/2^+,7/2^-)$
		1260.86 *27*	50 *12*	755.569	$(5/2,7/2^-)$
		1439.0	34 *23*	577.402	$(5/2)^-$
2018.87	$(1/2^+,3/2,5/2^+)$	1029.05 *20*	77 *11*	989.88	$5/2^+$
		1165.5	20 *8*	852.994	$5/2^{(+)}$
		1177.7 *5*	66 *34*	840.966	$(3/2)^+$
		1592.5 *2*	46 *6*	426.451	$1/2^+$
		2018.85 *5*	100 *9*	0.0	$5/2^+$
2022.4	$(3/2^+,5/2)$	1079.5	29 *14*	943.11	$(3/2^+,5/2)$
		1151.8 *3*	100 *20*	870.58	$(5/2^+,7/2^-)$
2023.15	(5/2)	125.74 *8*	75 *46*	1897.4	$(3/2^+,5/2^+)$
		1125.4 *5*	84 *42*	897.63	(3/2,5/2)
		1490.93 *18*	29 *8*	532.057	$(7/2^-)$
		1498.95 *15*	100 *12*	524.339	$(3/2)^+$
		1767.45 *15*	29 *4*	255.692	$3/2^+$
		1938.0	8 *4*	85.119	$7/2^+$
		2023.16 *18*	29 *4*	0.0	$5/2^+$
2024.01	(1/2,3/2,5/2)	668.1 *2*	49 *15*	1355.81	$(\leq 7/2)$
		823.2 *4*	41 *19*	1200.97	$(3/2^+,5/2)$
		1268.5 *2*	100 *24*	755.569	$(5/2,7/2^-)$
2038.05	(1/2,3/2,5/2)	1282.2 *4*	46 *14*	755.569	$(5/2,7/2^-)$
		1782.36 *13*	100 *9*	255.692	$3/2^+$
		2038.1 *3*	5.7 *28*	0.0	$5/2^+$
2053.10	$(5/2^+)$	1797.4	43 *14*	255.692	$3/2^+$
		1855.8 *4*	100 *43*	197.272	$9/2^+$
		2053.1 *3*	29 *14*	0.0	$5/2^+$
2084.92	(1/2,3/2,5/2)	1507.48 *8*	100 *9*	577.402	$(5/2)^-$
		1829.4 *2*	19 *3*	255.692	$3/2^+$
2106.86	(3/2,5/2)	1332.3	100 *60*	773.599	$(1/2,3/2,5/2^+)$
		1350.4[b] *5*	80[b] *60*	755.569	$(5/2,7/2^-)$
		1989.3	20 *10*	116.794	$5/2^-$
		2106.96 *15*	50 *10*	0.0	$5/2^+$

$^{151}_{61}Pm_{90}$-20

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ †	I_γ	E_f	J_f^π
2119.09	$(1/2^+,3/2,5/2^+)$	1611.5 *3*	9 *6*	507.885	$5/2^+$
		1693.0 *3*	27 *3*	426.451	$1/2^+$
		1863.37 *8*	100 *9*	255.692	$3/2^+$
		2118.94 *18*	15 *3*	0.0	$5/2^+$
2204.30	$(1/2^+,3/2^+,5/2^+)$	394.6 *2*	100 *40*	1809.80	$(3/2,5/2)^+$
		1457.6	9 *9*	746.552	$(3/2^-)$
		2204.2 *2*	14 *4*	0.0	$5/2^+$
2268.59	$(5/2^+)$	650.8 *3*	100 *60*	1617.82	(3/2,5/2)
2268.59	$(5/2^+)$	2093.5 *3*	40 *20*	175.075	$7/2^-$
		2268.5 *4*	20 *20*	0.0	$5/2^+$
2304.01	$1/2^+,3/2^+,5/2^+$	430.2 *3*	100 *30*	1873.63	$(5/2)^+$
		1128.7 *4*	40 *15*	1175.60	$(\leq 7/2)$
		1877.6 *2*	55 *5*	426.451	$1/2^+$
		2303.8 *4*	5 *5*	0.0	$5/2^+$
2434	$(31/2^-)$	556		1878	$(27/2^-)$

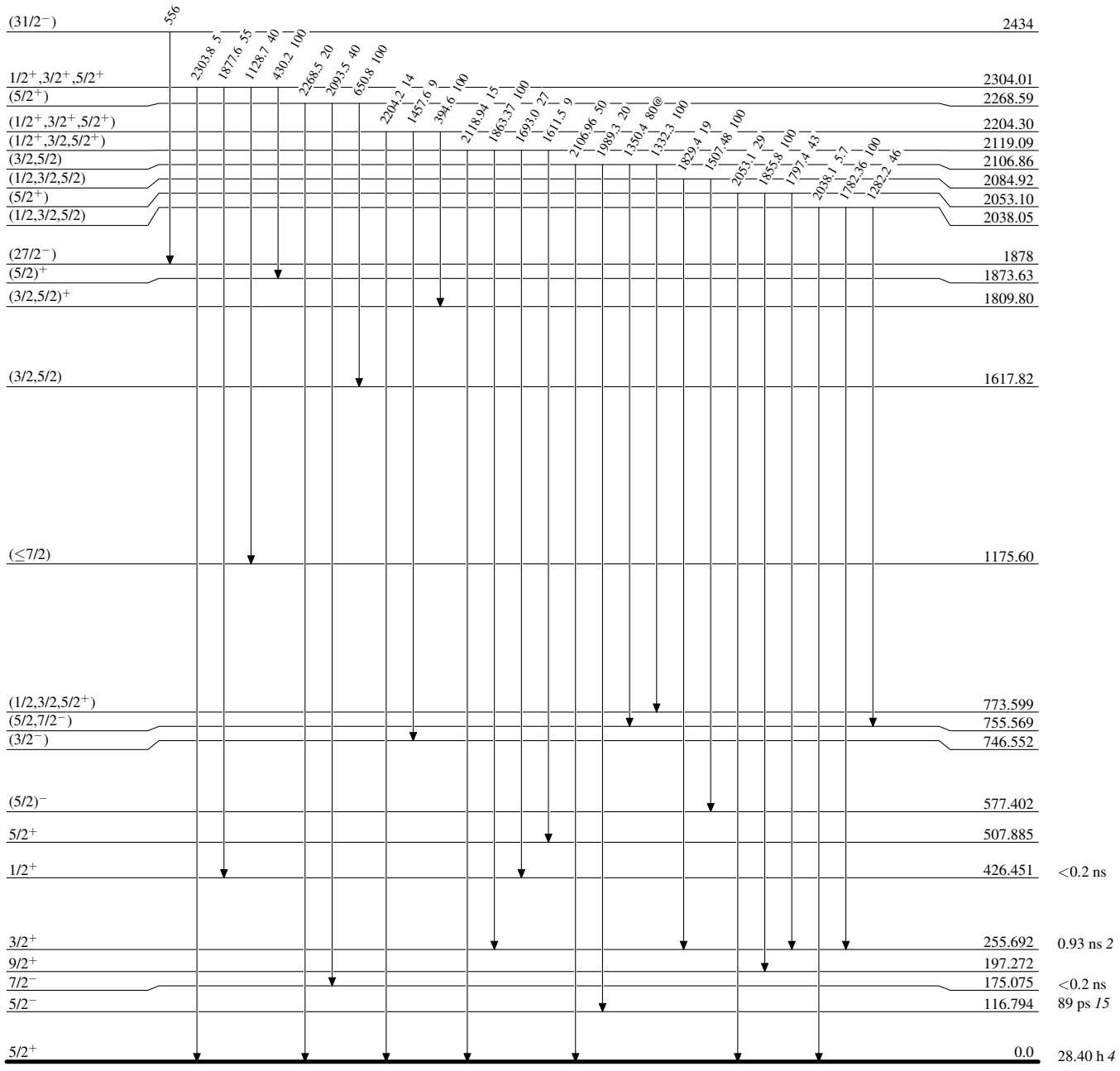
† Values given without uncertainties are from $\gamma\gamma$. Uncertainties are≈0.5 keV.
‡ From ce and $\gamma\gamma(\theta)$ data in ^{151}Nd β^- decay. From $\gamma\gamma(\theta)$ (DCO) from (α,p2nγ) reaction.
# From consistency of ce and $\gamma\gamma(\theta)$ data in ^{151}Nd β^-.
@ $\gamma\gamma(\theta)$ in ^{151}Nd β^- consistent with E1.
& Level energy difference=1021.47.
[a] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
[b] Multiply placed with intensity suitably divided.
[c] Placement of transition in the level scheme is uncertain.

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

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

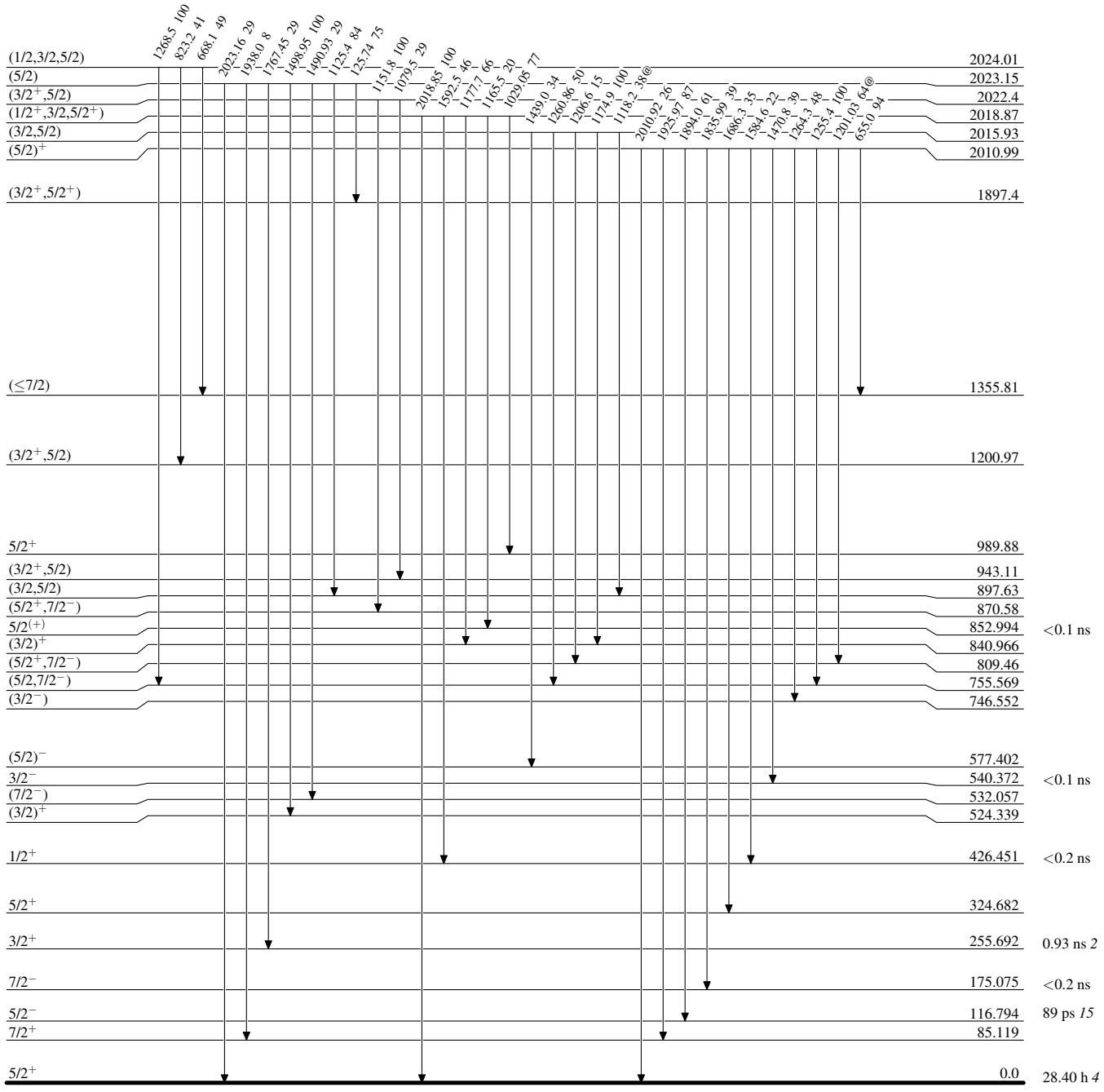


$^{151}_{61}Pm_{90}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

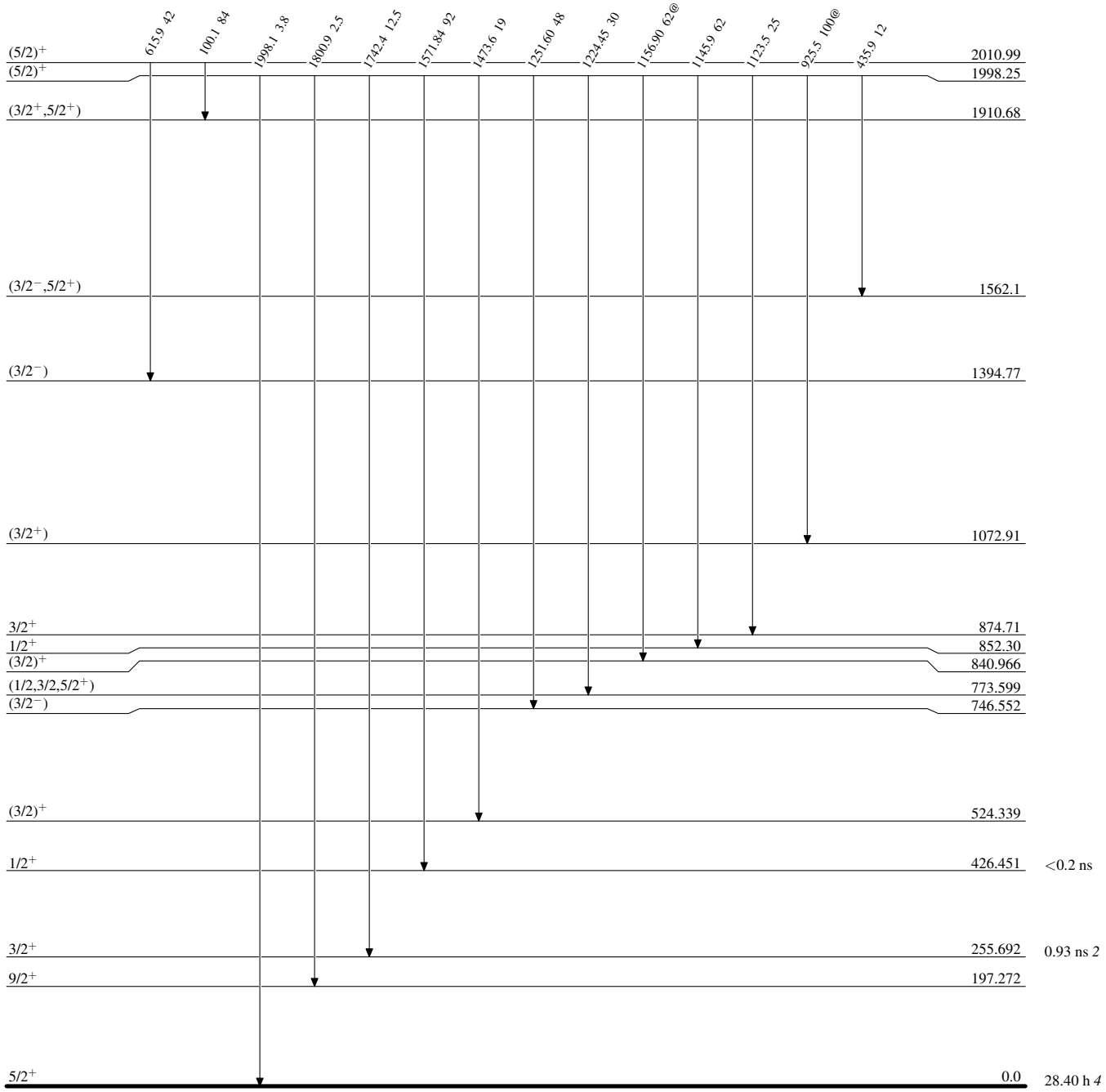


$^{151}_{61}Pm_{90}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

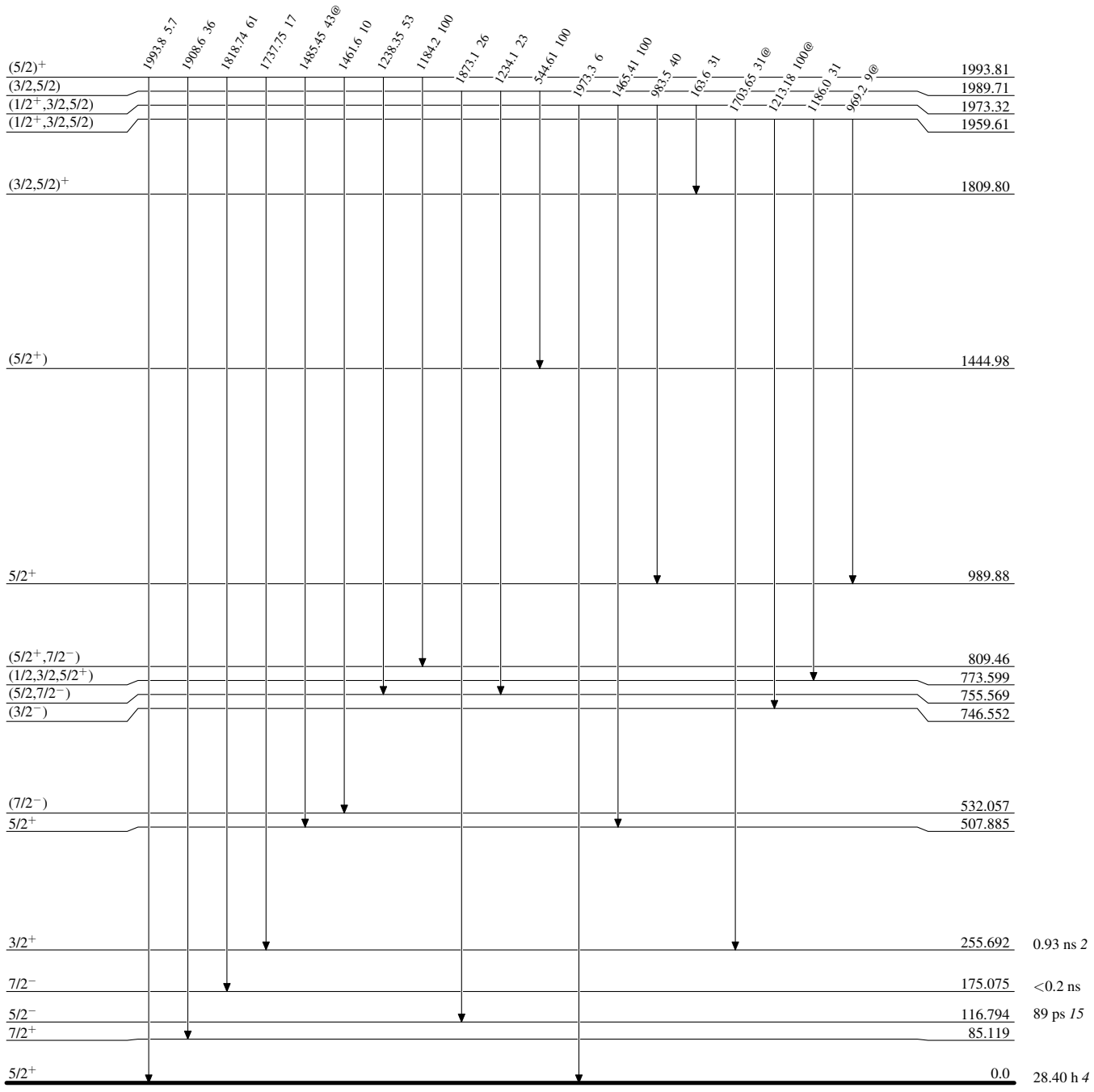


$^{151}_{61}Pm_{90}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

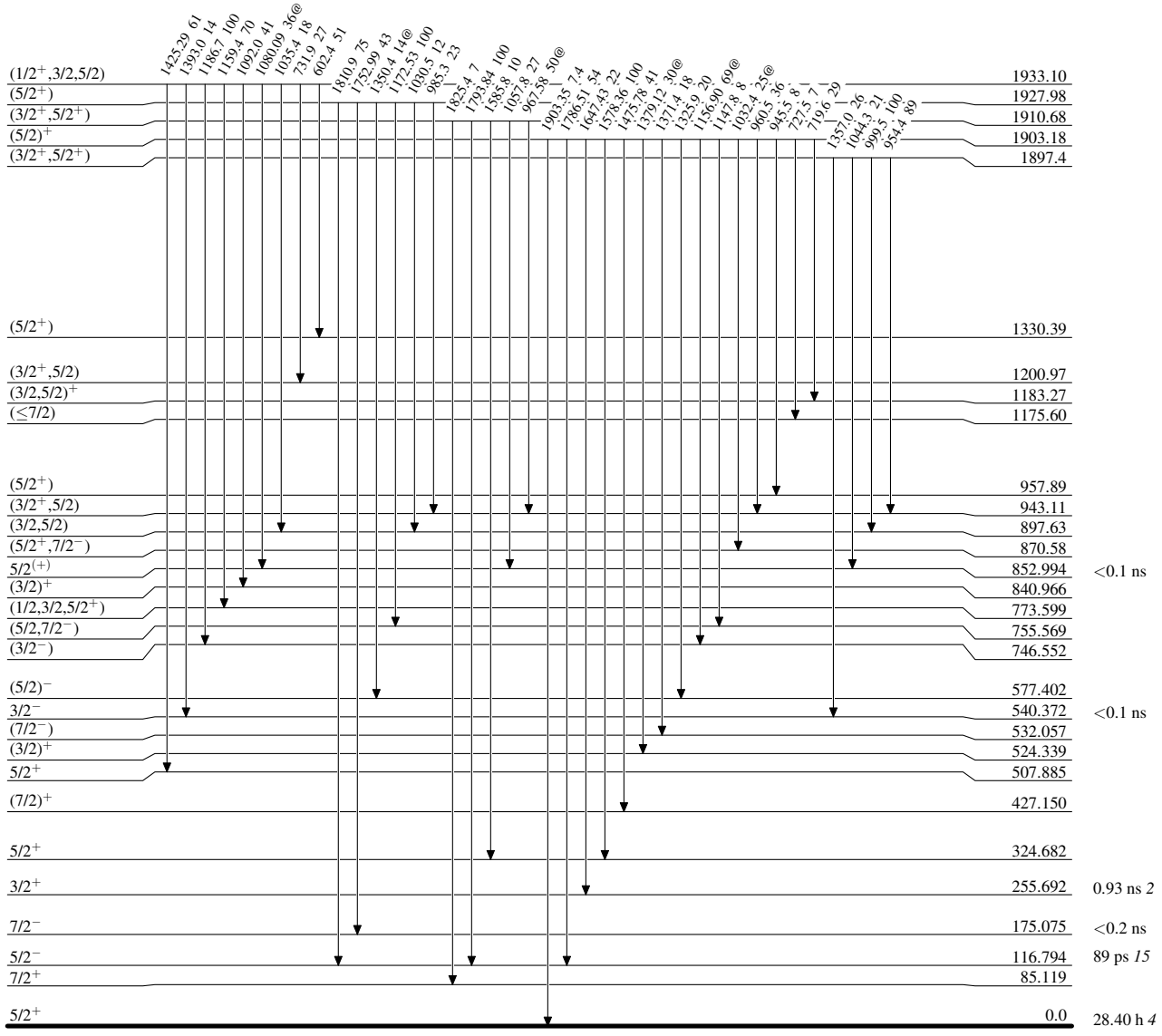


$^{151}_{61}Pm_{90}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



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

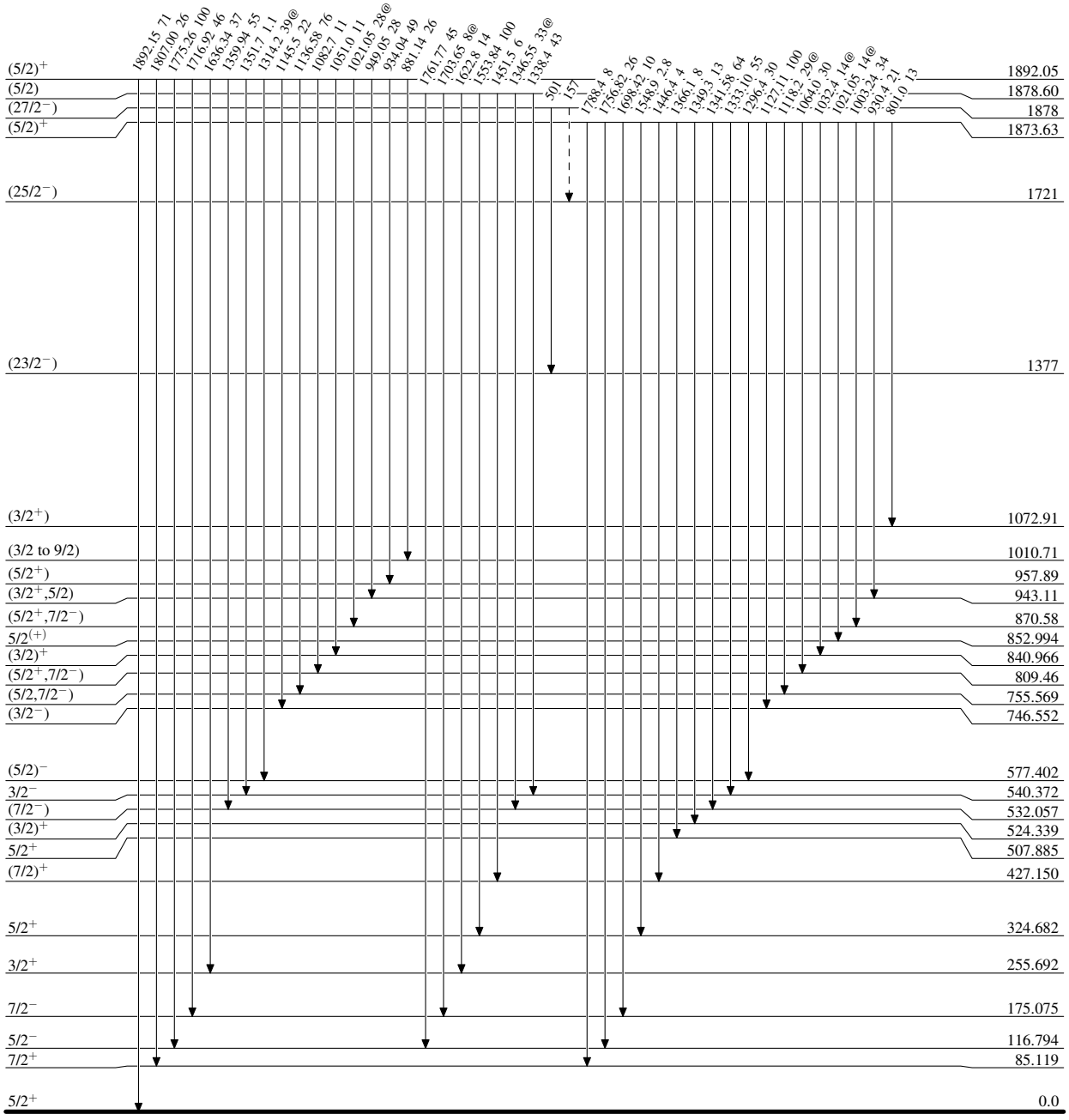
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

- - - - - - ► γ Decay (Uncertain)

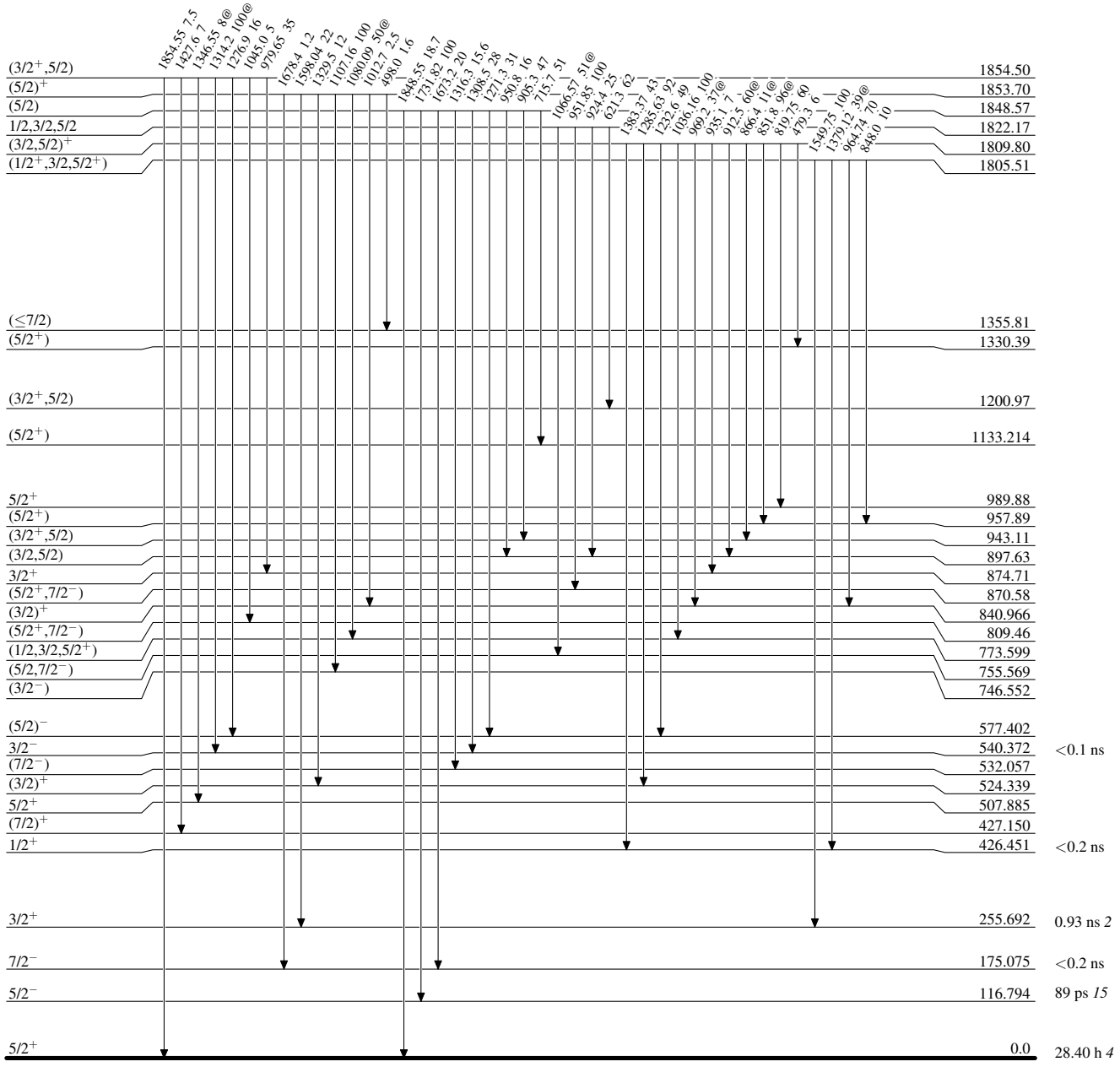


$^{151}_{61}Pm_{90}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



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

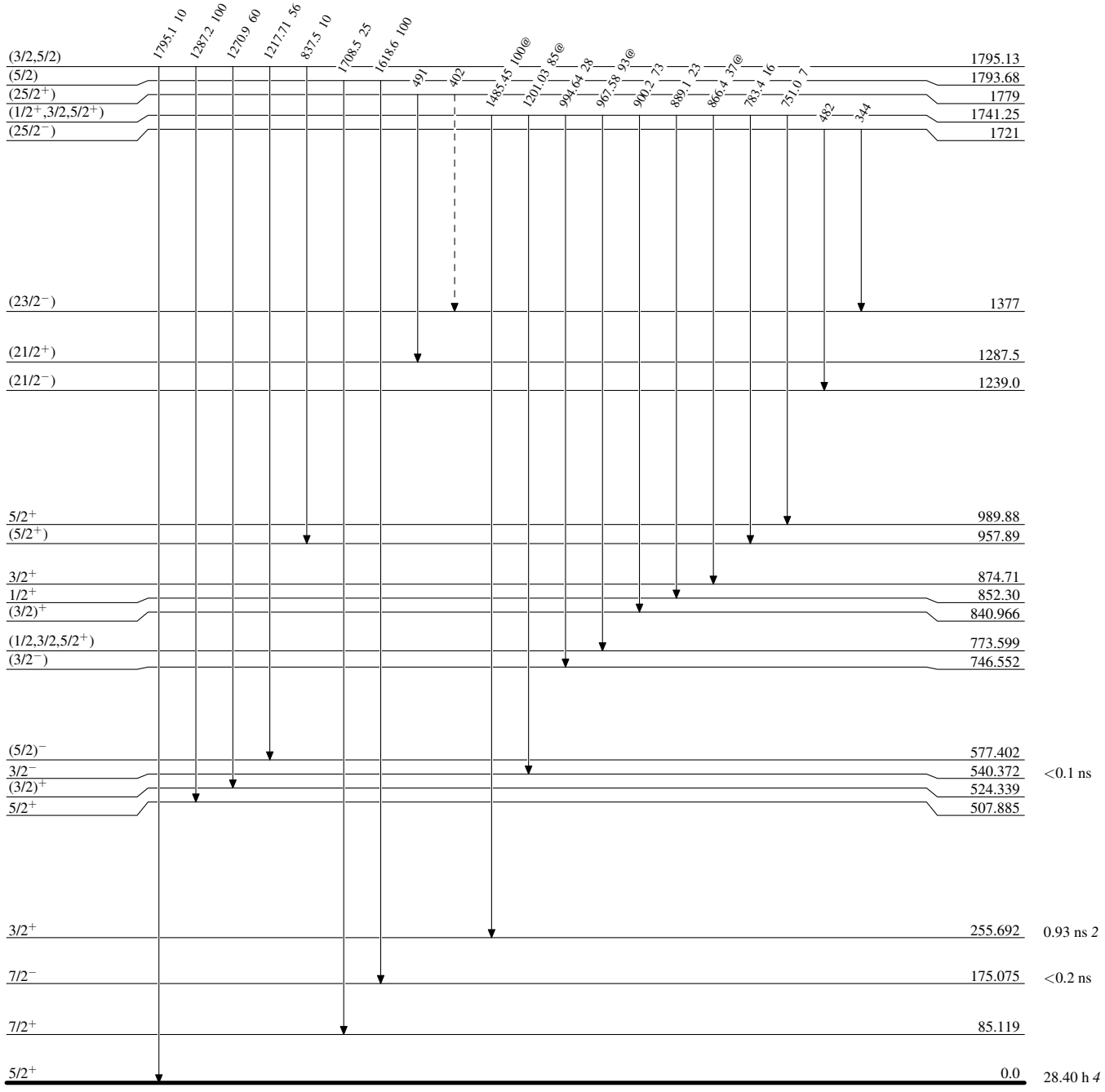
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

- - - - - - ► γ Decay (Uncertain)

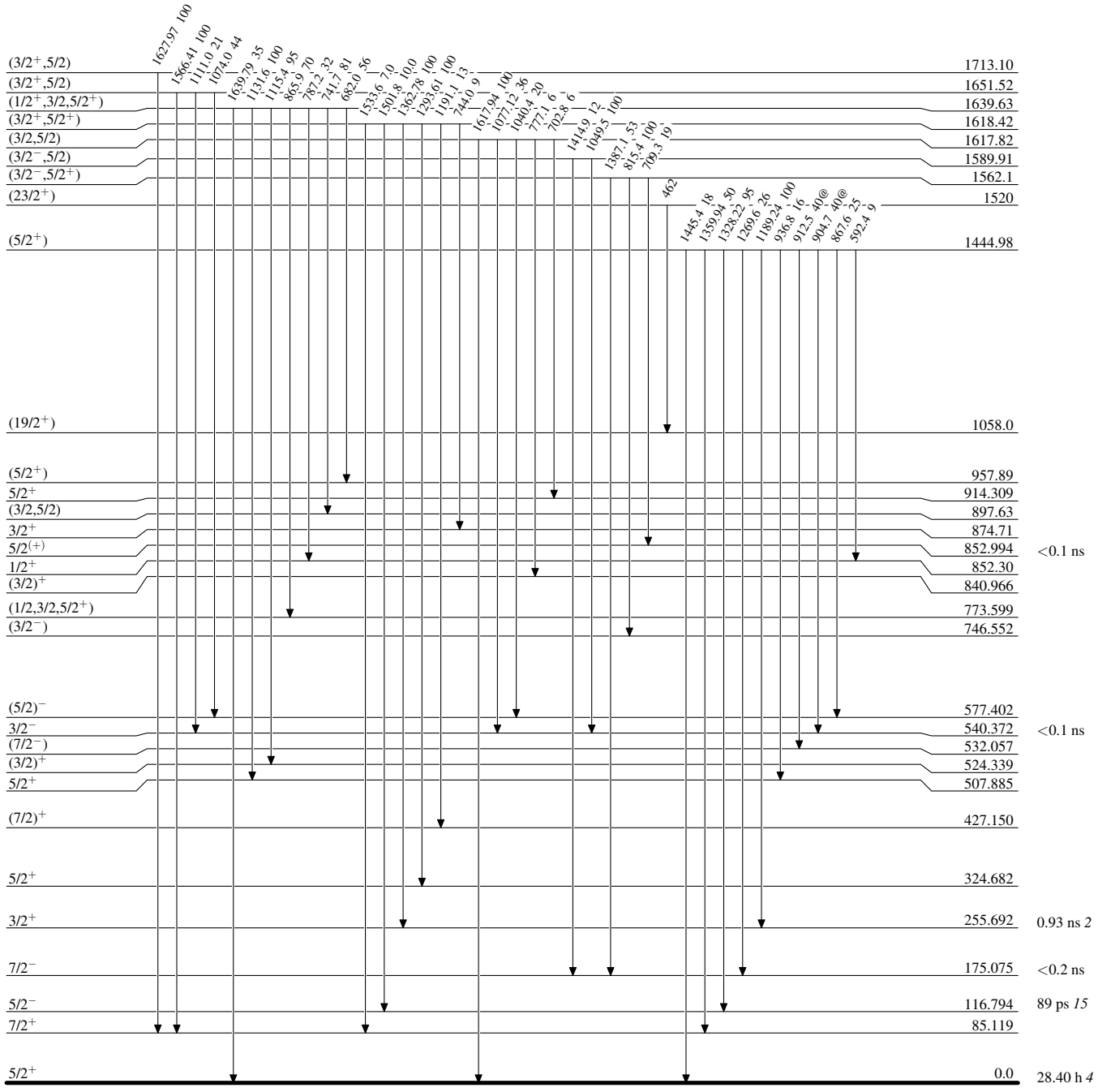


$^{151}_{61}Pm_{90}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

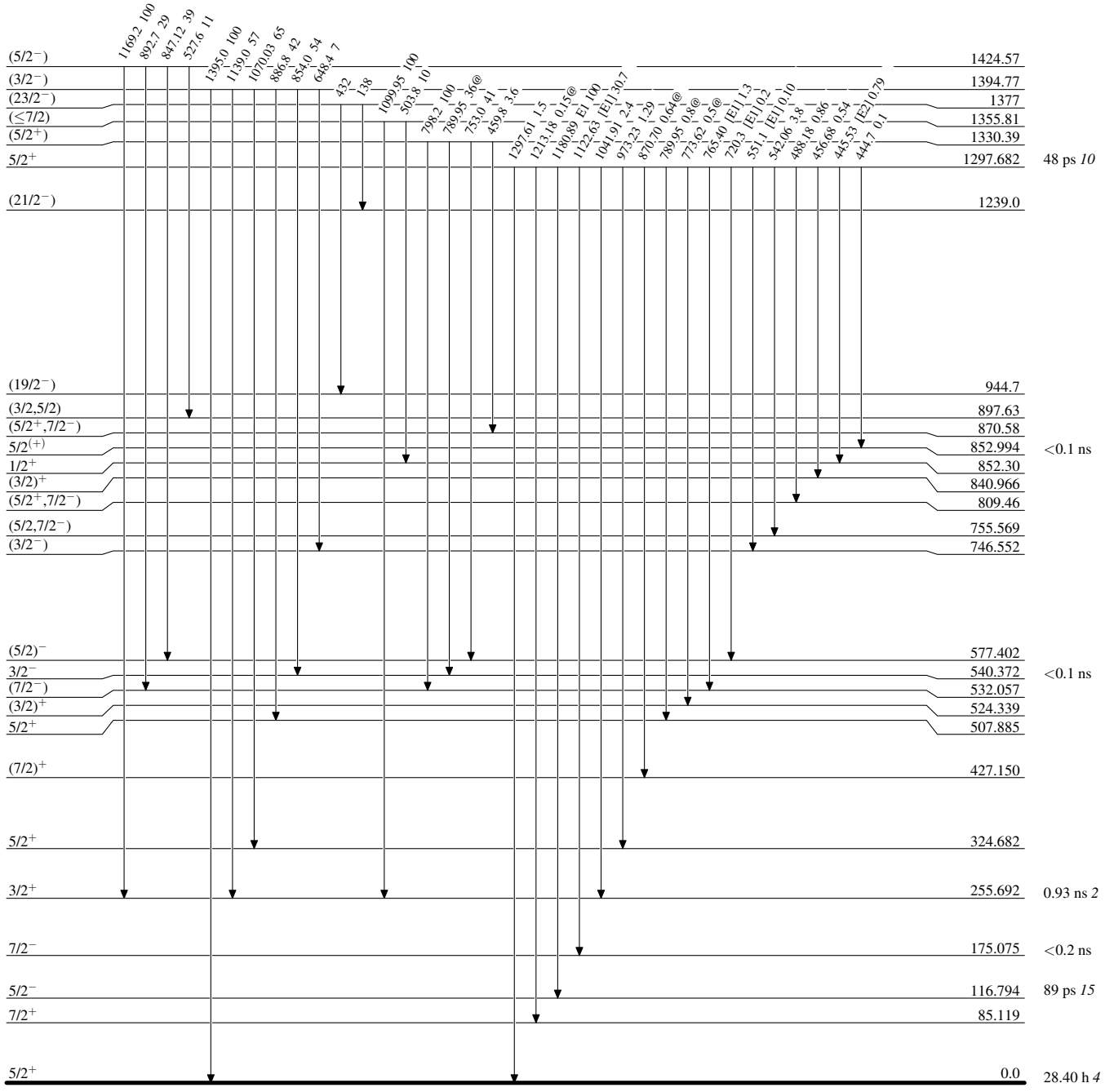


$^{151}_{61}Pm_{90}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



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

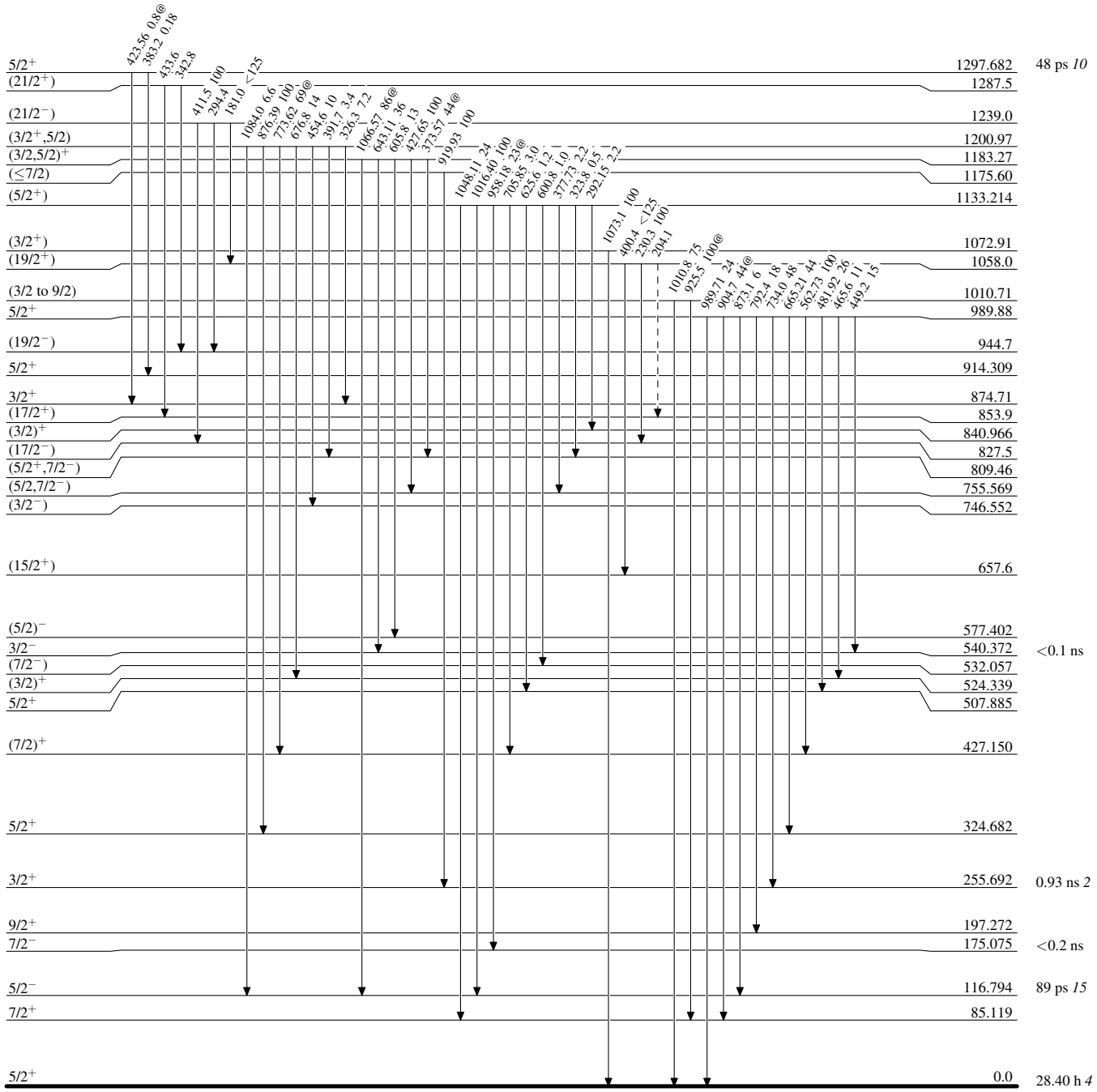
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

- - - - - - ► γ Decay (Uncertain)



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

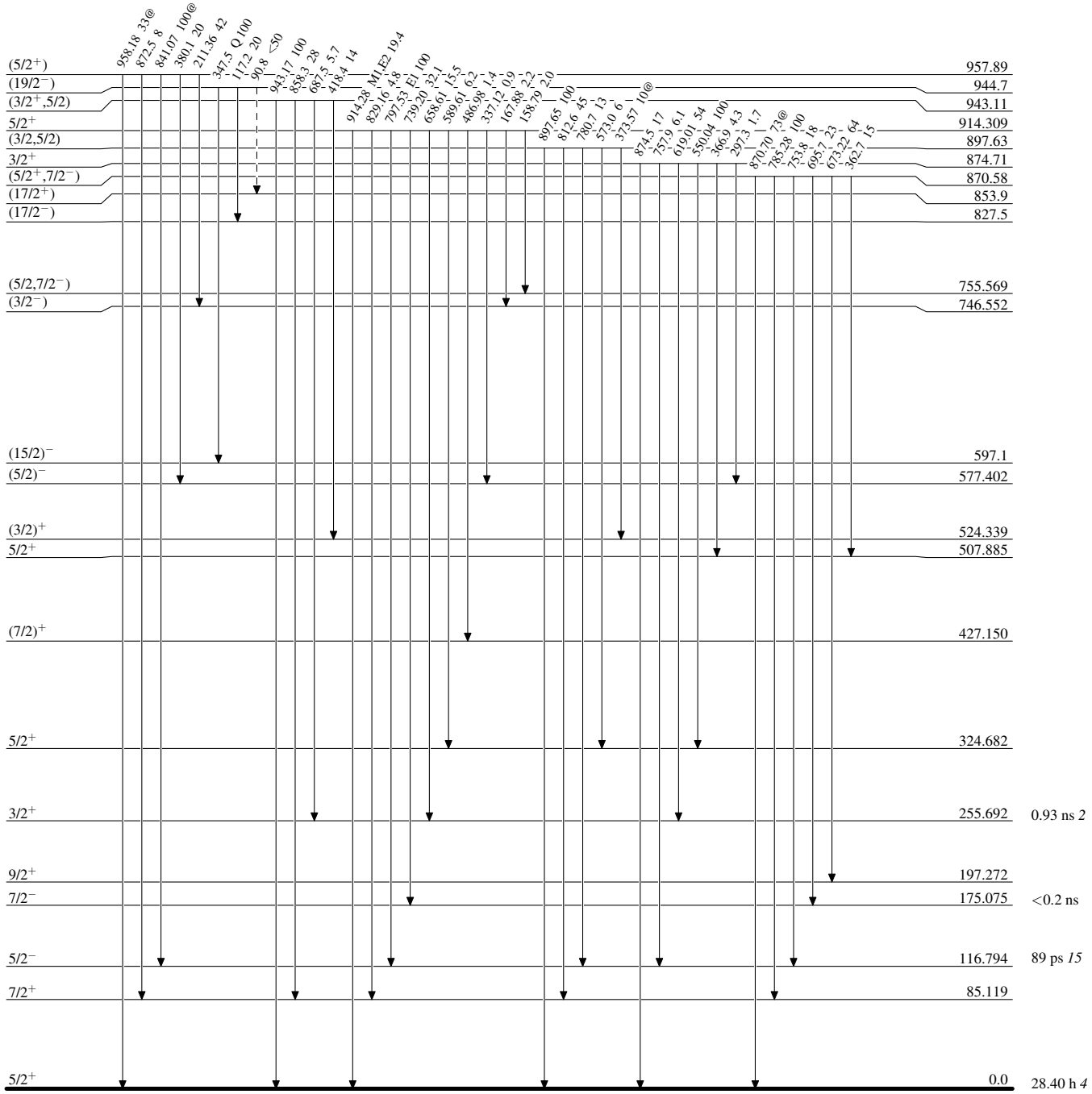
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

γ Decay (Uncertain)



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

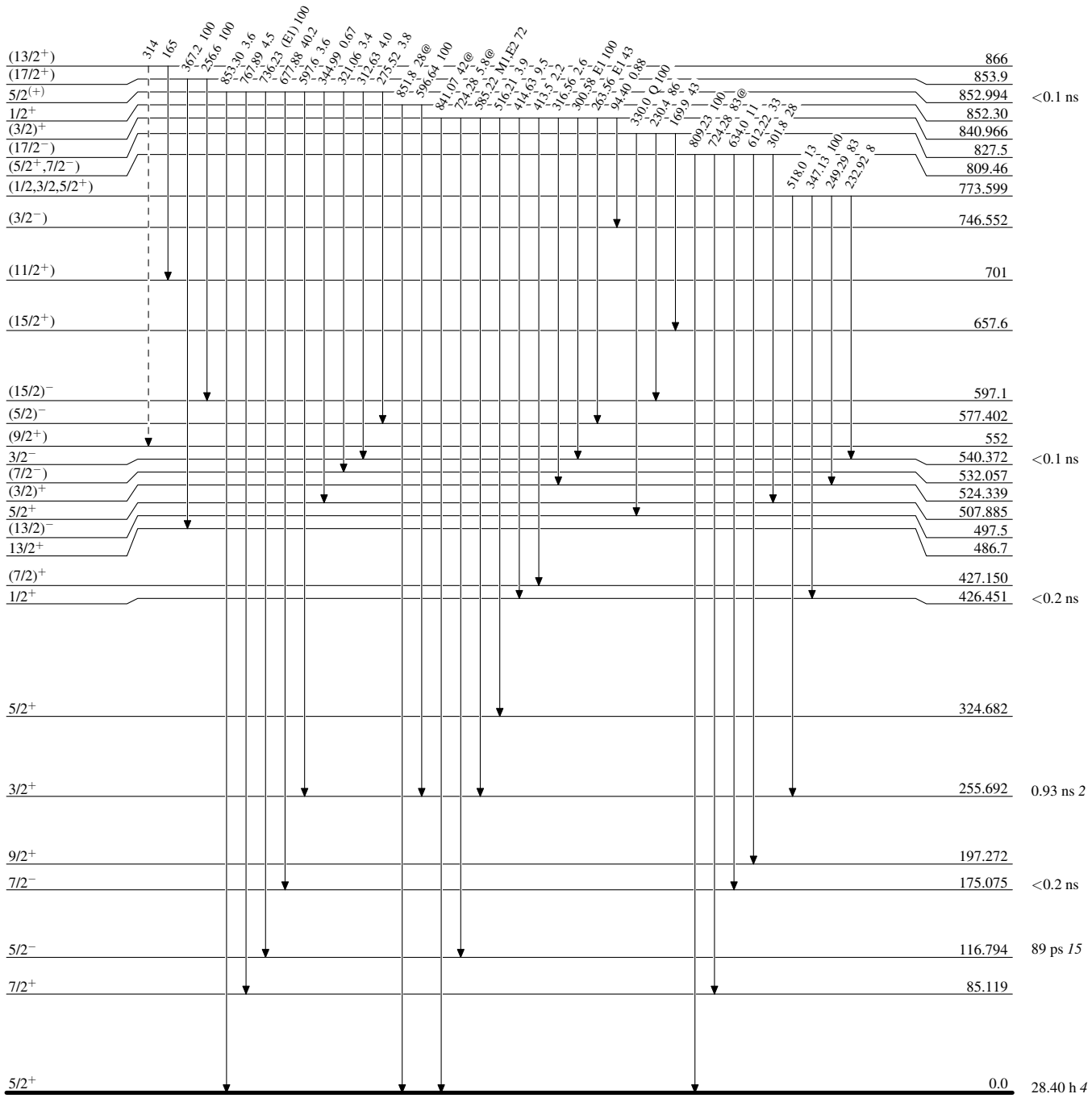
Adopted Levels, Gammas

Level Scheme (continued)

Legend

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

γ Decay (Uncertain)



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

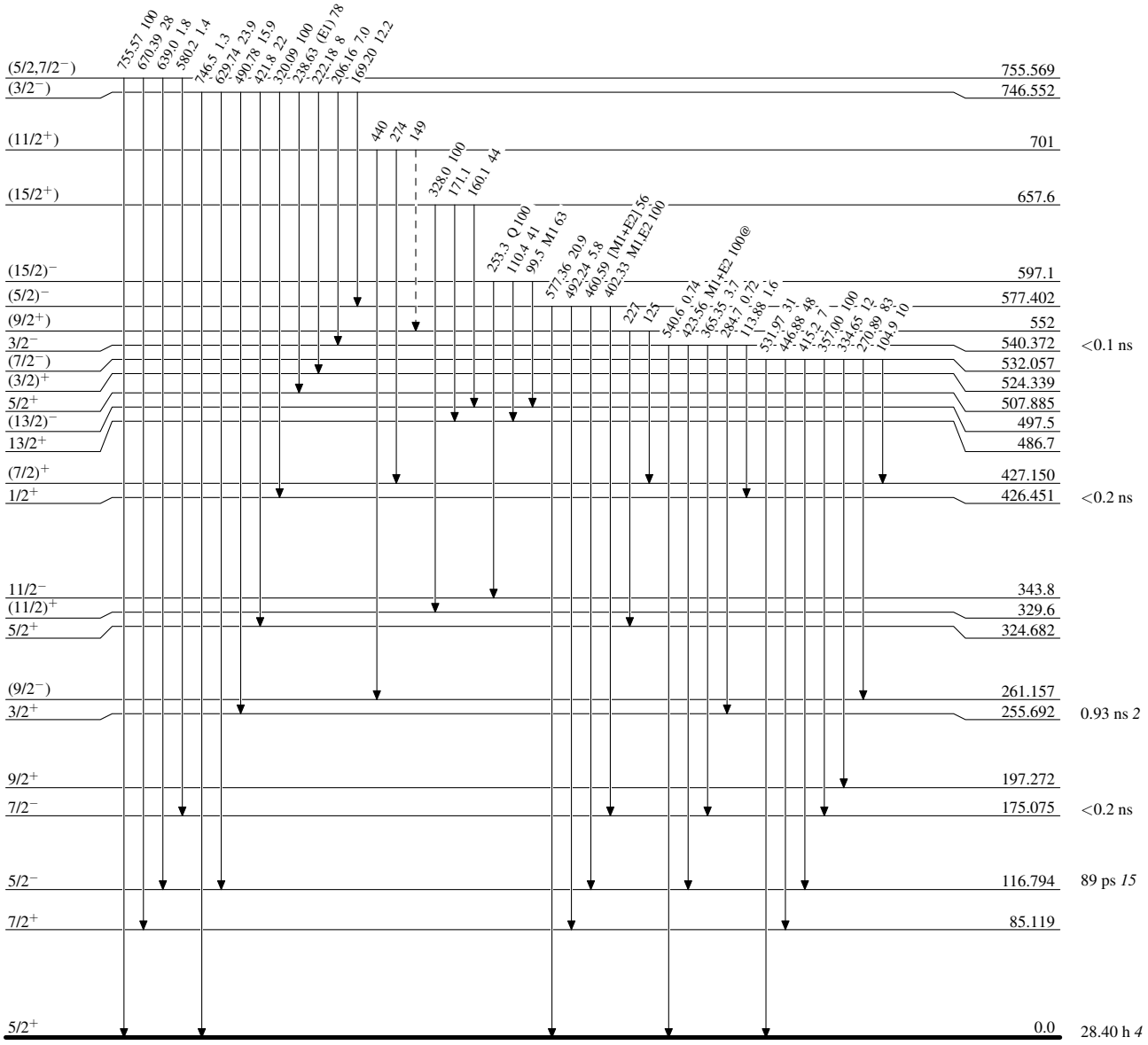
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

► - - - - - - γ Decay (Uncertain)



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

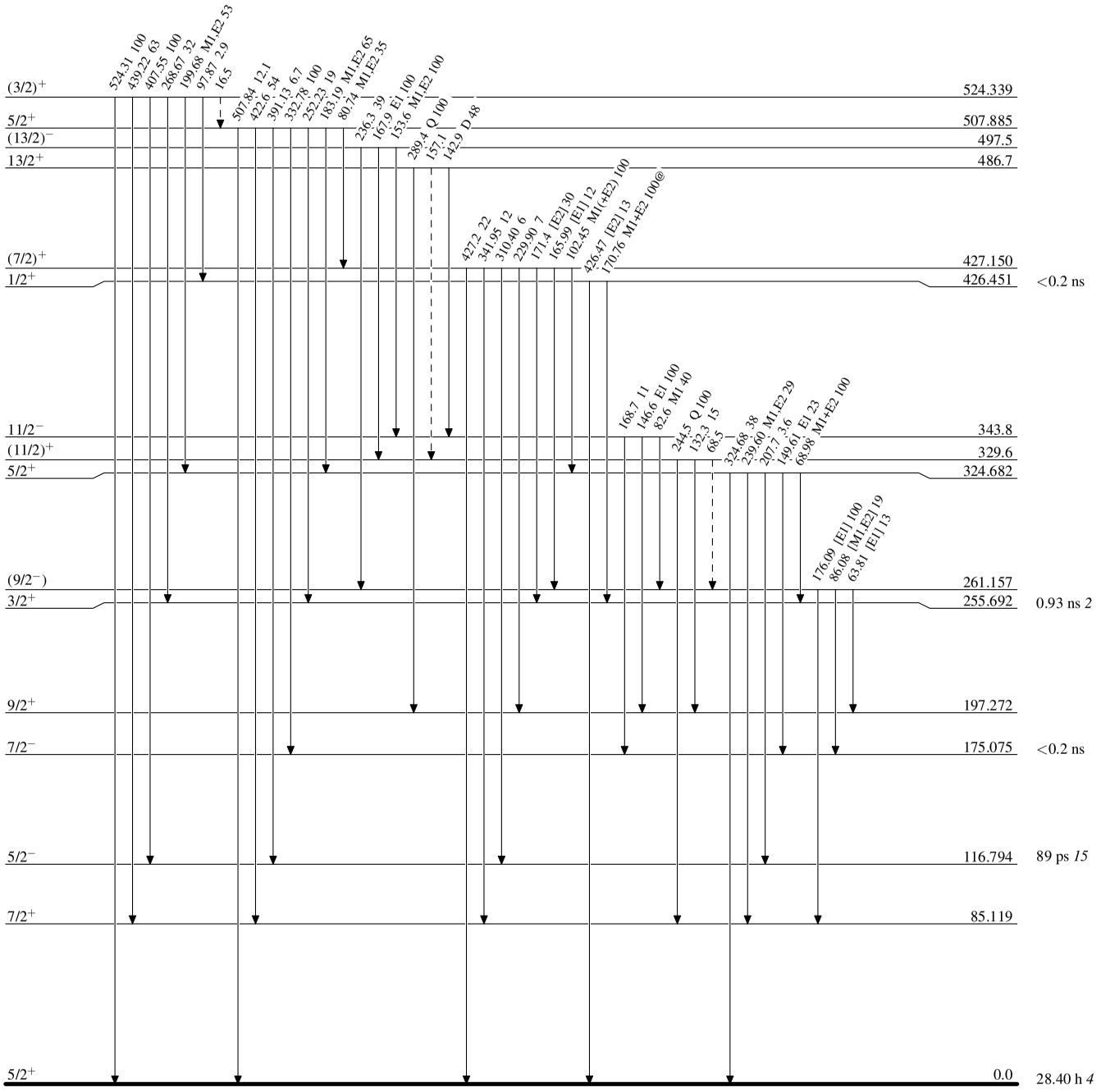
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

- - - - - - ► γ Decay (Uncertain)

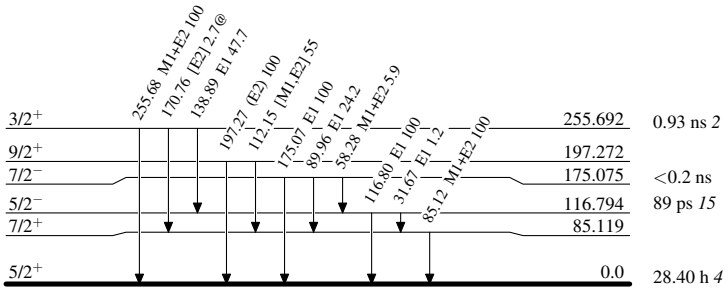


$^{151}_{61}Pm_{90}$

Adopted Levels, Gammas

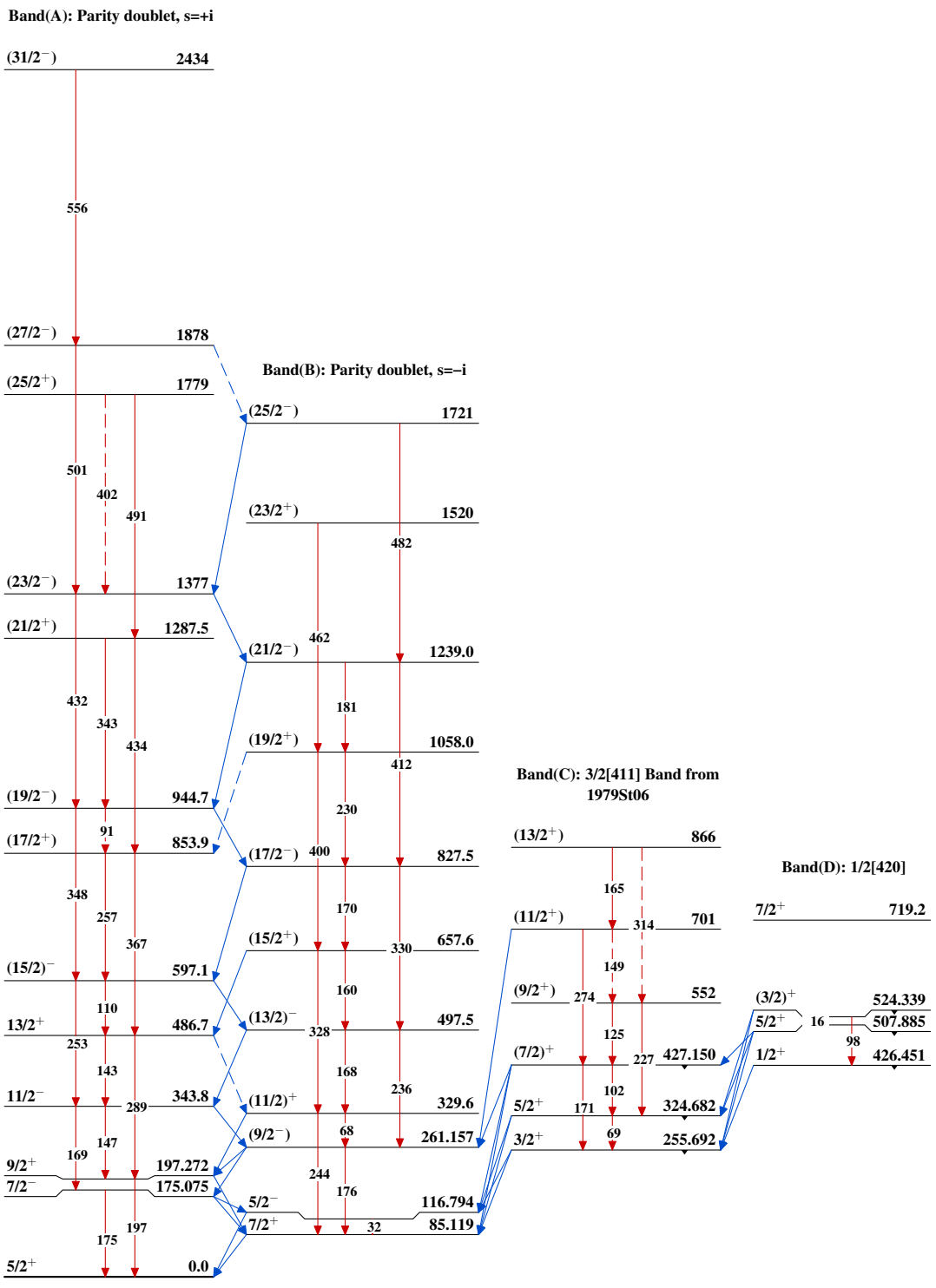
Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



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

Adopted Levels, Gammas



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

Adopted Levels, Gammas (continued)

Band(F): 7/2[404]

$7/2^+$ 781.0

Band(E): 3/2[541]

$11/2^-$ 640.1

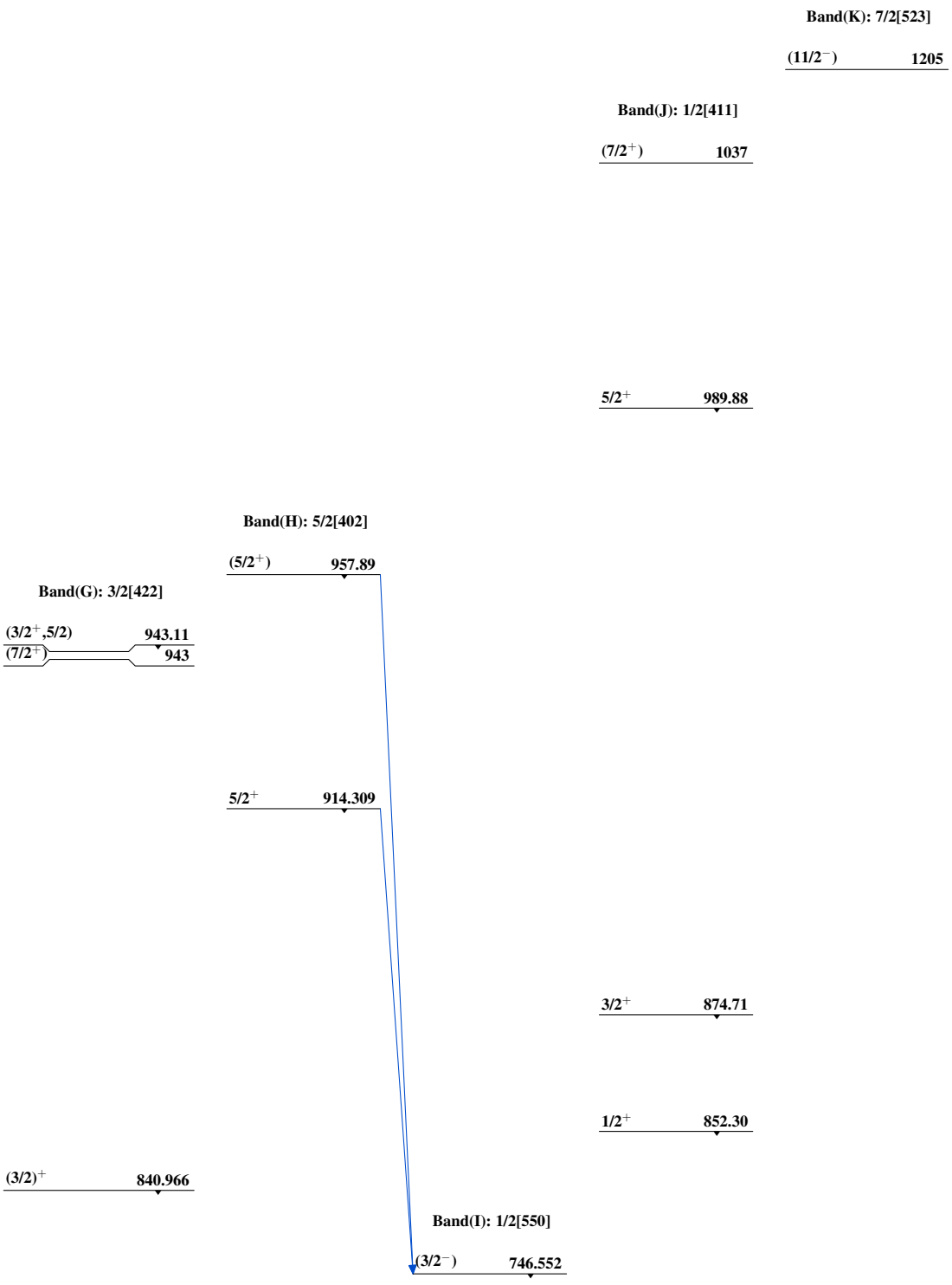
$(5/2)^-$ 577.402

$3/2^-$ 540.372

$(7/2^-)$ 532.057

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

Adopted Levels, Gammas (continued)



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