Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 170, 1 (2020)	16-Aug-2020

Q(β^-)=807.5 *7*; S(n)=5868.40 *13*; S(p)=8594 *26*; Q(α)=−609.1 *19* 2017Wa10

^{153}Sm Levels

Calculations of configurations are discussed by 1971Ma41, 1973Ga29, 1979Ka11, and 1980Gu01; quadrupole band structures by 1989Sh41; possible octupole deformation by 1995Af01; ratios of matrix elements in β- decay by 1994Dz03; and summary of moments 1995Ga38.

Cross Reference (XREF) Flags

A	^{153}Pm β^- decay	F	^{152}Sm(n,γ) E=2 keV:arc	K	^{154}Sm(^{3}He,α)
B	^{153}Sm IT decay (10.6 ms)	G	^{152}Sm(d,p)	L	^{154}Eu(t,α)
C	^{151}Sm(t,p)	H	^{152}Sm(α,^{3}He)	M	(HI,xnγ)
D	^{152}Sm(n,γ) E=th	I	^{154}Sm(p,d)		
E	^{152}Sm(n,γ) E=th: two γ cascade	J	^{154}Sm(d,t),(pol d,t)		

E(level)†	J$^\pi$‡@	T$_{1/2}$#	XREF	Comments
0.0&	3/2$^+$	46.284 h *4*	AB DEFG IJ M	%β^-=100 μ=−0.0216 *1*; Q=+1.30 *12* <r^2>$^{1/2}$=5.0925 fm 68 (2013An02,evaluation). J$^\pi$: J from atomic-beam, magnetic resonance (1960Ca05); π=+ from M1 mult of 414.9 γ from 1/2$^+$ state, also L=2 and L+1 (from A$_y$) in (pol d,t). J$^\pi$: 1971Be41, 1972Ka07, and 1973Ga29 estimated the configuration to include 3/2[651] (62% to 84%) and 3/2[402] (15% to 22%). T$_{1/2}$: Thirteen of the fifteen available values with uncertainties <1.0 h separate into two non-overlapping groups, namely: the six higher values of 47.0 h *3* (1954Le08), 47.1 h *1* (1958Co76), 46.8 h *1* (1961Wy01), 47.1 h *1* (1962Ca24), 46.75 h *9* (1970Ch09), 46.70 h *5* (1989Ab05); the seven lower values 46.2 h *1* (1961Gr18), 46.27 h *1* (1987Co04), 46.2853 h *14* (1992Un01,1994Co02,2002Un02), 46.285 h *4* (1997BoZZ,1998Bo18), 46.274 h *7* (1999Sc12, which replaces 46.29 h *4* of 1996ScZX), 46.28 h *7* (2004Sc04), 46.34 h *22* (2009Fr09); and two intermediate values 46.5 h *5* (1963Ho15), 46.44 h *8* (1971Ba28). For this whole set of fifteen values, the weighted average is 46.2854 *56* with a reduced-χ^2 of 19. The evaluator has chosen to use the three values from metrology laboratories: 1998Bo18, 1999Sc12, and 2002Un02 (also 1992Un01 and 1994Co02). The weighted average is 46.2849 *13* and the reduced-χ^2=1.25. In this average the value of 2002Un02 has a relative weight of 86%. Adopted here is the rounded-off weighted average with uncertainty incresed to reduce the 86% weight to 50%. T$_{1/2}$: others: 47 h *1* (1942Ku03), 46 h (1946Mi06), 46.5 h *10* (1952Ru10), 46.7 h *16* (1958Gu09), 45 h *8* (1960Wi10), 45.6 h *16* (1989Po21), 45.8 h *17* (1999Po32), 46.51 h *24* (evaluation,2004Wo02). μ: −0.0216 *1* from 2014StZZ compilation, based on measurement of 1968Wa10 (by atomic bean magnetic resonance). Other values in 2014StZZ: −0.0257 *14* (1984Ea02) and −0.0209 *28* (1990En01) (same methods as listed for Q moments below for the respective references). Q: +1.30 *12* from 2016St14 compilation, based on measurement of 1990En01 (laser resonance fluorescence spectroscopy). 2016St14 also quotes +1.26 *13* based on 1984Ea02 (atomic beam with laser fluorescence spectroscopy).

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Adopted Levels, Gammas (continued)

^{153}Sm Levels (continued)

E(level)†	Jπ‡@	$T_{1/2}$#	XREF	Comments
				Δ<r²>(^{152}Sm−^{153}Sm)=0.0963 *16* fm² (1984Ea02) and 0.099 fm² (1990En01).
7.536& *3*	5/2⁺		AB DE G IJK	The small value of the energy spacing in the ground-state band results from the expected strong Coriolis coupling between the ground-state band and higher lying positive-parity orbitals, principally 5/2[642] and 1/2[660], arising from the $i_{13/2}$ spherical shell-model state (1971Bu16). Jπ: From band structure and L=2 in (p,d) and (^{3}He,α).
35.844a *3*	3/2⁻	<0.1 ns	A DEFG IJ	Jπ: From L=1 from (d,t) and (p,d) and E1 γ to 5/2⁺ level.
53.534& *3*	7/2⁺		AB D G IJK M	Jπ: From M1 γ component to 5/2⁺ level, E2 to 3/2⁺, and L=4 and L-1 (from A_y) in (pol d,t).
65.469& *7*	9/2⁺		AB D G IJK M	Jπ: From L=4 from (p,d) and L=4 and L+1 (from A_y) in (pol d,t).
90.875a *3*	5/2⁻	0.52 ns *16*	A CDE G IJ	Jπ: From L=3 from (p,d) and E1 γ's to 3/2⁺ and 7/2⁺ levels.
98.39b *10*	11/2⁻	10.6 ms *3*	B GHIJKLM	%IT=100 Jπ: From L=5 from (p,d), and (α,^{3}He) and L=5 and L+1 (from a_y) in (pol d,t). $T_{1/2}$: From 1971KiZC in ^{153}Sm IT decay.
112.955? *8*			D	
126.412 *9*	(1/2⁻)		DE	Jπ: From γ's to or from 1/2⁻, 1/2⁺, and 5/2⁻ levels.
127.298c *3*	3/2⁻		A DEFG IJ	Jπ: From L=1 (p,d), E1 γ to 5/2⁺ level, L=1 and L+1 (from A_y) in (pol d,t).
174.173a *5*	7/2⁻		A D G IJ	Jπ: From L=3 in (p,d) and E1 γ to 9/2⁺ level.
182.902c *4*	5/2⁻	17 ns *7*	A CDE G IJK	Jπ: From L=0 in (t,p) from 5/2⁻ target. Also L=3 in (p,d) and E1 γ to 3/2⁺ level.
188.8& *7*	(11/2⁺)		I M	Jπ: From L=6 in (p,d), γ to 7/2⁺ member of ground-state band, and expected band structure.
194.655? *14*	(5/2⁺)		A D	E(level): Comment in 1997GoZN suggests that their re-analysis of (n,γ) data does not support this level. Jπ: From (n,γ) data J=1/2, 3/2, or 5/2. Possible assignment as 5/2[642] Nilsson state.
195.8& *9*	(13/2)⁺		GHIJK M	Jπ: From L=6 in (α,^{3}He), L=6 and L+1 (from A_y) in (pol d,t).
237 *5*			G	
246.2b *8*	(13/2⁻)		LM	Jπ: From γ to 11/2⁻ level and expected band structure.
262.331 *6*	(7/2)⁺		A D	Jπ: From M1,E2 γ to 5/2⁺ level and γ's to 3/2⁺ and 9/2⁺. Possibly the 7/2⁺ member of the 5/2[642] band.
265.927c *11*	(7/2)⁻		A D GHIJ	XREF: G(262)H(261)I(263)J(262). Jπ: From L=3 in (α,^{3}He), L=3 and L+1 (from A_y) in (pol d,t).
267a	9/2⁻		IJK	Jπ: From L=5 in (p,d) and (^{3}He,α), L=5 and L-1 (from A_y) in (pol d,t).
276.713 *5*	(3/2)⁺		A D IJ	Jπ: From M1(+E2+E0) to 3/2⁺ level. Level at this energy in (d,t) is assigned (5/2⁺) and L=(4,5) in (p,d), so there may be two levels near this energy.
321.113d *7*	(3/2)⁺		A DEFG IJK	Jπ: From L=2 in (d,t) and (p,d) and primary γ from 1/2⁺ neutron-capture state. Jπ: Calculations of 1973Ga29 give 66%, 3/2[402], 20%, 3/2[651], and 10% vibrational state based on 1/2[400].
356.686d *7*	(5/2⁺)		A D G	Jπ: From γ's to 3/2⁺, 3/2⁻ and 9/2⁺ levels.
362.286 *10*	(5/2)⁺		A cD G IJ	XREF: c(369). Jπ: From M1 γ's to 3/2⁺ and 5/2⁺ levels, γ to 9/2⁺ level and L=2 from (p,d) and (d,t). L=(0) in (t,p) in conflict with π. Jπ: 1979Ka11 suggest assignment of 5/2⁺,5/2[642].

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Adopted Levels, Gammas (continued)

^{153}Sm Levels (continued)

E(level)[†]	Jπ[‡@]	XREF	Comments
369 *1*	(5/2⁻)	C	Jπ: L=(0) in (t,p) from 5/2⁻ target. E(level): the level in (t,p) seems different from that populated in (p,d) and (^{3}He,α) with L=5.
369 *2*	(9/2⁻,11/2⁻)	G IJK	Jπ: From L=5 in (p,d) and (^{3}He,α). Assignment of (7/2⁺) in (d,t) seems erroneous. E(level): see comment for 369, (5/2⁻) level.
404.134[e] *14*	1/2⁻	DE J	Jπ: From E1 γ to 3/2⁺ level, γ from 1/2⁺, and (d,t) data.
405.468[e] *14*	3/2⁻	DEFg IJK	XREF: g(409). Jπ: From L=1 in (p,d), E1 γ to 5/2⁺ level and L=1 and L+1 (from A_y) in (pol d,t).
413.0[b] *6*	(15/2⁻)	g LM	XREF: g(409). Jπ: From γ's to 11/2⁻ and (13/2⁻) levels and expected band structure.
414.928[f] *13*	1/2⁺	DEFG IJ	XREF: G(420). Jπ: From L=0 in (p,d) and (d,t). Jπ: Calculation of 1973Ga29 gives 42%, 1/2[400], 34%, 1/2[660], and 20% vibrational state based on 3/2[402].
417.2[&] *12*	(17/2)⁺	H K M	XREF: H(411). Jπ: From γ to (13/2⁺) member of ground-state band.
418.01 *8*		D	
424.8[&] *9*	(15/2)⁺	M	Jπ: From γ's to (11/2⁺) and (13/2⁺) members of ground-state band.
447	(9/2)⁻	G IJK	Jπ: From L=5 in (p,d), 9/2⁻ in (d,t).
447.05[d] *3*	(7/2)⁺	D	Jπ: From γ's to (3/2)⁺ and 7/2⁺ levels and expected band structure. Jπ: 1979Ka11 suggest an alternate band assignment of 7/2⁺,5/2[642].
450.051[h] *11*	5/2⁻	A CD G J	Jπ: L=0 in (t,p) from 5/2⁻ target.
481.092[f] *12*	(3/2)⁺	DEFG IJ	Jπ: From L=2 in (p,d), (E1) γ to 5/2⁻ level, and expected band structure, 3/2⁺ in (d,t).
495[a]	(11/2)⁻	G IJK	Jπ: From L=5 in (p,d) and expected band structure, 11/2⁻ in (d,t).
508	(7/2,9/2)	G IJK	Jπ: Conflict between 7/2⁻ assigned in (d,t) and L=(4) in (p,d).
524.360 *17*	(5/2)⁻	D GHIJK	XREF: H(528). Jπ: From L=3 in (p,d), (d,t), and (α,^{3}He) and γ's to 3/2⁺, 3/2⁻, (7/2⁻), and (7/2⁺) levels. 7/2⁻ in (d,t) is inconsistent.
549[h] *2*	(7/2⁻)	C G IJ	Jπ: L=(2) in (t,p) from 5/2⁻ target; L=(3,4) in (p,d); band member. 9/2⁺ assignment in (d,t) seems erroneous since there is no evidence for a separate level near this energy. 2005Bu21 point out that L(d,t)=4 may be questionable for a weak group, L=3 may be equally valid giving 7/2⁻ for L+1/2 in (pol d,t)
584.31? *4*		D	
597.7[b] *9*	(17/2⁻)	LM	Jπ: From γ's to (15/2)⁻ and (13/2⁻) levels and expected band structure.
602		J	
630.23 *4*	3/2⁻	A DEFG J	Jπ: 3/2⁻ from E1 γ from 1/2⁺ and 3/2⁻ in (d,t). Additional information 1.
647.9 *10*	1/2,3/2,5/2⁺	D J	Jπ: Fed by primary γ in (n,γ).
654 *5*		I k	XREF: k(660).
665 *5*		G k	XREF: k(660).
695.79[g] *4*	1/2⁻	DEFG IJ	Jπ: From L=1 in (p,d) and (d,t), L=1 and L-1 (from A_y) in (pol d,t). Jπ: Calculation of 1973Ga29 gives 52%, 1/2[521], 25% vibrational state based on 3/2[521] and 12% vibrational state based on 5/2[523].
698 *10*	(11/2⁺,13/2⁺)	H	Jπ: From L=(6) in (α,^{3}He).
728	5/2⁻	G I K	Jπ: From L=3, 5/2⁻ in (p,d) and (^{3}He,α).
733.4[&] *14*	(21/2)⁺	M	Jπ: From γ to (17/2)⁺ level and expected band structure.
734.7 *8*	1/2⁺	G IJ	Jπ: From L=0 in (p,d) and (d,t).
734.876 *23*	(3/2⁺,5/2)	DEF	Jπ: From γ's to 3/2⁺, 3/2⁻, and 7/2⁺ levels.
745	(9/2⁻,11/2⁻)	K	
750.30[g] *5*	(3/2)⁻	DEFG IJ	E(level): From γ's to 3/2⁺, 5/2⁺, and 5/2⁻ levels and expected band structure.

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Adopted Levels, Gammas (continued)

^{153}Sm Levels (continued)

E(level)[†]	Jπ[‡@]	XREF	Comments
			Also, L=0+1 in (p,d), 3/2⁻ in (d,t).
764.0[&] *12*	(19/2)⁺	M	Jπ: From γ to (15/2)⁺ level and expected band structure.
766	5/2⁺	G IJ	Jπ: From L=2 in (p,d), L=2 and L+1 (from A_y) in (pol d,t).
778	(5/2)⁺	G IJ	Jπ: From L=2 in (p,d), 5/2⁺ in (d,t).
788.92 *5*	3/2⁺	DEFG IJ	Jπ: From L=2 in (p,d), L=2 and L-1 (from A_y) in (pol d,t).
796[g] *5*	(5/2)⁻	GHIJK	XREF: H(793).
			Jπ: From L=3 in (p,d) and (α,^{3}He) and expected band structure, 5/2⁻ in (d,t).
799.6[b] *10*	(19/2)⁻	M	Jπ: From γ's to (17/2)⁻ and (15/2)⁻ levels and expected band structure.
816		I	Jπ: L=(2,3) in (p,d).
841		G	
862	(3/2⁺,5/2⁺)	I	Jπ: From L=(2) in (p,d).
885	(5/2⁺)	G IJ	XREF: G(881).
			Jπ: From L=(2,3) in (p,d) and (5/2⁺) assignment in (d,t).
903	(5/2)⁻	IJK	Jπ: From L=3 in (p,d), 5/2⁻ in (d,t).
916.87? *18*	(3/2⁺)	DEF IJ	Jπ: From L=(2) in (p,d) and feeding by primary γ in (n,γ).
922[g]	(7/2⁻)	G IJ	Jπ: From L=(3) in (p,d) and expected band structure.
963	(5/2)⁺	G IJK	Jπ: From L=2 in (p,d) and 5/2⁺ assignment in (d,t).
984.03 *16*	(3/2)⁻	DEFG IJ	Jπ: From L=1 in (p,d), feeding by primary γ in (n,γ), and 3/2⁻ assignment in (d,t).
984.2 *4*	3/2⁺	D	
1000[g]	(9/2⁻)	G I K	Jπ: Proposed band structure requires 9/2⁻, but L=3 in (^{3}He,α) requires 5/2⁻, 7/2⁻.
1004.3 *10*		D	
1010	(5/2⁻,7/2⁻)	I	Jπ: L=(3) in (p,d).
1017.9[b] *11*	(21/2⁻)	M	Jπ: From γ's to (19/2⁻) and (17/2⁻).
1018.3 *10*	(5/2⁻)	D I L	XREF: L(1025).
			Jπ: L=(3) in (p,d) and γ from 1/2⁺.
1061 *2*	5/2⁻	C G IJ	XREF: I(1059).
			E(level): From (t,p).
			Jπ: L=0 in (t,p) from 5/2⁻ target.
1079 *2*	5/2⁻	C G IJK	E(level): From (t,p).
			Jπ: L=0 in (t,p) from 5/2⁻ target. Also L=3 in (p,d). 7/2⁻ assignment in (d,t) is inconsistent.
1086	(5/2⁻,7/2⁻)	I l	XREF: l(1089).
			Jπ: L=(3) in (p,d).
1097	(3/2)⁻	IJ l	XREF: l(1089).
			Jπ: From L=1 in (p,d) and (3/2⁻) assignment in (d,t).
1098.8 *3*	1/2⁺,3/2⁺	EF	
1106.74 *23*	(3/2⁺)	D Fg ijk	XREF: g(1110)j(1109)k(1105).
			Jπ: From L=(2,3) in (p,d), (3/2⁺) assignment in (d,t), and feeding by primary γ in (n,γ).
1110.71 *24*	1/2⁺,3/2⁺	DEFg ijk	XREF: g(1110)j(1109)k(1105).
			Jπ: From feeding by primary γ in average-resonance capture (n,γ).
1116	5/2⁻,7/2⁻	I	Jπ: From L=3 in (p,d).
1118 *30*	11/2⁺,13/2⁺	H	Jπ: From L=6 in (α,^{3}He).
1132	5/2⁻,7/2⁻	g I KL	XREF: g(1139)K(1126).
			Jπ: From L=3 in (p,d).
1138.1[&] *16*	(25/2⁺)	M	Jπ: From γ to (21/2⁺) and expected band structure.
1140 *2*	5/2⁻	C g IJ	XREF: g(1139)I(1139)J(1138).
			E(level): From (t,p).
			Jπ: L=0 in (t,p) from 5/2⁻ target.
1149		IJK	XREF: J(1144).
			Jπ: L=(2,3) in (p,d), (5/2⁻) in (d,t).
1155	(3/2⁺,5/2⁺)	I l	XREF: l(1158).
			Jπ: L=(2) in (p,d).
1162	(1/2⁻,3/2)	g IJ l	XREF: g(1168)l(1158).
			Jπ: Conflict between L=1 in (p,d) and (3/2⁺) assignment in (d,t).

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Adopted Levels, Gammas (continued)

^{153}Sm Levels (continued)

E(level)[†]	Jπ[‡][@]	XREF	Comments
1163.5 *4*	(1/2,3/2)	E	
1170.89 *11*	1/2⁻,3/2⁻	DEFg	XREF: g(1168). Jπ: From average-resonance capture (n,γ).
1173	3/2⁺,5/2⁺	IJ	Jπ: From L=2 in (p,d).
1197	(7/2)⁻	G IJ L	XREF: G(1201)L(1201). Jπ: From L=3 in (p,d) and 7/2⁻ assignment in (d,t).
1199.3[&] *14*	(23/2⁺)	M	Jπ: From γ's to (19/2⁺) and (21/2⁺).
1209.0 *10*	1/2⁺	F IJ	Jπ: From L=0 component in (p,d) and (1/2⁺) assignment in (d,t).
1219	(5/2⁻,7/2⁻)	I	Jπ: From L=(3) in (p,d).
1223.19 *22*	(3/2)⁺	DEFg J	XREF: g(1229). Jπ: From average-resonance capture (n,γ), 3/2⁺ in (d,t).
1235	(7/2)⁺	g IJK	XREF: g(1229). Jπ: From L=4 in (p,d) and 7/2⁺ assignment in (d,t).
1250	(5/2)⁻	IJ l	XREF: l(1254). Jπ: From L=3 in (p,d) and 5/2⁻ assignment in (d,t).
1251.6[b] *12*	(23/2⁻)	M	Jπ: From γ's to (21/2⁻) and (19/2⁻) levels.
1261	(11/2)⁻	G IJKl	XREF: l(1254). Jπ: From L=5 in (p,d) and (^{3}He,α) and (11/2⁻) assignment in (d,t).
1263	(3/2⁺)	J	Jπ: From (3/2⁺) assignment in (d,t).
1269	5/2⁻,7/2⁻	I	Jπ: From L=3 in (p,d).
1276	(1/2⁻,3/2⁻)	hI	XREF: h(1303). Jπ: From L=(1) in (p,d).
1279.5 *10*	(3/2⁺)	F h J	XREF: h(1303). Jπ: From (3/2⁺) assignment in (d,t).
1289	(7/2⁺)	ghIJ	XREF: g(1295)h(1303). Jπ: From L=(4) in (p,d) and (7/2⁺) assignment in (d,t).
1297	(11/2)⁻	ghIJKL	XREF: g(1295)h(1303). Jπ: From L=5 in (p,d) and (^{3}He,α), 11/2⁻ in (d,t).
1310	1/2⁺	GhIJ	XREF: h(1303). Jπ: From L=0 in (p,d).
1319	(1/2⁺)	ghIJ	XREF: g(1327)h(1303). Jπ: From L=(0) in (p,d).
1322.04 *16*	1/2⁻,3/2⁻	DEFg	XREF: g(1327). Jπ: From feeding by primary γ in average-resonance capture (n,γ).
1343.10 *18*	(3/2)⁺	DEFG IJ L	XREF: G(1346)L(1336). E(level): From (n,γ) thermal; other: 1322.1 *9* from (n,γ) resonance. Jπ: From feeding by primary γ in average-resonance capture (n,γ), L=2 in (p,d), 3/2⁺ in (d,t).
1352	(11/2)⁻	IJK	Jπ: From L=5 in (p,d) and (11/2⁻) assignment in (d,t).
1361.04 *25*	1/2⁻,3/2⁻	EF I	Jπ: From feeding by primary γ in average-resonance capture (n,γ). L=(2) in (p,d) for 1359 is inconsistent.
1362	(3/2)⁺	g IJ l	XREF: g(1365)l(1368). Jπ: From L=2 in (p,d) and 3/2⁺ assignment in (d,t).
1362.7 *5*	1/2⁻,3/2⁻	D g l	XREF: g(1365)l(1368). Jπ: From feeding by primary γ in average-resonance capture (n,γ).
1365.35 *23*	(3/2)	E	
1376	(11/2)⁻	IJKl	XREF: l(1368). Jπ: From L=5 in (p,d) and 11/2⁻ assignment in (d,t).
1383 *3*	(5/2⁻)	C	Jπ: L=(0) in (t,p) from 5/2⁻ target.
1392.9 *4*	(1/2,3/2)	DE	
1396.6 *4*	3/2⁺,5/2⁺	DEFG I	XREF: I(1399). Additional information 2. Jπ: From feeding by primary γ in (n,γ), L=2 in (p,d).
1400.22 *21*	(5/2⁻)	CDE J L	XREF: J(1397)L(1404). Jπ: L=(0) in (t,p) from 5/2⁻ target.

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Adopted Levels, Gammas (continued)

^{153}Sm Levels (continued)

E(level)[†]	J^{π}[‡][@]	XREF	Comments
1420	$(5/2)^+$	iJk	J^{π}: From L=2 in (p,d) and $5/2^+$ assignment in (d,t).
1422.36 *24*	$1/2^+,3/2^+$	EF i k	J^{π}: From feeding by primary γ in average-resonance capture (n,γ).
1433	$(5/2^-,7/2^-)$	g IjKl	XREF: l(1439). J^{π}: From L=3 in (^{3}He,α).
1435.90 *24*	$1/2^+,3/2^+$	EFg j l	XREF: l(1439). J^{π}: From feeding by primary γ in average-resonance capture (n,γ).
1441	$1/2^+$	IJ l	XREF: l(1439). J^{π}: From L=0 in (p,d).
1448.3 *5*	$(3/2)^-$	EF IJ	J^{π}: From L=1 in (p,d), $(3/2^-)$ in (d,t).
1455	$(5/2)^-$	IJ	J^{π}: From L=3 in (p,d), $5/2^-$ in (d,t).
1463	$(7/2)^-$	IJK	J^{π}: From L=3 in (p,d), $7/2^-$ in (d,t).
1469	$(5/2^-,7/2^-)$	G I	J^{π}: From L=(3) in (p,d).
1478	$3/2^+,5/2^+$	I	J^{π}: From L=2 in (p,d).
1486.15 *20*	$(3/2^+)$	EFg IJ L	XREF: g(1491). J^{π}: From L=(2,3) in (p,d) and $3/2^+$ assignment in (d,t).
1494	$(9/2)^-$	g IJK	XREF: g(1491). J^{π}: From L=5 in (^{3}He,A) and $9/2^-$ in (d,t).
1500.0[b] *13*	$(25/2^-)$	M	J^{π}: From γ's to $(23/2^-)$ and $(21/2^-)$ levels.
1505	$3/2^+,5/2^+$	g I k	XREF: g(1506). J^{π}: From L=2 in (p,d) and (^{3}He,α).
1513.73 *18*	$(3/2^+)$	EFg IJkl	XREF: g(1506)l(1516). J^{π}: From L=(2) in (p,d), $3/2^+$ in (d,t).
1527.09 *15*	$(1/2^-,3/2^-)$	DEF I l	XREF: l(1516). J^{π}: From feeding by primary γ in average-resonance capture (n,γ). This conflicts with L=2 in (p,d).
1532	$(5/2)^+$	g IJK	XREF: g(1540). J^{π}: From L=2 in (p,d) and (^{3}He,α), $5/2^+$ in (d,t).
1539.25 *22*	$1/2^+,3/2^+$	EF	J^{π}: From feeding by primary γ in average-resonance capture (n,γ).
1542	$(5/2)^+$	g IJ	XREF: g(1540). J^{π}: From L=2 in (p,d), $5/2^+$ in (d,t).
1545	$3/2^+,5/2^+$	I L	J^{π}: From L=2 in (p,d).
1552	$3/2^+,5/2^+$	I	J^{π}: From L=2 in (p,d).
1556	$(3/2^-)$	g IJ	XREF: g(1563). J^{π}: From L=(1) in (p,d), $3/2^-$ in (d,t).
1557.38 *16*	$1/2^+,3/2^+$	DE g	XREF: g(1563). J^{π}: From feeding by primary γ in average-resonance capture (n,γ).
1566	$(5/2)^+$	g IJKL	XREF: g(1563)L(1574). J^{π}: From L=2 in (p,d), $5/2^+$ in (d,t).
1590	$(5/2)^+$	IJ	J^{π}: From L=2 in (p,d), $5/2^+$ in (d,t).
1599	$(3/2^+,5/2)$	g Ij l	XREF: g(1603)j(1603)l(1603). J^{π}: From L=(2) in (p,d).
1605	$(5/2)^+$	g Ij l	XREF: g(1603)j(1603)l(1603). J^{π}: From L=2 in (p,d), $5/2^+$ in (d,t).
1614	$(5/2)^+$	g IJ	XREF: g(1612). J^{π}: From L=2 in (p,d), $(5/2^+)$ in (d,t).
1620	$3/2^+,5/2^+$	g I	XREF: g(1624). J^{π}: L=2 in (p,d).
1622.2[&] *19*	$(29/2^+)$	M	J^{π}: From γ to $(25/2^+)$ level and expected band structure.
1623	$(1/2^+)$	g IJ	XREF: g(1624). J^{π}: From L=0 component in (p,d) for 1623 + 1632 peak.
1625.44 *22*	(1/2,3/2)	E	
1632	$(5/2)^+$	g IJ	XREF: g(1624). J^{π}: From L=2 component in (p,d) for 1623 + 1632 peak, $5/2^+$ in (d,t).
1638	$3/2^+,5/2^+$	g Ij l	XREF: g(1643)j(1642)l(1643). J^{π}: From L=2 in (p,d), $(5/2^+)$ in (d,t) for 1642.

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Adopted Levels, Gammas (continued)

^{153}Sm Levels (continued)

E(level)[†]	Jπ[‡@]	XREF	Comments
1645	3/2+,5/2+	g Ij l	XREF: g(1643)j(1642)l(1643). Jπ: From L=2 in (p,d), (5/2+) in (d,t) for 1642.
1652	(3/2+,5/2+)	I	Jπ: From L=(2) in (p,d).
1659		I	
1660.6 *4*	(3/2)+	E IJ L	Jπ: From L=2 in (p,d), 3/2+ in (d,t).
1675.8 *5*	(3/2)−	F IJ	Jπ: From L=1 in (p,d), 3/2− in (d,t).
1678	5/2−,7/2−	g I	XREF: g(1679). Jπ: From L=3 in (p,d).
1684	(3/2)+	g IJ l	XREF: g(1679)l(1691). Jπ: From L=2 in (p,d), 3/2+ in (d,t).
1697	(3/2+)	J l	XREF: l(1691). Jπ: from (d,t).
1706	(5/2)+	IJ	Jπ: From L=2 in (p,d), (5/2+) in (d,t).
1708 *30*	11/2+,13/2+	H	Jπ: From L=6 in (α,^{3}He).
1716	(5/2−)	G IJ	Jπ: From L=(2,3) in (α,^{3}He) and 5/2− assignment in (d,t).
1722.2[&] *16*	(27/2+)	M	Jπ: From γ's to (23/2+) and (25/2+) levels.
1723.5 *5*	1/2,3/2(+)	F IJ l	XREF: l(1731). Jπ: From feeding by primary γ in average-resonance capture (n,γ). L=(2) in (p,d) suggests 3/2(+).
1737.5 *4*	1/2−,3/2−	Fg IJ l	XREF: g(1742)l(1731). Jπ: From feeding by primary γ in average-resonance capture (n,γ). Also, L=(2,3) in (p,d).
1739.62 *14*	(3/2)	E	
1746	(5/2−,7/2−)	g IJ	XREF: g(1742). Jπ: L=(3) in (p,d).
1752.62 *19*	1/2,3/2	EFg J l	XREF: g(1751)l(1756). Jπ: From feeding by primary γ in average-resonance capture (n,γ).
1759	(5/2−,7/2−)	g Ij l	XREF: g(1751)j(1760)l(1756). Jπ: L=(3) in (p,d).
1762	(5/2−,7/2−)	Ij	XREF: j(1760). Jπ: From L=(3) in (p,d). 5/2+ in (d,t) for 1760.
1763.0[b] *14*	(27/2−)	M	Jπ: From γ's to (23/2−) and (25/2−) levels.
1768.79 *21*	(1/2,3/2)	E	
1775	(3/2−)	G IJ	Jπ: From L=(1) in (p,d), 3/2− in (d,t).
1788.3 *3*	(3/2)+	F IJ	Jπ: From L=2 in (p,d), (3/2+) in (d,t).
1789.95 *20*	(3/2)	E	
1794	(5/2−,7/2−)	G IJ l	XREF: l(1798). Jπ: From L=(3) in (p,d). 5/2+ in (d,t) is inconsistent.
1798	(3/2+,5/2+)	I l	XREF: l(1798). Jπ: From L=2 in (p,d).
1808	(5/2)+	g IJ	XREF: g(1815). Jπ: From L=2 in (p,d), 5/2+ in (d,t).
1818	(1/2+)	g IJ	XREF: g(1815). Jπ: From L=0 component in (p,d).
1822	(3/2+,5/2+)	I	Jπ: From L=(2) in (p,d).
1826	(5/2)+	g IJ	XREF: g(1830). Jπ: From L=2 in (p,d), 5/2+ in (d,t).
1833.09 *22*	(3/2)+	E g Ij L	XREF: g(1830)j(1838). Jπ: From L=2 in (p,d), γ to 1/2− in (n,γ) E=th: two γ cascade. Additional information 3.
1841.4 *3*	(5/2)+	g Ij l	XREF: g(1842)j(1838)l(1847). Jπ: From L=2 in (p,d), 5/2+ in (d,t) for 1838.
1845	3/2+,5/2+	g I l	XREF: g(1842)l(1847). Jπ: From L=2 in (p,d).
1854	(3/2)+	IJ l	XREF: l(1847).

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Adopted Levels, Gammas (continued)

^{153}Sm Levels (continued)

E(level)[†]	Jπ[‡][@]	XREF	Comments
			Jπ: From L=2 in (p,d), (3/2+) in (d,t).
1862	(3/2+,5/2+)	G I	Jπ: From L=(2) in (p,d).
1873	(1/2+)	IJ L	Jπ: From L=0 component in (p,d).
1876.2 *3*	(3/2)	E	
1884	(5/2−,7/2−)	G IJ	Jπ: L=(3) in (p,d).
1885.40 *24*	(1/2,3/2)	E	
1892	(3/2)+	IJ	Jπ: From L=2 in (p,d), (3/2+) in (d,t).
1902		G I	
1908	(1/2+)	IJ L	Jπ: From L=(0) component in (p,d), 1/2+ in (d,t).
1916	(3/2)+	IJ	Jπ: From L=2 in (p,d), (3/2+) in (d,t).
1925.1 *3*	3/2+,5/2+	DE g I	XREF: g(1931). Jπ: From feeding by primary γ in (n,γ), L=2 in (p,d).
1933.52 *18*	3/2+,5/2+	DE g IJ	XREF: g(1931). Jπ: From L=2 in (p,d) and feeding by primary γ in (n,γ), 5/2+ in (d,t).
1936.12 *22*	(3/2)	E	
1944	(7/2)−	IJ	Jπ: From L=3 in (p,d), (7/2−) in (d,t).
1951	(5/2−,7/2−)	I	Jπ: From L=(3) in (p,d).
1965	1/2−,3/2−	G IJ	Jπ: From L=1 in (p,d).
1975	1/2+	IJ	Jπ: From L=0 in (p,d).
1986	5/2−,7/2−	g IJ L	XREF: g(1991). Jπ: L=3 in (p,d).
1993		g IJ	XREF: g(1991).
1999		I l	XREF: l(2005).
2007	(5/2−,7/2−)	I l	XREF: l(2005). Jπ: From L=(3) in (p,d).
2015		J	
2023	(3/2+,5/2+)	g IJ	XREF: g(2029). Jπ: From L=(2) in (p,d).
2030		g I	XREF: g(2029).
2037.54 *23*	(1/2,3/2)	E	
2037.8[b] *16*	(29/2−)	M	Jπ: From γ to (25/2−) level.
2040	(5/2−)	IJ	Jπ: From L=(3) in (p,d), , (5/2−) in (d,t).
2048	(5/2−)	IJ L	Jπ: From L=(3) in (p,d), , (5/2−) in (d,t).
2053	(5/2−,7/2−)	I	Jπ: From L=(3) in (p,d).
2062	(3/2+,5/2+)	I	Jπ: From L=(2) in (p,d).
2070	(3/2)+	g IJ	XREF: g(2076). Jπ: From L=2 in (p,d), (3/2+) in (d,t).
2080	3/2+,5/2+	IJ	Jπ: L=2 in (p,d).
2084	(3/2+,5/2+)	I l	XREF: l(2090). Jπ: From L=(2) in (p,d).
2091.00 *22*	(3/2)+	E IJ l	XREF: l(2090). Jπ: From L=2 in (p,d), 3/2+ in (d,t).
2097	3/2+,5/2+	I l	XREF: l(2090). Jπ: From L=2 in (p,d).
2106	(3/2)+	IJ	Jπ: From L=2 in (p,d), 3/2+ in (d,t).
2111.16 *21*	(3/2)	E	
2114	3/2+,5/2+	I L	Jπ: From L=2 in (p,d).
2122	(5/2−,7/2−)	G IJ	Jπ: L=(3) in (p,d).
2130	(5/2−)	G IJ	Jπ: From L=3 in (p,d), (5/2−) in (d,t).
2135.3 *4*	3/2+	E I	Jπ: From L=2 in (p,d); 5/2+ less likely from γ to 1/2−.
2142	3/2+,5/2+	G I L	Jπ: From L=2 in (p,d).
2152	(3/2)+	IJ	Jπ: From L=2 in (p,d), (3/2+) in (d,t).
2158.3 *3*	(3/2)	e g l	XREF: e(2158.3)g(2165)l(2169).
2167 *13*		e g l	XREF: e(2158.3)g(2165)l(2169).
2174.8 *3*	(1/2,3/2)	e g l	XREF: e(2158.3)g(2165)l(2169).

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Adopted Levels, Gammas (continued)

^{153}Sm Levels (continued)

E(level)†	Jπ‡@	XREF	Comments
2176.3& *21*	(33/2+)	M	Jπ: From γ to (29/2+) level.
2188 *15*		e g	XREF: e(2191.98)g(2188).
2192.28 *24*	(1/2,3/2)	e g	XREF: e(2191.98)g(2188).
2205 *10*		G L	
2223.5 *4*	(1/2,3/2)	E	
2237.4 *3*	(3/2)	e g l	XREF: e(2237.4)g(2240)l(2239).
2239 *12*		e g l	XREF: e(2237.4)g(2240)l(2239).
2286 *11*		e g	XREF: e(2293.2)g(2286).
2293.6 *4*	(1/2,3/2)	e g	XREF: e(2293.2)g(2286).
2302 *14*		G	
2324.2& *19*	(31/2+)	M	Jπ: From γ to (27/2+) level.
2327.0b *17*	(31/2−)	M	Jπ: From γ to (27/2−) level.
2332 *15*		e g	XREF: e(2334.9)g(2332).
2334.9 *3*	(3/2)	e g	XREF: e(2334.9)g(2332).
2342.03 *19*	(3/2)	e g	XREF: e(2342.03)g(2332).
2355 *15*		G	
2366 *15*		G	
2394 *15*		G L	
2413 *15*		e g	XREF: e(2414.8)g(2413).
2415.2 *4*	(1/2,3/2)	e g	XREF: e(2414.8)g(2413).
2419.5 *3*	(3/2)	e g	XREF: e(2419.5)g(2413).
2428.0 *4*	(3/2)	e g	XREF: e(2427.4)g(2413).
2447.4 *3*	(1/2,3/2)	e g	XREF: e(2446.9)g(2456).
2456 *11*		e g	XREF: e(2446.9)g(2456).
2461.07 *25*	(3/2)	e g	XREF: e(2461.07)g(2456).
2483.7 *4*	(1/2,3/2)	e g	XREF: e(2483.0)g(2484).
2484 *11*		e g	XREF: e(2483.0)g(2484).
2495.0 *4*	(3/2)	de	XREF: d(2496.6)e(2495.0).
2496.6 *12*	1/2,3/2,5/2	de	XREF: d(2496.6)e(2497.02). Jπ: From feeding by primary γ in (n,γ).
2497.16 *22*	(3/2)	de	XREF: d(2496.6)e(2495.0).
2506 *14*		e g	XREF: e(2513.35)g(2506).
2513.36 *24*	(3/2)	e g	XREF: e(2513.35)g(2506).
2534 *11*		e g	XREF: e(2542.72)g(2534).
2542.72 *23*	(3/2)	e g	XREF: e(2542.72)g(2534).
2545.8 *3*	(3/2)	E	
2561 *11*		G	
2575 *15*		G	
2601 *15*		G	
2619 *15*		G	
2634 *15*		G	
2643.41 *25*	1/2,3/2,5/2	DE	Jπ: From feeding by primary γ in (n,γ).
2669 *15*		e g	XREF: e(2671.94)g(2669).
2672.21 *19*	(3/2)	e g	XREF: e(2671.94)g(2669).
2677.8 *4*	(1/2,3/2)	e g	XREF: e(2677.5)g(2669).
2681.14 *22*	3/2	e g	XREF: e(2681.14)g(2685).
2686 *11*		e g	XREF: e(2681.14)g(2685).
2691.67 *18*	(3/2)	e g	XREF: e(2691.51)g(2685).
2699.81 *17*	(3/2)	E	
2710.0 *3*	3/2	e g	XREF: e(2709.6)g(2721).
2714.71 *24*	1/2,3/2	e g	XREF: e(2714.7)g(2721).
2721 *12*		e g	XREF: e(2709.6)g(2721).
2722.71 *24*	3/2	e g	XREF: e(2722.9)g(2721).
2751 *12*		e g	XREF: e(2756.11)g(2751).
2757.07 *23*	(1/2,3/2)	e g	XREF: e(2756.11)g(2751).
2788 *14*		e g	XREF: e(2788.74)g(2788).

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Adopted Levels, Gammas (continued)

^{153}Sm Levels (continued)

E(level)[†]	J$^{\pi}$‡@	XREF	Comments
2788.86 *19*	(3/2)	e g	XREF: e(2788.74)g(2788).
2793.3[&] *23*	(37/2$^+$)	M	J$^{\pi}$: From γ to (33/2$^+$) level.
2812.1 *4*	(1/2,3/2)	E	
2832 *11*		G	
2850.9 *5*	(1/2,3/2)	E	
2858.8 *4*	(1/2,3/2)	E	
2880 *12*		G	
2912 *14*		e g	XREF: e(2921.3)g(2912).
2921.3 *4*	(3/2)	e g	XREF: e(2921.3)g(2912).
2930.9 *3*	(1/2,3/2)	e g	XREF: e(2930.6)g(2944).
2940.3 *4*	(3/2)	e g	XREF: e(2940.3)g(2944).
2944 *14*		G	
2972 *15*		e g	XREF: e(2977.0)g(2972).
2977.2 *3*	3/2	e g	XREF: e(2977.0)g(2972).
2987.4 *4*	(1/2,3/2)	e g	XREF: e(2986.9)g(2994).
2994 *15*		e g	XREF: e(2986.9)g(2994).
2998.3 *4*	(1/2,3/2)	e g	XREF: e(2997.7)g(2994).
3015.39 *24*	(1/2,3/2)	e g	XREF: e(3015.25)g(3021).
3021 *15*		e g	XREF: e(3015.25)g(3021).
3021.4 *3*	(1/2,3/2)	e g	XREF: e(3021.2)g(3021).
3032.7 *4*	(3/2)	e g	XREF: e(3032.7)g(3021).
3039.09 *21*	(3/2)	e g	XREF: e(3038.85)g(3047).
3047 *15*		e g	XREF: e(3038.85)g(3047).
3052.88 *22*	(3/2)	e g	XREF: e(3052.88)g(3047).
3073 *15*		e g	XREF: e(3076.80)g(3073).
3076.94 *24*	(1/2,3/2)	e g	XREF: e(3076.80)g(3073).
3097 *12*		G	
3113 *16*		G	
3127.92 *24*	(1/2,3/2)	e g	XREF: e(3127.92)g(3135).
3135 *12*		e g	XREF: e(3127.92)g(3135).
3158 *14*		G	
3171.99 *22*	(1/2,3/2)	e g	XREF: e(3171.59)g(3187).
3187 *16*		e g	XREF: e(3171.59)g(3187).
3214 *16*		G	
3236 *16*		G	
3246.0 *3*	(1/2,3/2)	e g	XREF: e(3245.7)g(3253).
3253 *16*		e g	XREF: e(3245.7)g(3253).
3268 *16*		e g	XREF: e(3281.1)g(3268).
3281.4 *3*	(3/2)	e g	XREF: e(3281.1)g(3268).
3288.6 *3*	(1/2,3/2)	e g	XREF: e(3288.6)g(3291).
3291 *12*		e g	XREF: e(3288.6)g(3291).
3305.3 *3*	(3/2)	e g	XREF: e(3305.3)g(3316).
3313.69 *23*	(1/2,3/2)	e g	XREF: e(3313.69)g(3316).
3316 *16*		e g	XREF: e(3319.0)g(3316).
3319.3 *4*	(3/2)	e g	XREF: e(3319.0)g(3316).
3341.2 *3*	(3/2)	e g	XREF: e(3341.2)g(3349).
3349 *12*		e g	XREF: e(3341.2)g(3349).
3353.8 *4*	(1/2,3/2)	e g	XREF: e(3353.2)g(3349).
3360.4 *4*	(3/2)	e g	XREF: e(3360.0)g(3361).
3361 *12*		e g	XREF: e(3360.0)g(3361).
3380 *15*		G	
3396 *15*		G	
3414 *15*		e g	XREF: e(3421.5)g(3414).
3421.8 *3*	(1/2,3/2)	e g	XREF: e(3421.5)g(3414).
3467[&] *3*	(41/2$^+$)	M	J$^{\pi}$: From γ to (37/2$^+$) level.
3469 *17*		G	

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Adopted Levels, Gammas (continued)

^{153}Sm Levels (continued)

E(level)[†]	J^{π}[‡@]	XREF	Comments
3501 *17*		G	
3513 *17*		G	
3535.26 *24*	(1/2,3/2)	E	
3558 *17*		G	
3563 *19*		G	
3579 *17*		G	
3601 *19*		G	
3635 *19*		G	
3676 *13*		G	
3716 *17*		G	
3736 *17*		G	
3759 *13*		e g	XREF: e(3763.6)g(3759).
3763.6 *4*	(1/2,3/2)	e g	XREF: e(3763.6)g(3759).
3809 *16*		G	
3834 *13*		G	
3856 *13*		G	
3890 *17*		G	
3913 *17*		G	
3929 *17*		G	
(5868.38 *5*)	$1/2^+$	DEF	E(level): From the least-squares fit on γ ray energies. Additional information 4. J^{π}: From s-wave capture in $J^{\pi}=0^+$ state.

[†] From least-squares fit on γ ray energies or from reaction data.

[‡] For levels from ^{152}Sm(n,γ) E=th: two γ cascades J values were tentatively assigned by 2019Ng02 based on the assumption that all observed cascade transitions are of dipole L=1 type. J=3/2 was adopted for all intermediary levels that decay to J=5/3 levels. For all the other intermediary levels J=1/2,3/2 was adopted.

[#] For excited levels, from 1968Na21 $\gamma\gamma$(t) in ^{153}Pm β- decay, unless otherwise noted.

[@] Many assignments in (d,t) and/or (pol d,t) are from 1997GoZN.

[&] Band(A): 3/2[651]+3/2[402] band.

[a] Band(B): 3/2[521] band. A=10.08, B=0.074.

[b] Band(C): 11/2[505] band. A=12.13, B=−0.089.

[c] Band(D): 3/2[532] band. A=10.35, B=0.062.

[d] Band(E): 3/2[402]+3/2[651] band.

[e] Band(F): 1/2[530] band. The $5/2^-$ member of this band was assigned earlier to 450 level, but now this level is assigned by 2005Bu21 as dominantly 5/2[523] based on (t,p) study.

[f] Band(G): 1/2[400]+1/2[660] band.

[g] Band(H): 1/2[521] band. A=13.6, a=0.33.

[h] Band(I): 5/2[523] band. Dominant configuration for 450 level assigned (2005Bu21) as 5/2[523] based on strong population in (t,p) through L=0 transition from $5/2^-$ ^{151}Sm g.s. with proposed (1983Ma71,1978Gu11) configuration of 5/2[523]+3/2[532]. This supports previous interpretation by 1979Re04 but not tentative $5/2^-$, 1/2[530] assignment in NDS (1998He06) based on earlier proposal (by 1972Ka07) of 405 and 450 level as the $3/2^-$ and $5/2^-$ members, respectively of the 1/2[530] band. However, γ transitions (most likely E1) from 450 level to to 3/2[651] band suggest admixture of K=1/2 band with possible octupole character. See 2005Bu21 for more detailed discussion of the 450 level and its configuration assignment.

Adopted Levels, Gammas (continued)

$\gamma(^{153}Sm)$

For unplaced γ's see $^{152}Sm(n,\gamma)$, $^{152}Sm(n,\gamma)$ two γ cascade, and ^{153}Pm β- decay datasets.
For γ rays from (n,γ) E=th: two γ cascade the doublet levels 126.412, 127.298 and 404.134, 405.468 are unresolved.

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[e]	α[d]	Comments
7.536	5/2$^+$	7.535 *5*	100	0.0	3/2$^+$	M1			E_γ,I_γ: from β^- decay.
35.844	3/2$^-$	28.309 *5*	34 *3*	7.536	5/2$^+$	E1		1.517	α(L)=1.195 *17*; α(M)=0.258 *4* α(N)=0.0560 *8*; α(O)=0.00709 *10*; α(P)=0.000241 *4* I_γ: From $^{152}Sm(n,\gamma)$; other: 23 *4* from ^{153}Pm β- decay.
		35.842 *5*	100 *10*	0.0	3/2$^+$	E1		0.783	α(L)=0.617 *9*; α(M)=0.1329 *19* α(N)=0.0290 *4*; α(O)=0.00379 *6*; α(P)=0.0001398 *20*
53.534	7/2$^+$	45.996 *5*	100 *12*	7.536	5/2$^+$	M1+E2	1.0 *+10−5*	24 *13*	α(L)=19 *10*; α(M)=4.3 *24* α(N)=0.94 *51*; α(O)=0.117 *62*; α(P)=5.7×10^{-4} *19*
		53.534 *5*	52 *5*	0.0	3/2$^+$	E2		25.7	α(K)=3.96 *6*; α(L)=16.86 *24*; α(M)=3.93 *6* α(N)=0.858 *12*; α(O)=0.1053 *15*; α(P)=0.000207 *3* I_γ: From $^{152}Sm(n,\gamma)$; others: 39 *9* from ^{153}Sm IT decay and 21 *2* from ^{153}Pm β- decay.
65.469	9/2$^+$	(11.9)		53.534	7/2$^+$				E_γ: From ^{153}Sm IT decay.
		57.94 *1*	100	7.536	5/2$^+$	(E2)		18.6	α(K)=3.78 *6*; α(L)=11.52 *17*; α(M)=2.69 *4* α(N)=0.587 *9*; α(O)=0.0721 *11*; α(P)=0.0001778 *25*
90.875	5/2$^-$	37.343 *5*	9.0 *9*	53.534	7/2$^+$	E1		0.697	B(E1)(W.u.)=2.4×10^{-4} *+18−9* α(L)=0.550 *8*; α(M)=0.1184 *17* α(N)=0.0259 *4*; α(O)=0.00339 *5*; α(P)=0.0001270 *18* I_γ: From $^{152}Sm(n,\gamma)$; other: 20 *5* from ^{153}Pm β- decay.
		55.031 *8*	6.9 *4*	35.844	3/2$^-$	M1(+E2)	<0.6	11.3 *18*	α(K)=7.5 *6*; α(L)=3.0 *18*; α(M)=0.67 *43* α(N)=0.148 *92*; α(O)=0.019 *12*; α(P)=0.00047 *5* B(M1)(W.u.)=0.0049 *+39−22*; B(E2)(W.u.)<410
		83.339 *5*	66 *5*	7.536	5/2$^+$	E1		0.451	B(E1)(W.u.)=1.6×10^{-4} *+10−5* α(K)=0.379 *6*; α(L)=0.0571 *8*; α(M)=0.01222 *18* α(N)=0.00271 *4*; α(O)=0.000380 *6*; α(P)=1.79×10^{-5} *3*
		90.874 *5*	100 *5*	0.0	3/2$^+$	E1		0.357	B(E1)(W.u.)=1.8×10^{-4} *+11−6* α(K)=0.300 *5*; α(L)=0.0447 *7*; α(M)=0.00957 *14* α(N)=0.00213 *3*; α(O)=0.000299 *5*; α(P)=1.436×10^{-5} *21*
98.39	11/2$^-$	32.9 *1*	100	65.469	9/2$^+$	[E1]		0.996 *17*	α(L)=0.785 *13*; α(M)=0.169 *3* α(N)=0.0369 *6*; α(O)=0.00476 *8*; α(P)=0.000171 *3* B(E1)(W.u.)=3.14×10^{-10} *10* E_γ,I_γ: from IT decay.
112.955?		59.42 *1*	100 *19*	53.534	7/2$^+$				
		105.42 *1*	62 *12*	7.536	5/2$^+$				
126.412	(1/2$^-$)	90.56 *1*	100 *19*	35.844	3/2$^-$				
		126.44 *2*	23 *8*	0.0	3/2$^+$				
127.298	3/2$^-$	36.423 *5*	0.32 *6*	90.875	5/2$^-$	M1(+E2)	≤0.73	29 *24*	α(L)=22 *19*; α(M)=5.2 *44* α(N)=1.13 *95*; α(O)=0.14 *12*; α(P)=0.00150 *24*

Adopted Levels, Gammas (continued)

γ(^{153}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[d]	Comments
								I_γ: From ^{152}Sm(n,γ); other: 1.0 *3* from ^{153}Pm β- decay. Mult.,δ: From intensity balances and TAGS data (1995Gr19).
127.298	3/2$^-$	91.455 *5*	11.5[@] *6*	35.844	3/2$^-$	M1(+E2+E0)	2.7 *6*	α(K)=1.68 *18*; α(L)=0.80 *55*; α(M)=0.18 *13* α(N)=0.041 *28*; α(O)=0.0052 *34*; α(P)=9.1×10^{-5} *28*
		119.763 *5*	43 *2*	7.536	5/2$^+$	E1	0.1688	Mult.: Intensity balances and TAGS data are consistent with pure M1. α(K)=0.1427 *20*; α(L)=0.0206 *3*; α(M)=0.00440 *7* α(N)=0.000982 *14*; α(O)=0.0001400 *20*; α(P)=7.09×10^{-6} *10*
		127.298 *5*	100 *5*	0.0	3/2$^+$	E1	0.1430	α(K)=0.1210 *17*; α(L)=0.01733 *25*; α(M)=0.00371 *6* α(N)=0.000828 *12*; α(O)=0.0001184 *17*; α(P)=6.06×10^{-6} *9*
174.173	7/2$^-$	83.302 *8*	7.6 *15*	90.875	5/2$^-$			
		108.71 *1*	31.5[@] *20*	65.469	9/2$^+$			
		120.64 *1*	16.7 *12*	53.534	7/2$^+$			I_γ: From ^{152}Sm(n,γ); other: 11.6 *20* from ^{153}Pm β- decay.
		138.32 *2*	4.5 *6*	35.844	3/2$^-$			I_γ: From ^{152}Sm(n,γ); other: 10.8 *20* from ^{153}Pm β- decay.
		166.64 *1*	100 *5*	7.536	5/2$^+$	E1	0.0689	α(K)=0.0585 *9*; α(L)=0.00821 *12*; α(M)=0.001753 *25* α(N)=0.000393 *6*; α(O)=5.67×10^{-5} *8*; α(P)=3.03×10^{-6} *5*
182.902	5/2$^-$	55.61 *1*	2.0 *4*	127.298	3/2$^-$	[M1,E2]	15.6 *64*	α(K)=5.8 *20*; α(L)=7.6 *65*; α(M)=1.8 *16* α(N)=0.38 *33*; α(O)=0.048 *40*; α(P)=3.5×10^{-4} *16*
		92.03 *1*	5.0[@] *7*	90.875	5/2$^-$	[M1,E2]	2.7 *6*	α(K)=1.65 *17*; α(L)=0.78 *53*; α(M)=0.18 *13* α(N)=0.040 *27*; α(O)=0.0051 *33*; α(P)=8.9×10^{-5} *27*
		129.36 *1*	43[@] *2*	53.534	7/2$^+$	E1	0.1369	B(E1)(W.u.)=9×10^{-7} *+9–4* α(K)=0.1159 *17*; α(L)=0.01657 *24*; α(M)=0.00354 *5* α(N)=0.000792 *11*; α(O)=0.0001133 *16*; α(P)=5.82×10^{-6} *9*
		147.06 *1*	16.4[@] *9*	35.844	3/2$^-$	M1,E2	0.581 *17*	α(K)=0.43 *5*; α(L)=0.115 *48*; α(M)=0.026 *12* α(N)=0.0058 *25*; α(O)=7.8×10^{-4} *29*; α(P)=2.42×10^{-5} *64*
		175.370 *11*	81[@] *4*	7.536	5/2$^+$	E1	0.0601	α(K)=0.0510 *8*; α(L)=0.00713 *10*; α(M)=0.001524 *22* α(N)=0.000342 *5*; α(O)=4.94×10^{-5} *7*; α(P)=2.66×10^{-6} *4* B(E1)(W.u.)=7×10^{-7} *+6–3*
		182.900 *8*	100 *4*	0.0	3/2$^+$	E1	0.0537	B(E1)(W.u.)=7×10^{-7} *+7–3* α(K)=0.0456 *7*; α(L)=0.00636 *9*; α(M)=0.001358 *19* α(N)=0.000304 *5*; α(O)=4.41×10^{-5} *7*; α(P)=2.39×10^{-6} *4*
188.8	(11/2$^+$)	123.3[#]	100[#] *16*	65.469	9/2$^+$			
		135.3[#]	72[#] *12*	53.534	7/2$^+$			
194.655?	(5/2$^+$)	187.10 *2*	38 *10*	7.536	5/2$^+$			
		194.66 *3*	100 *24*	0.0	3/2$^+$			
195.8	(13/2)$^+$	130.4[#]	100[#]	65.469	9/2$^+$			
246.2	(13/2$^-$)	147.1[#]	100[#]	98.39	11/2$^-$			
262.331	(7/2)$^+$	79.43 *1*	4.7 *11*	182.902	5/2$^-$			
		88.16 *1*	1.6 *5*	174.173	7/2$^-$			
		171.45 *1*	16[@] *2*	90.875	5/2$^-$			
		196.866 *11*	46 *3*	65.469	9/2$^+$			

Adopted Levels, Gammas (continued)

γ(^{153}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[d]	Comments
262.331	(7/2)$^+$	208.802 *14*	23 *3*	53.534	7/2$^+$			
		254.794 *15*	100 *5*	7.536	5/2$^+$	M1,E2	0.110 *16*	α(K)=0.089 *18*; α(L)=0.0163 *15*; α(M)=0.0036 *4* α(N)=0.00080 *9*; α(O)=0.000114 *7*; α(P)=5.2×10^{-6} *15*
		262.31 *4*	1.3 *4*	0.0	3/2$^+$			
265.927	(7/2)$^-$	83.03 *2*	100 *19*	182.902	5/2$^-$			
		138.64 *3*	35 *5*	127.298	3/2$^-$			
		258.43[f] *5*	19[f] *9*	7.536	5/2$^+$			
276.713	(3/2)$^+$	93.81 *1*	0.49 *12*	182.902	5/2$^-$			
		149.417 *11*	1.54 *19*	127.298	3/2$^-$			
		185.845 *11*	3.5 *4*	90.875	5/2$^-$			
		223.173 *11*	15.4 *12*	53.534	7/2$^+$	(E2)	0.1450	α(K)=0.1071 *15*; α(L)=0.0295 *5*; α(M)=0.00666 *10* α(N)=0.001476 *21*; α(O)=0.000198 *3*; α(P)=5.43×10^{-6} *8* I_γ: From ^{152}Sm(n,γ). Other: 25.7 *21* from ^{153}Pm β- decay. Mult.: (E2,M1) from conversion data; M1 ruled out from placement in level scheme.
		240.868 *14*	2.9 *4*	35.844	3/2$^-$			
		269.17 *2*	49 *3*	7.536	5/2$^+$			I_γ: From ^{152}Sm(n,γ). Other: 78 *5* from ^{153}Pm β- decay.
		276.71 *2*	100 *6*	0.0	3/2$^+$	M1(+E2+E0)	0.086 *14*	α(K)=0.070 *15*; α(L)=0.0124 *7*; α(M)=0.00273 *20* α(N)=0.00061 *4*; α(O)=8.75×10^{-5} *17*; α(P)=4.2×10^{-6} *13*
321.113	(3/2)$^+$	126.44 *2*	0.45 *15*	194.655?	(5/2$^+$)			
		138.21[f] *2*	0.91[f] *11*	182.902	5/2$^-$			
		193.82 *2*	2.3 *3*	127.298	3/2$^-$			
		230.243 *13*	0.57 *8*	90.875	5/2$^-$			
		267.56 *3*	0.53 *11*	53.534	7/2$^+$			
		285.23 *4*	0.76 *15*	35.844	3/2$^-$			
		313.54 *3*	8.9 *5*	7.536	5/2$^+$			
		321.13 *3*	100 *6*	0.0	3/2$^+$	M1	0.0675	α(K)=0.0575 *8*; α(L)=0.00794 *12*; α(M)=0.001702 *24* α(N)=0.000386 *6*; α(O)=5.80×10^{-5} *9*; α(P)=3.63×10^{-6} *5*
356.686	(5/2$^+$)	35.571 *5*	26 *3*	321.113	(3/2)$^+$			
		90.766 *13*	99 *20*	265.927	(7/2)$^-$			
		182.52 *1*	21 *3*	174.173	7/2$^-$			
		229.40 *5*	5.4 *16*	127.298	3/2$^-$			
		265.78 *4*	37 *4*	90.875	5/2$^-$			
		291.17 *5*	77 *8*	65.469	9/2$^+$			
		303.16 *4*	90 *11*	53.534	7/2$^+$			I_γ: From ^{152}Sm(n,γ). Other: 200 *20* from ^{153}Pm β- decay.
		349.16 *5*	100 *8*	7.536	5/2$^+$			
		356.62 *10*	32 *9*	0.0	3/2$^+$			
362.286	(5/2)$^+$	188.119 *11*	2.8 *3*	174.173	7/2$^-$			
		234.93 *5*	2.9 *3*	127.298	3/2$^-$			
		271.40 *8*	1.2 *4*	90.875	5/2$^-$			
		296.82 *5*	2.8 *4*	65.469	9/2$^+$			
		308.71 *7*	9.9 *8*	53.534	7/2$^+$			

$^{153}_{62}Sm_{91}$-14

Adopted Levels, Gammas (continued)

γ(^{153}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[d]	Comments
362.286	(5/2)$^+$	326.45 *5*	3.1 *5*	35.844	3/2$^-$			
		354.76 *3*	100 *6*	7.536	5/2$^+$	M1	0.0520	α(K)=0.0443 *7*; α(L)=0.00610 *9*; α(M)=0.001307 *19* α(N)=0.000296 *5*; α(O)=4.45×10^{-5} *7*; α(P)=2.79×10^{-6} *4*
		362.30 *3*	80 *6*	0.0	3/2$^+$	M1(+E2)	0.040 *9*	α(K)=0.034 *9*; α(L)=0.0054 *4*; α(M)=0.00117 *7* α(N)=0.000264 *17*; α(O)=3.8×10^{-5} *4*; α(P)=2.02×10^{-6} *62*
404.134	1/2$^-$	277.72 *4*	2.38 *22*	126.412	(1/2$^-$)			
		368.27 *10*	5.0 *4*	35.844	3/2$^-$			
		404.17 *4*	100 *6*	0.0	3/2$^+$	E1	0.00707	α(K)=0.00604 *9*; α(L)=0.000809 *12*; α(M)=0.0001725 *25* α(N)=3.89×10^{-5} *6*; α(O)=5.75×10^{-6} *8*; α(P)=3.39×10^{-7} *5*
405.468	3/2$^-$	278.17 *2*	5.9 *4*	127.298	3/2$^-$	M1,E2	0.085 *14*	α(K)=0.069 *15*; α(L)=0.0122 *6*; α(M)=0.00268 *19* α(N)=0.00060 *4*; α(O)=8.60×10^{-5} *15*; α(P)=4.1×10^{-6} *12*
		314.60 *3*	3.0 *2*	90.875	5/2$^-$			
		369.63 *3*	9.1 *5*	35.844	3/2$^-$			
		397.90 *4*	100 *6*	7.536	5/2$^+$	E1	0.00734	α(K)=0.00627 *9*; α(L)=0.000840 *12*; α(M)=0.000179 *3* α(N)=4.04×10^{-5} *6*; α(O)=5.97×10^{-6} *9*; α(P)=3.52×10^{-7} *5*
413.0	(15/2$^-$)	166.3	100 *15*	246.2	(13/2$^-$)			
		313.4	26 *3*	98.39	11/2$^-$			
414.928	1/2$^+$	138.21[f] *2*	0.79[f] *10*	276.713	(3/2)$^+$			
		287.49 *6*	0.99 *16*	127.298	3/2$^-$			
		379.10 *4*	4.3 *4*	35.844	3/2$^-$			
		407.30 *7*	5.6 *5*	7.536	5/2$^+$			
		414.97 *6*	100 *6*	0.0	3/2$^+$	M1	0.0346	α(K)=0.0295 *5*; α(L)=0.00404 *6*; α(M)=0.000866 *13* α(N)=0.000196 *3*; α(O)=2.95×10^{-5} *5*; α(P)=1.85×10^{-6} *3*
417.2	(17/2)$^+$	221.6[#]	100[#]	195.8	(13/2)$^+$			
418.01		290.71 *8*	100	127.298	3/2$^-$			
424.8	(15/2)$^+$	228.9[#]	32[#] *4*	195.8	(13/2)$^+$			
		235.9[#]	100[#] *10*	188.8	(11/2$^+$)			
447.05	(7/2)$^+$	170.33[#] *3*	4.6[#] *14*	276.713	(3/2)$^+$			
		393.58[f#] *8*	39[f#] *4*	53.534	7/2$^+$			
		439.53[#] *6*	100[#] *8*	7.536	5/2$^+$			
450.051	5/2$^-$	173.34 *1*	18.2 *15*	276.713	(3/2)$^+$	E1	0.0620	α(K)=0.0526 *8*; α(L)=0.00736 *11*; α(M)=0.001573 *22* α(N)=0.000353 *5*; α(O)=5.10×10^{-5} *8*; α(P)=2.74×10^{-6} *4* I_γ: From ^{152}Sm(n,γ). Other: 26.8 *20* from ^{153}Pm β- decay.
		359.12 *10*	4.3 *7*	90.875	5/2$^-$			I_γ: From ^{152}Sm(n,γ). Other: 2.8 *12* from ^{153}Pm β- decay.
		396.49 *4*	59 *5*	53.534	7/2$^+$			
		442.51 *6*	100 *6*	7.536	5/2$^+$			
481.092	(3/2)$^+$	66.16 *1*	0.36 *9*	414.928	1/2$^+$			
		76.96 *1*	1.9 *4*	404.134	1/2$^-$			
		204.36 *3*	3.1 *3*	276.713	(3/2)$^+$			
		298.20 *5*	1.70 *22*	182.902	5/2$^-$			

$^{153}_{62}Sm_{91}$-15

Adopted Levels, Gammas (continued)

γ(^{153}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[d]	Comments
481.092	(3/2)$^+$	390.24 *4*	30.0 *18*	90.875	5/2$^-$	(E1)	0.00769	α(K)=0.00657 *10*; α(L)=0.000881 *13*; α(M)=0.000188 *3* α(N)=4.24×10^{-5} *6*; α(O)=6.26×10^{-6} *9*; α(P)=3.68×10^{-7} *6*
		445.15 *6*	7.4 *7*	35.844	3/2$^-$			
		473.63[f] *6*	100[f] *7*	7.536	5/2$^+$			Mult.: Assigned M1,E2 which agrees with J^π's, but for doubly placed γ.
		481.14 *6*	31 *3*	0.0	3/2$^+$			
524.360	(5/2)$^-$	162.09 *2*	1.45 *27*	362.286	(5/2)$^+$			
		203.25 *4*	2.3 *4*	321.113	(3/2)$^+$			
		258.43[f] *5*	0.43[f] *22*	265.927	(7/2)$^-$			
		350.20 *5*	8.4 *6*	174.173	7/2$^-$			
		433.11 *10*	3.8 *6*	90.875	5/2$^-$			E_γ: Doublet peak in (n,γ), but only placed once.
		470.65[g] *6*	100 *7*	53.534	7/2$^+$			
		488.57 *12*	7.3 *8*	35.844	3/2$^-$			
		516.72 *10*	25.3 *18*	7.536	5/2$^+$			
		524.22 *20*	8.1 *16*	0.0	3/2$^+$			
584.31?		263.20 *4*	100	321.113	(3/2)$^+$			
597.7	(17/2$^-$)	184.8[#]	100[#] *16*	413.0	(15/2$^-$)			
		351.4[#]	47[#] *4*	246.2	(13/2$^-$)			
630.23	3/2$^-$	435.43 *20*	1.5 *4*	194.655?	(5/2$^+$)			
		447.27 *6*	2.8 *4*	182.902	5/2$^-$			
		456.2 *3*	1.0 *5*	174.173	7/2$^-$			
		503.52[g] *18*	4.1 *8*	126.412	(1/2$^-$)			
		539.35 *21*	7.6 *18*	90.875	5/2$^-$			E_γ: weighted average of 539.2 *3* from (n,γ) E=th and 539.5 *3* from (n,γ) E=th: two γ cascade. I_γ: weighted average of 6.0 *17* from (n,γ) E=th and 9.7 *19* from (n,γ) E=th: two γ cascade.
		564.70[g] *22*	7.7 *16*	65.469	9/2$^+$			Not observed in β decay, would be E3 based on ΔJΔπ if placement in (n,γ) E=th is confirmed.
		594.6[&] *4*	9.2[&] *20*	35.844	3/2$^-$			
		622.74 *6*	72 *3*	7.536	5/2$^+$			E_γ: weighted average of 622.71 *8* from ^{153}Pm β$^-$ decay, 622.76 *10* from (n,γ) E=th, and 622.9 *3* from (n,γ) E=th: two γ cascade. I_γ: weighted average of 67.3 *42* from ^{153}Pm β$^-$ decay, 78.0 *55* from (n,γ) E=th, and 73.4 *64* from (n,γ) E=th: two γ cascade.
		630.25 *6*	100 *4*	0.0	3/2$^+$			E_γ: weighted average of 630.24 *8* from ^{153}Pm β$^-$ decay, 630.24 *10* from (n,γ) E=th, and 630.4 *3* from (n,γ) E=th: two γ cascade. I_γ: weighted average of 100.0 *54* from ^{153}Pm β$^-$ decay, 100.0 *72* from (n,γ) E=th, and 100.0 *66* from (n,γ) E=th: two γ cascade.
695.79	1/2$^-$	374.69 *4*	2.3 *3*	321.113	(3/2)$^+$			
		568.40 *19*	14 *5*	127.298	3/2$^-$			E_γ: weighted average of 568.52 *24* from (n,γ) E=th and 568.2 *3* from (n,γ) E=th: two γ cascade. I_γ: weighted average of 11.1 *15* from (n,γ) E=th and 24.6 *31* from (n,γ) E=th: two γ cascade.
		583.0[g] *5*	13.5 *19*	112.955?				

Adopted Levels, Gammas (continued)

γ(^{153}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Comments
695.79	1/2$^-$	604.8[&] *5*	3.8[&] *12*	90.875	5/2$^-$	
		659.91 *10*	100 *5*	35.844	3/2$^-$	E_γ: weighted average of 659.95 *10* from (n,γ) E=th and 659.5 *3* from (n,γ) E=th: two γ cascade. I_γ: weighted average of 100.0 *68* from (n,γ) E=th and 100.0 *70* from (n,γ) E=th: two γ cascade.
		696.0[&] *4*	6.8[&] *17*	0.0	3/2$^+$	
733.4	(21/2)$^+$	316.0	100[#]	417.2	(17/2)$^+$	
734.876	(3/2$^+$,5/2)	329.39 *3*	11.3 *8*	405.468	3/2$^-$	
		330.75 *3*	6.2 *6*	404.134	1/2$^-$	
		413.75 *15*	10.9 *24*	321.113	(3/2)$^+$	
		540.5 *3*	7.9 *18*	194.655?	(5/2$^+$)	
		551.7 *3*	5.8 *15*	182.902	5/2$^-$	
		681.7 *3*	18 *3*	53.534	7/2$^+$	
		727.37 *25*	25 *4*	7.536	5/2$^+$	
		734.94 *12*	100 *10*	0.0	3/2$^+$	E_γ: weighted average of 734.89 *13* from (n,γ) E=th and 735.2 *3* from (n,γ) E=th: two γ cascade.
750.30	(3/2)$^-$	393.58[f] *8*	8.2[f] *8*	356.686	(5/2$^+$)	
		473.63[f] *6*	167[f] *12*	276.713	(3/2)$^+$	
		567.44 *14*	39.0 *5*	182.902	5/2$^-$	E_γ: weighted average of 567.50 *15* from (n,γ) E=th and 567.2 *3* from (n,γ) E=th: two γ cascade. I_γ: weighted average of 39.0 *5* from (n,γ) E=th and 38.1 *72* from (n,γ) E=th: two γ cascade. Additional information 5.
		622.6[&] *4*	17[&] *4*	127.298	3/2$^-$	
		659.3[&] *3*	100[&] *11*	90.875	5/2$^-$	
		714.1[&] *3*	45[&] *7*	35.844	3/2$^-$	
		743.1 *5*	13.7 *5*	7.536	5/2$^+$	
		750.2 *4*	14.4 *5*	0.0	3/2$^+$	E_γ: weighted average of 749.9 *5* from (n,γ) E=th and 750.4 *5* from (n,γ) E=th: two γ cascade. I_γ: weighted average of 14.4 *5* from (n,γ) E=th and 14.8 *39* from (n,γ) E=th: two γ cascade.
764.0	(19/2)$^+$	339.0[#]	100[#]	424.8	(15/2)$^+$	
		347[#]		417.2	(17/2)$^+$	
788.92	3/2$^+$	384.79 *4*		404.134	1/2$^-$	Additional information 6.
		780.5[&] *6*		7.536	5/2$^+$	Additional information 7.
		788.9[&] *5*		0.0	3/2$^+$	Additional information 8.
799.6	(19/2)$^-$	201.8[#]	100[#] *10*	597.7	(17/2$^-$)	
		386.6[#]	66[#] *5*	413.0	(15/2$^-$)	
916.87?	(3/2$^+$)	826.0[&] *3*	50[&] *12*	90.875	5/2$^-$	
		881.1[&] *3*	100[&] *19*	35.844	3/2$^-$	
984.03	(3/2)$^-$	568.6[&] *7*	15[&] *6*	414.928	1/2$^+$	

$^{153}_{62}Sm_{91}$-17

Adopted Levels, Gammas (continued)

γ(^{153}Sm) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
984.03	(3/2)$^-$	662.0& *5*	11& *4*	321.113	(3/2)$^+$
		801.6& *5*	9& *3*	182.902	5/2$^-$
		947.2& *6*	10& *3*	35.844	3/2$^-$
		976.8& *3*	82& *10*	7.536	5/2$^+$
		984.3& *3*	100& *8*	0.0	3/2$^+$
984.2	3/2$^+$	579.9 *5*	70 *17*	404.134	1/2$^-$
		858.0 *7*	100 *30*	126.412	(1/2$^-$)
1017.9	(21/2$^-$)	218.1#	100# *12*	799.6	(19/2)$^-$
		420.3#	99# *12*	597.7	(17/2$^-$)
1098.8	1/2$^+$,3/2$^+$	1098.8& *4*	100&	0.0	3/2$^+$
1106.74	(3/2$^+$)	702.61 *24*	19 *4*	404.134	1/2$^-$
		979.4 *8*	100 *16*	127.298	3/2$^-$
1110.71	1/2$^+$,3/2$^+$	927.3& *6*	48& *18*	182.902	5/2$^-$
		984.5& *5*	48& *18*	126.412	(1/2$^-$)
		1020.6& *6*	49& *19*	90.875	5/2$^-$
		1074.5& *5*	100& *28*	35.844	3/2$^-$
1138.1	(25/2$^+$)	404.6#	100#	733.4	(21/2)$^+$
1163.5	(1/2,3/2)	1036.4& *7*	46& *21*	127.298	3/2$^-$
		1163.5& *5*	100& *31*	0.0	3/2$^+$
1170.89	1/2$^-$,3/2$^-$	691.0& *8*	17& *8*	481.092	(3/2)$^+$
		755.4& *4*	62& *15*	414.928	1/2$^+$
		766.1& *4*	38& *8*	404.134	1/2$^-$
		849.4& *3*	62& *10*	321.113	(3/2)$^+$
		988.3& *3*	48& *8*	182.902	5/2$^-$
		1044.2& *4*	31& *6*	126.412	(1/2$^-$)
		1079.9& *3*	74& *10*	90.875	5/2$^-$
		1134.5& *4*	33& *7*	35.844	3/2$^-$
		1163.0& *3*	100& *15*	7.536	5/2$^+$
		1171.3& *4*	17& *5*	0.0	3/2$^+$
1199.3	(23/2$^+$)	435.5#		764.0	(19/2)$^+$
		466#	100#	733.4	(21/2)$^+$
1223.19	(3/2)$^+$	902.0& *3*	100& *19*	321.113	(3/2)$^+$
		1223.2& *5*	38& *11*	0.0	3/2$^+$
1251.6	(23/2$^-$)	233.6#	72# *10*	1017.9	(21/2$^-$)
		452.1#	100# *9*	799.6	(19/2)$^-$
1322.04	1/2$^-$,3/2$^-$	840.8& *3*	100& *9*	481.092	(3/2)$^+$
		906.9& *3*	54& *8*	414.928	1/2$^+$
		917.2& *6*	4.2& *14*	405.468	3/2$^-$
		1000.7& *5*	4.1& *13*	321.113	(3/2)$^+$
		1195.3& *6*	1.6& *7*	126.412	(1/2$^-$)
1343.10	(3/2)$^+$	937.3& *4*	7.1& *21*	405.468	3/2$^-$
		1160.2& *3*	72& *10*	182.902	5/2$^-$
		1215.9& *3*	100& *11*	127.298	3/2$^-$
1361.04	1/2$^-$,3/2$^-$	880.3 *5*	22 *6*	481.092	(3/2)$^+$
		945.9 *3*	100 *13*	414.928	1/2$^+$
1365.35	(3/2)	960.1& *3*	100& *17*	405.468	3/2$^-$
		1274.1& *6*	49& *14*	90.875	5/2$^-$
1392.9	(1/2,3/2)	977.4& *9*	97& *54*	414.928	1/2$^+$
		987.5& *5*	100& *32*	405.468	3/2$^-$
1396.6	3/2$^+$,5/2$^+$	915.7& *5*	100& *30*	481.092	(3/2)$^+$
		982.3& *8*	32& *15*	414.928	1/2$^+$
1400.22	(5/2$^-$)	995.7& *3*	100& *20*	404.134	1/2$^-$
		1400.5& *4*	74& *21*	0.0	3/2$^+$
1422.36	1/2$^+$,3/2$^+$	1018.1& *4*	42& *12*	404.134	1/2$^-$
		1414.6& *4*	100& *24*	7.536	5/2$^+$
1435.90	1/2$^+$,3/2$^+$	954.8& *4*	96& *26*	481.092	(3/2)$^+$
		1114.5& *7*	23& *10*	321.113	(3/2)$^+$
		1436.1& *4*	100& *21*	0.0	3/2$^+$
1448.3	(3/2)$^-$	1033.4& *7*	100&	414.928	1/2$^+$
1486.15	(3/2$^+$)	1071.5& *8*	20& *10*	414.928	1/2$^+$
		1164.4& *4*	86& *21*	321.113	(3/2)$^+$
		1303.0& *6*	42& *13*	182.902	5/2$^-$
		1359.3& *6*	19& *8*	126.412	(1/2$^-$)
		1450.7& *6*	36& *12*	35.844	3/2$^-$
		1486.8& *4*	100& *23*	0.0	3/2$^+$
1500.0	(25/2$^-$)	248.7#	38# *7*	1251.6	(23/2$^-$)
		482.0#	100# *10*	1017.9	(21/2$^-$)
1513.73	(3/2$^+$)	1098.3& *5*	38& *13*	414.928	1/2$^+$
		1193.1& *6*	21& *8*	321.113	(3/2)$^+$
		1423.0& *3*	100& *18*	90.875	5/2$^-$

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Adopted Levels, Gammas (continued)

γ(^{153}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
1513.73	(3/2$^+$)	1477.7[&] *5*	35[&] *10*	35.844	3/2$^-$
		1506.2[&] *4*	66[&] *15*	7.536	5/2$^+$
1527.09	(1/2$^-$,3/2$^-$)	1046.3[&] *5*	100[&] *11*	481.092	(3/2)$^+$
		1122.3[&] *4*	7.6[&] *21*	404.134	1/2$^-$
		1206.1[&] *5*	5.3[&] *18*	321.113	(3/2)$^+$
		1400.2[&] *3*	24[&] *3*	127.298	3/2$^-$
		1491.6[&] *3*	17[&] *3*	35.844	3/2$^-$
1539.25	1/2$^+$,3/2$^+$	1448.4[&] *3*	100[&]	90.875	5/2$^-$
1557.38	1/2$^+$,3/2$^+$	1076.2[&] *3*	100[&] *16*	481.092	(3/2)$^+$
		1236.2[&] *3*	43[&] *8*	321.113	(3/2)$^+$
		1430.5[&] *5*	9[&] *3*	127.298	3/2$^-$
		1521.6[&] *4*	18[&] *5*	35.844	3/2$^-$
1622.2	(29/2$^+$)	484.1[#]	100[#]	1138.1	(25/2$^+$)
1625.44	(1/2,3/2)	1220.4[&] *3*	100[&] *17*	404.134	1/2$^-$
		1626.7[&] *5*	59[&] *13*	0.0	3/2$^+$
1660.6	(3/2)$^+$	1477.6[&] *6*	51[&] *20*	182.902	5/2$^-$
		1624.9[&] *6*	100[&] *31*	35.844	3/2$^-$
1722.2	(27/2$^+$)	523[#]		1199.3	(23/2$^+$)
		584[#]		1138.1	(25/2$^+$)
1739.62	(3/2)	1258.9[&] *8*	21[&] *11*	481.092	(3/2)$^+$
		1333.8[&] *3*	68[&] *15*	405.468	3/2$^-$
		1418.0[&] *8*	28[&] *12*	321.113	(3/2)$^+$
		1556.5[&] *3*	100[&] *20*	182.902	5/2$^-$
		1612.2[&] *5*	39[&] *11*	127.298	3/2$^-$
		1648.5[&] *6*	32[&] *11*	90.875	5/2$^-$
		1740.3[&] *3*	79[&] *18*	0.0	3/2$^+$
1752.62	1/2,3/2	1431.9[&] *8*	10[&] *4*	321.113	(3/2)$^+$
		1624.1[&] *6*	6.7[&] *24*	127.298	3/2$^-$
		1745.3[&] *3*	75[&] *11*	7.536	5/2$^+$
		1752.7[&] *3*	100[&] *12*	0.0	3/2$^+$
1763.0	(27/2$^-$)	263[#]		1500.0	(25/2$^-$)
		511.3[#]	100[#]	1251.6	(23/2$^-$)
1768.79	(1/2,3/2)	1363.7[&] *3*	100[&] *18*	405.468	3/2$^-$
		1732.7[&] *5*	44[&] *14*	35.844	3/2$^-$
		1768.2[&] *5*	58[&] *17*	0.0	3/2$^+$
1789.95	(3/2)	1384.8[&] *4*	92[&] *22*	405.468	3/2$^-$
		1607.0[&] *6*	40[&] *15*	182.902	5/2$^-$
		1789.7[&] *4*	100[&] *26*	0.0	3/2$^+$
1833.09	(3/2)$^+$	1427.4[&] *3*	100[&] *18*	405.468	3/2$^-$
		1743.2[&] *6*	37[&] *13*	90.875	5/2$^-$
		1797.0[&] *5*	41[&] *13*	35.844	3/2$^-$
1841.4	(5/2)$^+$	1750.6[&] *5*	82[&] *22*	90.875	5/2$^-$
		1805.5[&] *4*	100[&] *26*	35.844	3/2$^-$
1876.2	(3/2)	1471.0[&] *5*	74[&] *24*	405.468	3/2$^-$
		1785.1[&] *6*	100[&] *32*	90.875	5/2$^-$
1885.40	(1/2,3/2)	1480.0[&] *6*	43[&] *13*	405.468	3/2$^-$
		1758.1[&] *3*	100[&] *18*	127.298	3/2$^-$
1925.1	3/2$^+$,5/2$^+$	1520.7[&] *5*	100[&] *32*	404.134	1/2$^-$
		1798.3[&] *6*	93[&] *27*	126.412	(1/2$^-$)
1933.52	3/2$^+$,5/2$^+$	1451.5[&] *4*	42[&] *13*	481.092	(3/2)$^+$
		1613.4[&] *6*	28[&] *9*	321.113	(3/2)$^+$
		1806.8[&] *4*	23[&] *6*	126.412	(1/2$^-$)
		1897.6[&] *3*	100[&] *15*	35.844	3/2$^-$
1936.12	(3/2)	1752.2[&] *5*	25[&] *10*	182.902	5/2$^-$
		1844.9[&] *5*	44[&] *13*	90.875	5/2$^-$
		1929.4[&] *5*	76[&] *19*	7.536	5/2$^+$
		1936.5[&] *4*	100[&] *22*	0.0	3/2$^+$
2037.54	(1/2,3/2)	1556.7[&] *5*	75[&] *27*	481.092	(3/2)$^+$
		1910.3[&] *5*	60[&] *18*	127.298	3/2$^-$
		2001.7[&] *5*	100[&] *24*	35.844	3/2$^-$
		2037.3[&] *5*	71[&] *21*	0.0	3/2$^+$
2037.8	(29/2$^-$)	537.7[#]	100[#]	1500.0	(25/2$^-$)
2091.00	(3/2)$^+$	1610.0[&] *7*	46[&] *17*	481.092	(3/2)$^+$
		1685.5[&] *3*	100[&] *19*	405.468	3/2$^-$
		2055.2[&] *5*	47[&] *13*	35.844	3/2$^-$
2111.16	(3/2)	2020.4[&] *3*	100[&] *19*	90.875	5/2$^-$
		2075.2[&] *4*	71[&] *15*	35.844	3/2$^-$
2135.3	3/2$^+$	1730.3[&] *6*	73[&] *29*	405.468	3/2$^-$
		1814.9[&] *6*	100[&] *34*	321.113	(3/2)$^+$
2158.3	(3/2)	1754.1[&] *6*	58[&] *19*	404.134	1/2$^-$

$^{153}_{62}Sm_{91}$-19

Adopted Levels, Gammas (continued)

γ(^{153}Sm) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
2158.3	(3/2)	1974.9& *7*	41& *18*	182.902	5/2$^-$
		2122.6& *5*	100& *26*	35.844	3/2$^-$
2174.8	(1/2,3/2)	1769.3& *5*	42& *14*	405.468	3/2$^-$
		2139.4& *7*	46& *16*	35.844	3/2$^-$
		2174.5& *5*	100& *26*	0.0	3/2$^+$
2176.3	(33/2$^+$)	554.1#	#	1622.2	(29/2$^+$)
2192.28	(1/2,3/2)	1711.5& *7*	57& *27*	481.092	(3/2)$^+$
		2065.1& *4*	95& *22*	127.298	3/2$^-$
		2156.2& *4*	100& *27*	35.844	3/2$^-$
2223.5	(1/2,3/2)	1817.8& *7*	72& *25*	405.468	3/2$^-$
		2097.0& *5*	100& *36*	126.412	(1/2$^-$)
2237.4	(3/2)	1917.3& *7*	68& *28*	321.113	(3/2)$^+$
		2054.9& *7*	82& *30*	182.902	5/2$^-$
		2229.3& *4*	100& *31*	7.536	5/2$^+$
2293.6	(1/2,3/2)	1888.7& *6*	90& *32*	405.468	3/2$^-$
		1972.0& *6*	100& *38*	321.113	(3/2)$^+$
2324.2	(31/2$^+$)	602#	100#	1722.2	(27/2$^+$)
2327.0	(31/2$^-$)	564.0#	100#	1763.0	(27/2$^-$)
2334.9	(3/2)	2152.1 *7*	27 *11*	182.902	5/2$^-$
		2334.8 *4*	100 *25*	0.0	3/2$^+$
2342.03	(3/2)	2021.3& *7*	35& *12*	321.113	(3/2)$^+$
		2159.6& *4*	82& *19*	182.902	5/2$^-$
		2215.7& *4*	100& *22*	126.412	(1/2$^-$)
		2250.8& *4*	51& *16*	90.875	5/2$^-$
		2305.5& *5*	44& *13*	35.844	3/2$^-$
2415.2	(1/2,3/2)	2009.7& *6*	100& *31*	405.468	3/2$^-$
		2094.2& *6*	73& *27*	321.113	(3/2)$^+$
2419.5	(3/2)	2328.0& *5*	58& *22*	90.875	5/2$^-$
		2412.5& *5*	100& *25*	7.536	5/2$^+$
2428.0	(3/2)	2023.0& *6*	100& *29*	405.468	3/2$^-$
		2336.4& *9*	49& *22*	90.875	5/2$^-$
2447.4	(1/2,3/2)	1967.0& *8*	70& *30*	481.092	(3/2)$^+$
		2319.9& *4*	100& *22*	127.298	3/2$^-$
2461.07	(3/2)	1980.1& *5*	81& *23*	481.092	(3/2)$^+$
		2278.1& *4*	100& *25*	182.902	5/2$^-$
2483.7	(1/2,3/2)	2002.6& *8*	100& *40*	481.092	(3/2)$^+$
		2078.3& *6*	80& *26*	405.468	3/2$^-$
		2356.4& *6*	50& *17*	127.298	3/2$^-$
2495.0	(3/2)	2458.7& *6*	78& *22*	35.844	3/2$^-$
		2487.9& *5*	100& *24*	7.536	5/2$^+$
2497.16	(3/2)	2176.4& *5*	93& *24*	321.113	(3/2)$^+$
		2313.8& *5*	78& *21*	182.902	5/2$^-$
		2369.7& *5*	59& *14*	127.298	3/2$^-$
		2405.8& *7*	72& *21*	90.875	5/2$^-$
		2497.8& *5*	100& *25*	0.0	3/2$^+$
2513.36	(3/2)	2329.9& *6*	29& *10*	182.902	5/2$^-$
		2477.7& *3*	100& *17*	35.844	3/2$^-$
2542.72	(3/2)	2222.2& *4*	59& *22*	321.113	(3/2)$^+$
		2451.2& *6*	100& *31*	90.875	5/2$^-$
		2506.6& *5*	71& *19*	35.844	3/2$^-$
		2535.0& *7*	51& *19*	7.536	5/2$^+$
2545.8	(3/2)	2363.7& *5*	100& *26*	182.902	5/2$^-$
		2418.0& *5*	80& *19*	127.298	3/2$^-$
2643.41	1/2,3/2,5/2	2322.3& *4*	75& *21*	321.113	(3/2)$^+$
		2643.6& *5*	100& *28*	0.0	3/2$^+$
2672.21	(3/2)	2266.8& *5*	56& *16*	405.468	3/2$^-$
		2545.2& *6*	37& *11*	127.298	3/2$^-$
		2636.4& *3*	100& *17*	35.844	3/2$^-$
		2664.2& *5*	50& *15*	7.536	5/2$^+$
		2672.3& *6*	59& *20*	0.0	3/2$^+$
2677.8	(1/2,3/2)	2272.4& *9*	31& *15*	405.468	3/2$^-$
		2677.7& *6*	100& *28*	0.0	3/2$^+$
2681.14	3/2	2589.9& *4*	91& *22*	90.875	5/2$^-$
		2645.5& *3*	100& *17*	35.844	3/2$^-$
2691.67	(3/2)	2286.6& *5*	51& *16*	405.468	3/2$^-$
		2509.1& *3*	100& *20*	182.902	5/2$^-$
		2565.5& *5*	68& *17*	126.412	(1/2$^-$)
		2599.6& *6*	56& *20*	90.875	5/2$^-$
		2654.8& *6*	38& *17*	35.844	3/2$^-$
		2684.1& *5*	75& *18*	7.536	5/2$^+$

$^{153}_{62}Sm_{91}$-20

Adopted Levels, Gammas (continued)

γ(^{153}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
2699.81	(3/2)	2378.1[&] *7*	23[&] *8*	321.113	$(3/2)^+$
		2516.7[&] *3*	100[&] *17*	182.902	$5/2^-$
		2572.8[&] *3*	94[&] *15*	127.298	$3/2^-$
		2692.4[&] *4*	56[&] *13*	7.536	$5/2^+$
2710.0	3/2	2582.6[&] *4*	100[&] *23*	127.298	$3/2^-$
		2619.3[&] *7*	47[&] *18*	90.875	$5/2^-$
2714.71	1/2,3/2	2309.4[&] *4*	100[&] *26*	405.468	$3/2^-$
		2392.9[&] *5*	90[&] *27*	321.113	$(3/2)^+$
		2679.3[&] *5*	86[&] *26*	35.844	$3/2^-$
2722.71	3/2	2596.2[&] *6*	38[&] *12*	126.412	$(1/2^-)$
		2632.6[&] *6*	44[&] *16*	90.875	$5/2^-$
		2714.8[&] *5*	73[&] *18*	7.536	$5/2^+$
		2722.4[&] *5*	100[&] *26*	0.0	$3/2^+$
2757.07	(1/2,3/2)	2351.9[&] *3*	100[&] *21*	405.468	$3/2^-$
		2629.1[&] *5*	69[&] *17*	127.298	$3/2^-$
2788.86	(3/2)	2605.0[&] *8*	42[&] *11*	182.902	$5/2^-$
		2661.8[&] *5*	55[&] *13*	127.298	$3/2^-$
		2699.0[&] *6*	48[&] *15*	90.875	$5/2^-$
		2752.9[&] *4*	82[&] *16*	35.844	$3/2^-$
		2780.7[&] *4*	77[&] *17*	7.536	$5/2^+$
		2789.3[&] *5*	100[&] *24*	0.0	$3/2^+$
2793.3	$(37/2^+)$	617.0[#]	100[#]	2176.3	$(33/2^+)$
2812.1	(1/2,3/2)	2407.2[&] *7*	82[&] *29*	405.468	$3/2^-$
		2776.0[&] *5*	100[&] *33*	35.844	$3/2^-$
2850.9	(1/2,3/2)	2369.8[&] *7*	100[&] *46*	481.092	$(3/2)^+$
		2529.9[&] *9*	60[&] *28*	321.113	$(3/2)^+$
2858.8	(1/2,3/2)	2537.9[&] *7*	58[&] *23*	321.113	$(3/2)^+$
		2858.6[&] *7*	100[&] *37*	0.0	$3/2^+$
2921.3	(3/2)	2441.0[&] *8*	66[&] *33*	481.092	$(3/2)^+$
		2737.8[&] *6*	100[&] *32*	182.902	$5/2^-$
2930.9	(1/2,3/2)	2609.5[&] *6*	73[&] *25*	321.113	$(3/2)^+$
		2803.8[&] *5*	100[&] *24*	127.298	$3/2^-$
2940.3	(3/2)	2757.3[&] *6*	100[&] *30*	182.902	$5/2^-$
		2932.9[&] *6*	95[&] *26*	7.536	$5/2^+$
2977.2	3/2	2495.7[&] *7*	91[&] *34*	481.092	$(3/2)^+$
2977.2	3/2	2571.9[&] *8*	63[&] *22*	405.468	$3/2^-$
		2655.7[&] *7*	65[&] *25*	321.113	$(3/2)^+$
		2970.0[&] *5*	100[&] *23*	7.536	$5/2^+$
2987.4	(1/2,3/2)	2581.5[&] *7*	100[&] *39*	405.468	$3/2^-$
		2666.7[&] *7*	91[&] *34*	321.113	$(3/2)^+$
2998.3	(1/2,3/2)	2593.4[&] *6*	100[&] *40*	405.468	$3/2^-$
		2870.6[&] *6*	97[&] *20*	127.298	$3/2^-$
3015.39	(1/2,3/2)	2888.7[&] *6*	20[&] *6*	126.412	$(1/2^-)$
		2979.3[&] *3*	100[&] *12*	35.844	$3/2^-$
3021.4	(1/2,3/2)	2893.7[&] *6*	39[&] *11*	127.298	$3/2^-$
		3021.7[&] *4*	100[&] *22*	0.0	$3/2^+$
3032.7	(3/2)	2712.0[&] *7*	50[&] *21*	321.113	$(3/2)^+$
		2850.0[&] *8*	69[&] *26*	182.902	$5/2^-$
		2941.3[&] *6*	100[&] *31*	90.875	$5/2^-$
3039.09	(3/2)	2855.8[&] *7*	28[&] *11*	182.902	$5/2^-$
		2911.8[&] *4*	49[&] *12*	127.298	$3/2^-$
		3003.3[&] *3*	100[&] *17*	35.844	$3/2^-$
3052.88	(3/2)	2870.8[&] *6*	53[&] *18*	182.902	$5/2^-$
		3017.0[&] *3*	100[&] *20*	35.844	$3/2^-$
		3052.3[&] *5*	97[&] *26*	0.0	$3/2^+$
3076.94	(1/2,3/2)	2950.1[&] *6*	35[&] *13*	126.412	$(1/2^-)$
		3040.9[&] *3*	100[&] *22*	35.844	$3/2^-$
3127.92	(1/2,3/2)	3092.6[&] *4*	49[&] *11*	35.844	$3/2^-$
		3127.4[&] *4*	100[&] *20*	0.0	$3/2^+$
3171.99	(1/2,3/2)	2766.8[&] *4*	40[&] *9*	405.468	$3/2^-$
		2851.2[&] *7*	43[&] *14*	321.113	$(3/2)^+$
		3136.3[&] *7*	25[&] *9*	35.844	$3/2^-$
		3171.5[&] *4*	100[&] *22*	0.0	$3/2^+$
3246.0	(1/2,3/2)	2925.2[&] *7*	55[&] *18*	321.113	$(3/2)^+$
		3118.5[&] *5*	100[&] *23*	127.298	$3/2^-$
		3210.2[&] *6*	49[&] *15*	35.844	$3/2^-$
3281.4	(3/2)	3153.5[&] *5*	100[&] *26*	127.298	$3/2^-$
		3245.5[&] *5*	63[&] *17*	35.844	$3/2^-$
		3274.5[&] *6*	59[&] *19*	7.536	$5/2^+$
3288.6	(1/2,3/2)	2967.5[&] *6*	61[&] *21*	321.113	$(3/2)^+$

$^{153}_{62}Sm_{91}$-21

Adopted Levels, Gammas (continued)

γ(^{153}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
3288.6	(1/2,3/2)	3252.8[&] *4*	100[&] *22*	35.844	3/2$^-$
3305.3	(3/2)	3122.4[&] *6*	40[&] *15*	182.902	5/2$^-$
		3269.4[&] *4*	100[&] *22*	35.844	3/2$^-$
3313.69	(1/2,3/2)	2993.4[&] *6*	52[&] *17*	321.113	(3/2)$^+$
		3277.5[&] *3*	100[&] *17*	35.844	3/2$^-$
3319.3	(3/2)	2912.8[&] *7*	67[&] *26*	405.468	3/2$^-$
		3312.2[&] *7*	50[&] *18*	7.536	5/2$^+$
		3319.7[&] *6*	100[&] *30*	0.0	3/2$^+$
3341.2	(3/2)	3157.4[&] *5*	76[&] *23*	182.902	5/2$^-$
		3305.6[&] *5*	100[&] *23*	35.844	3/2$^-$
		3334.3 *6*	43 *16*	7.536	5/2$^+$
3353.8	(1/2,3/2)	2948.6[&] *9*	53[&] *28*	405.468	3/2$^-$
		3225.9[&] *6*	100[&] *27*	127.298	3/2$^-$
		3354.0[&] *8*	71[&] *31*	0.0	3/2$^+$
3360.4	(3/2)	2954.4[&] *7*	77[&] *30*	405.468	3/2$^-$
		3270.0[&] *6*	100[&] *33*	90.875	5/2$^-$
3421.8	(1/2,3/2)	2940.3[&] *8*	78[&] *40*	481.092	(3/2)$^+$
		3017.6[&] *6*	100[&] *31*	404.134	1/2$^-$
		3294.5[&] *5*	100[&] *27*	127.298	3/2$^-$
3467	(41/2$^+$)	673.7[#]	100[#]	2793.3	(37/2$^+$)
3535.26	(1/2,3/2)	3407.7[&] *3*	100[&] *20*	127.298	3/2$^-$
		3500.1[&] *6*	70[&] *20*	35.844	3/2$^-$
3763.6	(1/2,3/2)	3443.0[&] *7*	44[&] *20*	321.113	(3/2)$^+$
		3763.3[&] *5*	100[&] *34*	0.0	3/2$^+$
(5868.38)	1/2$^+$	2104.7[&] *6*		3763.6	(1/2,3/2)
		2333.0[&] *5*		3535.26	(1/2,3/2)
		2446.3[&] *6*		3421.8	(1/2,3/2)
		2508.0[&] *7*		3360.4	(3/2)
		2514.3[&] *7*		3353.8	(1/2,3/2)
		2527.2[&] *5*		3341.2	(3/2)
		2549.2[&] *7*		3319.3	(3/2)
		2554.5[&] *4*		3313.69	(1/2,3/2)
		2563.2[&] *5*		3305.3	(3/2)
		2579.8[&] *5*		3288.6	(1/2,3/2)
		2587.0[&] *5*		3281.4	(3/2)

$^{153}_{62}Sm_{91}$-22

Adopted Levels, Gammas (continued)

γ(^{153}Sm) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Comments
(5868.38)	1/2$^+$	2622.4& *6*		3246.0	(1/2,3/2)	
		2696.4& *5*		3171.99	(1/2,3/2)	
		2740.5& *4*		3127.92	(1/2,3/2)	
		2791.3& *5*		3076.94	(1/2,3/2)	
		2815.5& *5*		3052.88	(3/2)	
		2829.4& *5*		3039.09	(3/2)	
		2835.7& *7*		3032.7	(3/2)	
		2847.1& *5*		3021.4	(1/2,3/2)	
		2852.8& *5*		3015.39	(1/2,3/2)	
		2870.1& *5*		2998.3	(1/2,3/2)	
		2881.0& *7*		2987.4	(1/2,3/2)	
		2891.3& *7*		2977.2	3/2	
		2928.1& *6*		2940.3	(3/2)	
		2937.5& *5*		2930.9	(1/2,3/2)	
		2947.0& *7*		2921.3	(3/2)	
		3009.6& *7*		2858.8	(1/2,3/2)	
		3017.5& *8*		2850.9	(1/2,3/2)	
		3056.2& *6*		2812.1	(1/2,3/2)	
		3079.5& *5*		2788.86	(3/2)	
		3111.5& *5*		2757.07	(1/2,3/2)	
		3145.5& *5*		2722.71	3/2	
		3153.7& *5*		2714.71	1/2,3/2	
		3158.3& *5*		2710.0	3/2	
		3168.7& *4*		2699.81	(3/2)	
		3176.8& *5*		2691.67	(3/2)	
		3187.3& *5*		2681.14	3/2	
		3190.6& *7*		2677.8	(1/2,3/2)	
		3196.2& *5*		2672.21	(3/2)	
		3225.1 *4*	4.4 *7*	2643.41	1/2,3/2,5/2	E_γ: weighted average of 3225.6 *7* from (n,γ) E=th and 3224.9 *5* from (n,γ) E=th: two γ cascade.
		3322.9& *6*		2545.8	(3/2)	
		3325.8& *5*		2542.72	(3/2)	
		3355.2& *5*		2513.36	(3/2)	
		3371.4 *5*	13.1 *5*	2497.16	(3/2)	E_γ: weighted average of 3371.8 *12* from (n,γ) E=th and 3371.3 *5* from (n,γ) E=th: two γ cascade.
		3373.7& *6*		2495.0	(3/2)	
		3384.7& *7*		2483.7	(1/2,3/2)	

$^{153}_{62}Sm_{91}$-23

Adopted Levels, Gammas (continued)

$\gamma(^{153}Sm)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Comments
(5868.38)	$1/2^+$	3407.3[&] *4*		2461.07	(3/2)	
		3420.8[&] *6*		2447.4	(1/2,3/2)	
		3440.5[&] *7*		2428.0	(3/2)	
		3448.9[&] *5*		2419.5	(3/2)	
		3453.1[&] *6*		2415.2	(1/2,3/2)	
		3526.2[&] *5*		2342.03	(3/2)	
		3533.5[&] *6*		2334.9	(3/2)	
		3574.8[&] *6*		2293.6	(1/2,3/2)	
		3630.7[&] *7*		2237.4	(3/2)	
		3644.6[&] *6*		2223.5	(1/2,3/2)	
		3676.1[&] *5*		2192.28	(1/2,3/2)	
		3693.6[&] *6*		2174.8	(1/2,3/2)	
		3709.8[&] *6*		2158.3	(3/2)	
		3733.0[&] *6*		2135.3	$3/2^+$	
		3757.3[&] *4*		2111.16	(3/2)	
		3777.4[&] *5*		2091.00	$(3/2)^+$	
		3830.9[&] *5*		2037.54	(1/2,3/2)	
		3932.3[&] *5*		1936.12	(3/2)	
		3934.8 *4*	10.8 *7*	1933.52	$3/2^+$,$5/2^+$	E_γ: weighted average of 3934.6 *6* from (n,γ) E=th and 3934.9 *5* from (n,γ) E=th: two γ cascade.
		3942.9 *4*	7.8 *7*	1925.1	$3/2^+$,$5/2^+$	E_γ: weighted average of 3943.5 *8* from (n,γ) E=th and 3942.6 *5* from (n,γ) E=th: two γ cascade.
		3983.0[&] *5*		1885.40	(1/2,3/2)	
		3992.2[&] *5*		1876.2	(3/2)	
		4027.0[&] *5*		1841.4	$(5/2)^+$	
		4035.1[&] *5*		1833.09	$(3/2)^+$	
		4078.4[&] *3*		1789.95	(3/2)	
		4099.8[&] *5*		1768.79	(1/2,3/2)	
		4115.9[&] *5*		1752.62	1/2,3/2	
		4128.7[&] *3*		1739.62	(3/2)	
		4207.8[&] *6*		1660.6	$(3/2)^+$	
		4242.1[&] *4*		1625.44	(1/2,3/2)	
		4311.0 *4*	6.4 *12*	1557.38	$1/2^+$,$3/2^+$	E_γ: weighted average of 4310.6 *15* from (n,γ) E=th and 4311.0 *4* from (n,γ) E=th: two γ cascade.
		4329.1[&] *3*		1539.25	$1/2^+$,$3/2^+$	E_γ,I_γ: 4330.24, 4.2 *11* from (n,γ) E=2 keV:arc.
		4340.9 *3*	20.0 *21*	1527.09	$(1/2^-,3/2^-)$	E_γ: weighted average of 4341.4 *15* from (n,γ) E=th and 4340.9 *3* from (n,γ) E=th: two γ cascade. E_γ,I_γ: 4231.32, 11.6 *11* from (n,γ) E=2 keV:arc.
		4354.7[&] *5*		1513.73	$(3/2^+)$	E_γ,I_γ: 4355.51, 6.6 *7* from (n,γ) E=2 keV:arc.
		4382.1[&] *5*		1486.15	$(3/2^+)$	E_γ,I_γ: 4282.60, 7.2 *7* from (n,γ) E=2 keV:arc.

$^{153}_{62}Sm_{91}$-24

Adopted Levels, Gammas (continued)

γ(^{153}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	Comments
(5868.38)	1/2$^+$	4420.1[&] *7*		1448.3	(3/2)$^-$		E_γ,I_γ: 4420.73, 19.7 *9* from (n,γ) E=2 keV:arc.
		4432.6[&] *5*		1435.90	1/2$^+$,3/2$^+$		E_γ,I_γ: 4232.97, 5.2 *6* from (n,γ) E=2 keV:arc.
		4445.6[&] *4*		1422.36	1/2$^+$,3/2$^+$		E_γ,I_γ: 4446.81, 3.7 *9* from (n,γ) E=2 keV:arc.
		4467.7 *4*	3.0 *5*	1400.22	(5/2$^-$)		E_γ: weighted average of 4468.3 *8* from (n,γ) E=th and 4467.6 *4* from (n,γ) E=th: two γ cascade.
		4471.4[&] *6*		1396.6	3/2$^+$,5/2$^+$		E_γ,I_γ: 4472.76, 12.1 *11* from (n,γ) E=2 keV:arc.
		4475.1 *7*	2.5 *5*	1392.9	(1/2,3/2)		E_γ: weighted average of 4474.4 *8* from (n,γ) E=th and 4475.7 *7* from (n,γ) E=th: two γ cascade.
		4503.2[&] *4*		1365.35	(3/2)		
		4506.5 *9*	16.1 *14*	1361.04	1/2$^-$,3/2$^-$		E_γ: weighted average of 4505.6 *4* from (n,γ) E=th and 4507.4 *4* from (n,γ) E=th: two γ cascade.
							E_γ,I_γ: 4507.41, 17.3 *11* from (n,γ) E=2 keV:arc.
		4525.0 *5*	6.4 *7*	1343.10	(3/2)$^+$		E_γ: weighted average of 4524.3 *5* from (n,γ) E=th and 4525.4 *4* from (n,γ) E=th: two γ cascade.
							E_γ,I_γ: 4525.29, 2.4 *9* from (n,γ) E=2 keV:arc.
		4545.9 *3*	20.7 *23*	1322.04	1/2$^-$,3/2$^-$		E_γ: weighted average of 4545.7 *4* from (n,γ) E=th and 4546.2 *5* from (n,γ) E=th: two γ cascade.
							E_γ,I_γ: 4546.22, 10.9 *7* from (n,γ) E=2 keV:arc.
		4588.77[a]	2.4[a] *6*	1279.5	(3/2$^+$)		
		4645.0 *4*	3.2 *5*	1223.19	(3/2)$^+$		E_γ: weighted average of 4644.6 *10* from (n,γ) E=th and 4645.1 *4* from (n,γ) E=th: two γ cascade.
							E_γ,I_γ: 4544.06, 3.3 *6* from (n,γ) E=2 keV:arc.
		4659.30[a]	3.7[a] *6*	1209.0	1/2$^+$		
		4697.4 *4*	21.6 *23*	1170.89	1/2$^-$,3/2$^-$		E_γ: weighted average of 4697.2 *7* from (n,γ) E=th and 4697.4 *4* from (n,γ) E=th: two γ cascade.
							E_γ,I_γ: 4597.23, 22.2 *9* from (n,γ) E=2 keV:arc.
		4704.8[&] *6*		1163.5	(1/2,3/2)		
		4757.6 *5*	2.1 *7*	1110.71	1/2$^+$,3/2$^+$		E_γ: weighted average of 4757.9 *7* from (n,γ) E=th and 4757.4 *6* from (n,γ) E=th: two γ cascade.
							E_γ,I_γ: 4758.62, 6.8 *7* from (n,γ) E=2 keV:arc.
		4769.6[&] *4*		1098.8	1/2$^+$,3/2$^+$		E_γ,I_γ: 4770.57, 4.8 *9* from (n,γ) E=2 keV:arc.
		4850[b]	2.1 *5*	1018.3	(5/2$^-$)		
		4864.0[b]	8.5 *7*	1004.3			
		4884.4 *4*	8.3 *9*	984.03	(3/2)$^-$		E_γ: weighted average of 4884.0 *8* from (n,γ) E=th and 4884.6 *5* from (n,γ) E=th: two γ cascade.
							E_γ,I_γ: 4884.29, 32.5 *13* from (n,γ) E=2 keV:arc.
		4951.5 *3*	2.8 *5*	916.87?	(3/2$^+$)		E_γ: weighted average of 4951.5 *6* from (n,γ) E=th and 4951.5 *3* from (n,γ) E=th: two γ cascade.
							E_γ,I_γ: 4951.26, 9.9 *4* from (n,γ) E=2 keV:arc.
		5079.9[&] *5*		788.92	3/2$^+$		E_γ,I_γ: 5078.86, 2.6 *9* from (n,γ) E=2 keV:arc.
		5118.1 *3*	9.0 *7*	750.30	(3/2)$^-$		E_γ: weighted average of 5117.8 *5* from (n,γ) E=th and 5118.3 *4* from (n,γ) E=th: two γ cascade.
							E_γ,I_γ: 5117.67, 27.6 *11* from (n,γ) E=2 keV:arc.

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Adopted Levels, Gammas (continued)

$\gamma(^{153}Sm)$ (continued)

E_i(level)	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	Comments
(5868.38)	5133.2 *3*	0.9 *5*	734.876	$(3/2^+,5/2)$		E_γ: weighted average of 5133.3 *8* from (n,γ) E=th and 5133.2 *3* from (n,γ) E=th: two γ cascade.
	5172.70 *24*	13.3 *9*	695.79	$1/2^-$		E_γ: weighted average of 5172.7 *3* from (n,γ) E=th and 5172.7 *4* from (n,γ) E=th: two γ cascade. E_γ,I_γ: 5172.19, 23.7 *13* from (n,γ) E=2 keV:arc.
	5220.4 *10*	0.37 *23*	647.9	$1/2,3/2,5/2^+$		
	5237.90 *21*	23.4 *7*	630.23	$3/2^-$	E1	E_γ: weighted average of 5237.8 *3* from (n,γ) E=th and 5238.0 *3* from (n,γ) E=th: two γ cascade. E_γ,I_γ: 5237.24, 24.6 *3* from (n,γ) E=2 keV:arc.
	5283.9 *11*	0.78 *25*	584.31?			
	5386.8 *4*	9.2 *12*	481.092	$(3/2)^+$	M1	E_γ,I_γ: 5385.90, 9.4 *6* from (n,γ) E=2 keV:arc.
	5453.1 *7*	5.1 *5*	414.928	$1/2^+$	M1	E_γ,I_γ: 5453.17, 10 *4* from (n,γ) E=2 keV:arc.
	5463.0 *5*	6.9 *7*	405.468	$3/2^-$	E1	E_γ,I_γ: 5463.29, 65 *17* from (n,γ) E=2 keV:arc.
	5506.4 *5*	0.23 *7*	362.286	$(5/2)^+$	(E2)[c]	
	5512.8 *7*	0.16 *7*	356.686	$(5/2^+)$		
	5547.0 *10*	2.4 *5*	321.113	$(3/2)^+$	M1	E_γ,I_γ: 5547.20, 7.4 *15* from (n,γ) E=2 keV:arc.
	5591.6 *12*	1.9 *2*	276.713	$(3/2)^+$	M1	
	5740.9 *3*	100 *4*	127.298	$3/2^-$	E1	E_γ,I_γ: 5740.50, 100.0 *17* from (n,γ) E=2 keV:arc.
	5832.6 *3*	22.8 *12*	35.844	$3/2^-$	E1	E_γ,I_γ: 5832.56, 60.5 *11* from (n,γ) E=2 keV:arc.
	5861.4 *10*	0.23 *14*	7.536	$5/2^+$	(E2)[c]	
	5868.4 *6*	3.4 *3*	0.0	$3/2^+$	M1	E_γ,I_γ: 5868.34, 7.4 *6* from (n,γ) E=2 keV:arc.

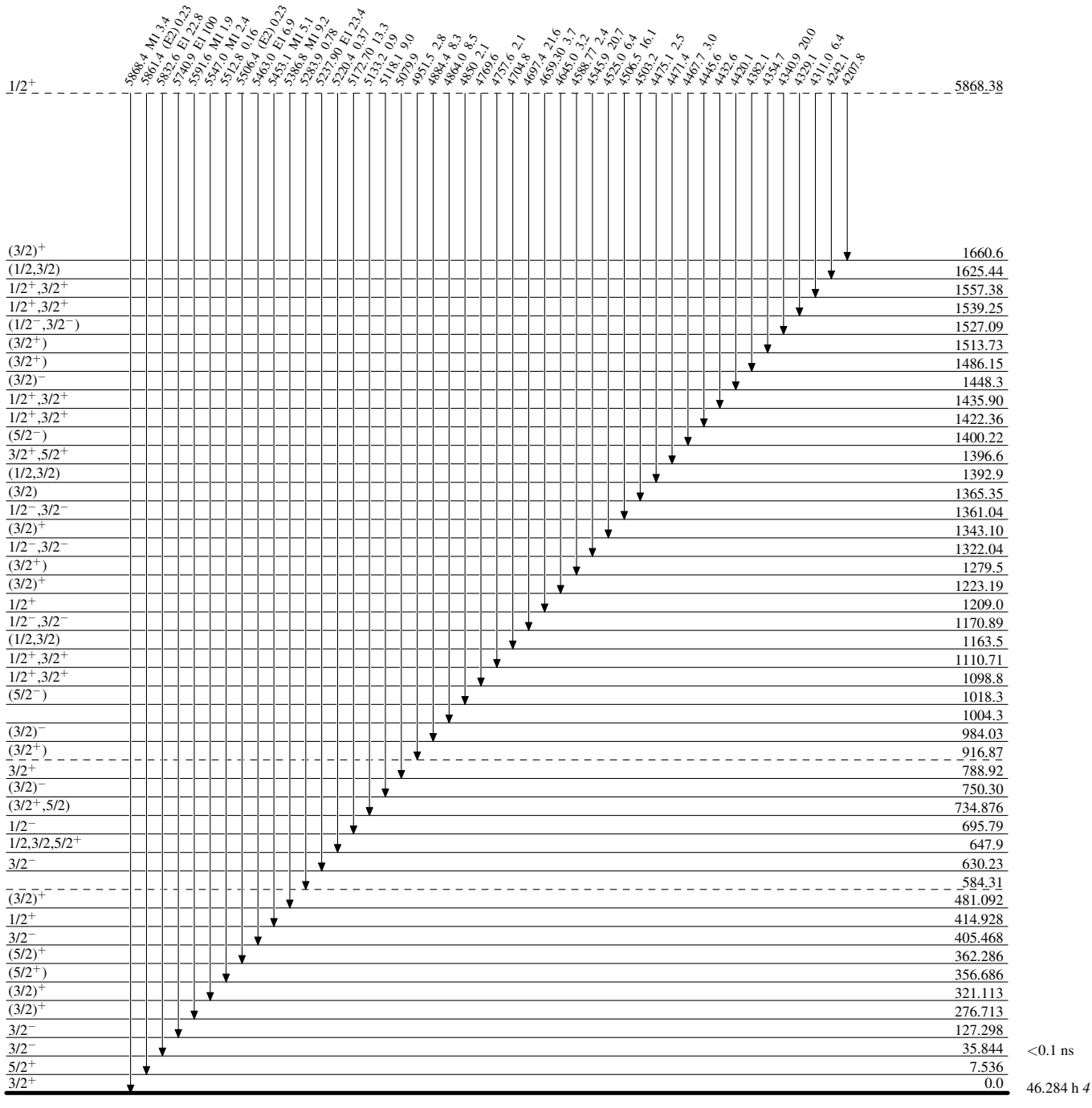
[†] From ^{152}Sm(n,γ) E=th unless noted otherwise.
[‡] From ^{152}Sm(n,γ) E=th, except as noted.
[#] From (HI,xnγ).
[@] Weighted average (unc covering both values) of values from (n,γ) E=th and β^- decay.
[&] From (n,γ) E=th: two γ cascade.
[a] From (n,γ) E=2 keV:arc.
[b] Doublet.
[c] (E2,M1) from conversion data; placement in level scheme rules out M1 in (n,γ) E=th.
[d] Additional information 9.
[e] Additional information 10.
[f] Multiply placed with undivided intensity.
[g] Placement of transition in the level scheme is uncertain.

$^{153}_{62}Sm_{91}$-26

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

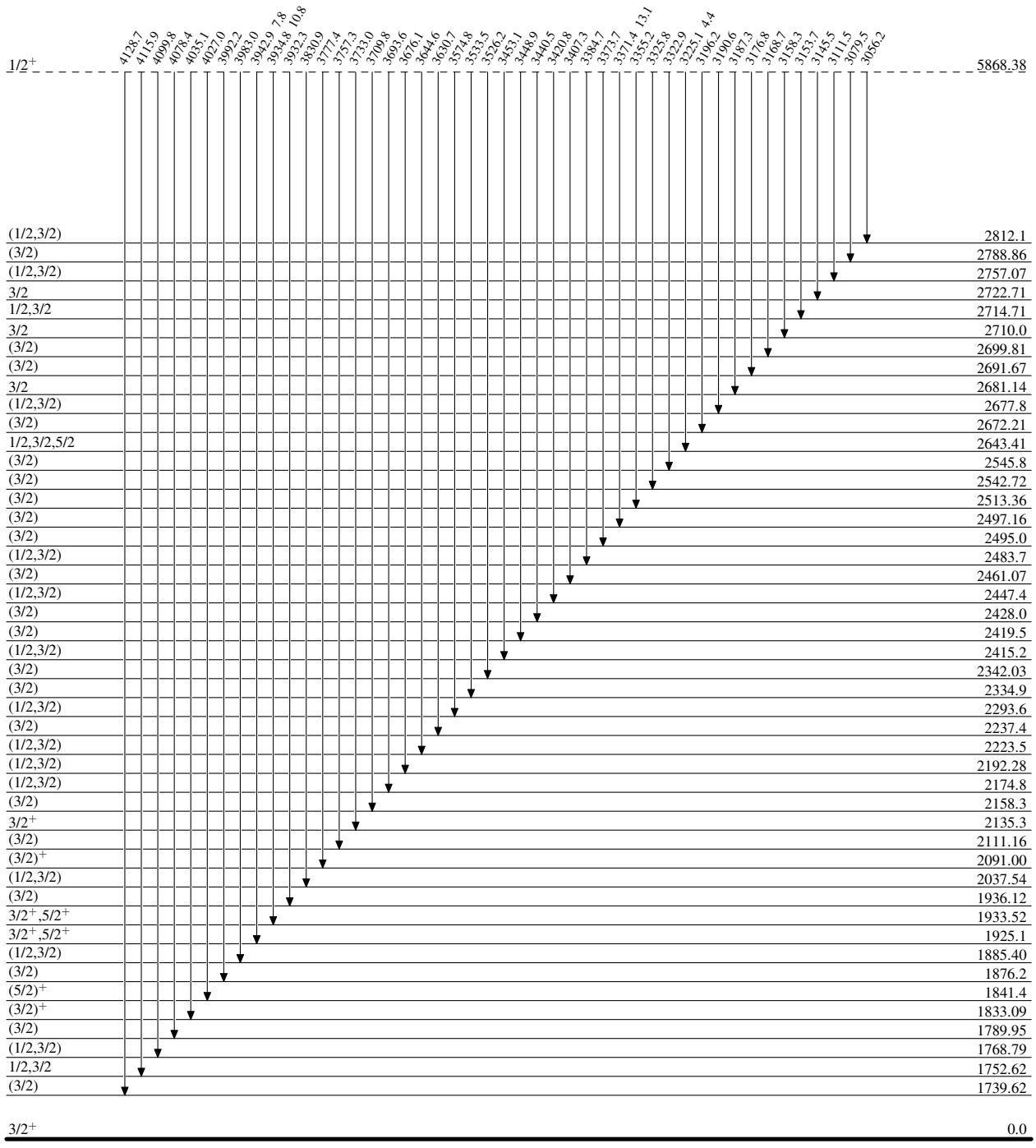


$^{153}_{62}Sm_{91}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

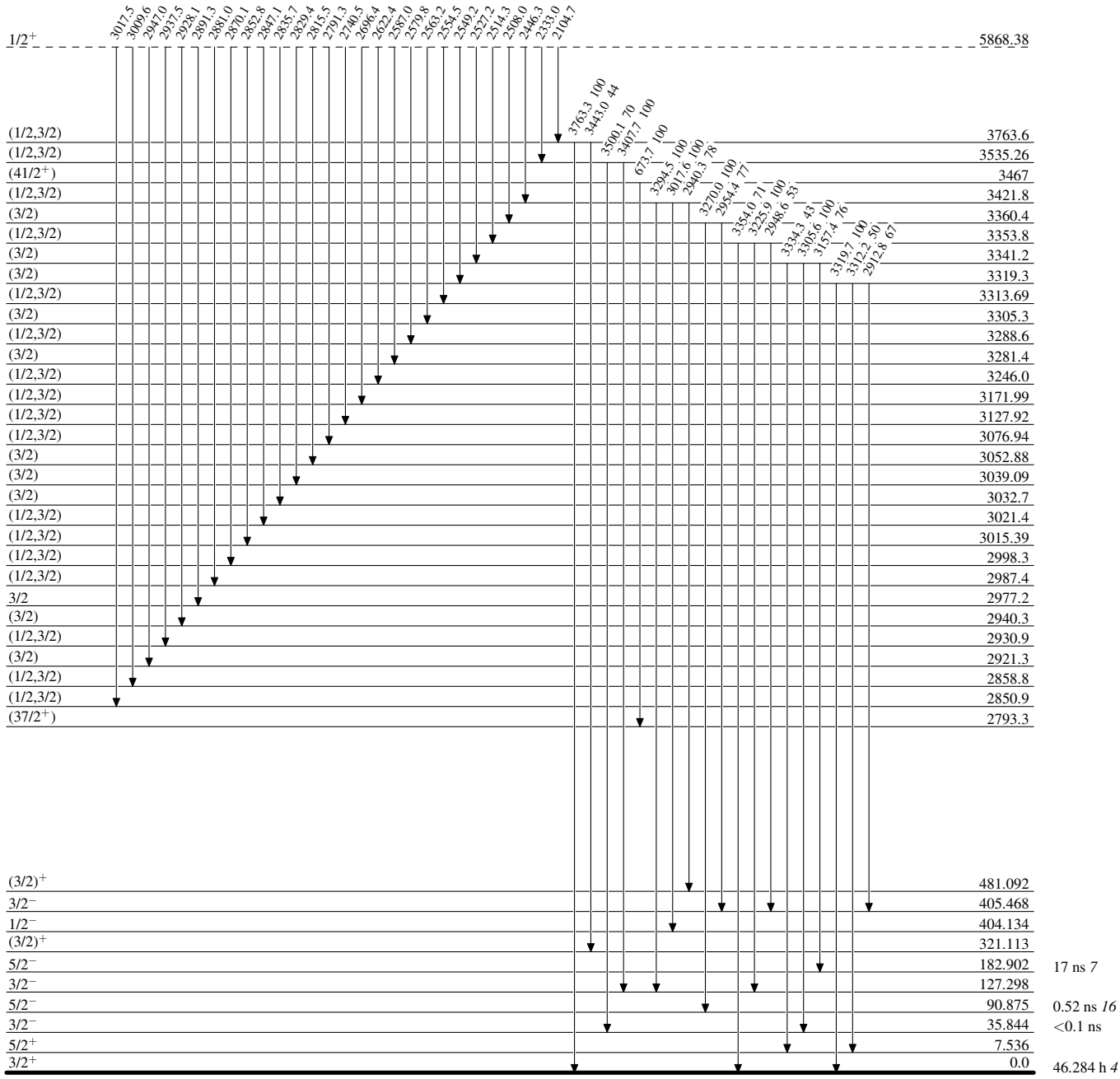


$^{153}_{62}Sm_{91}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

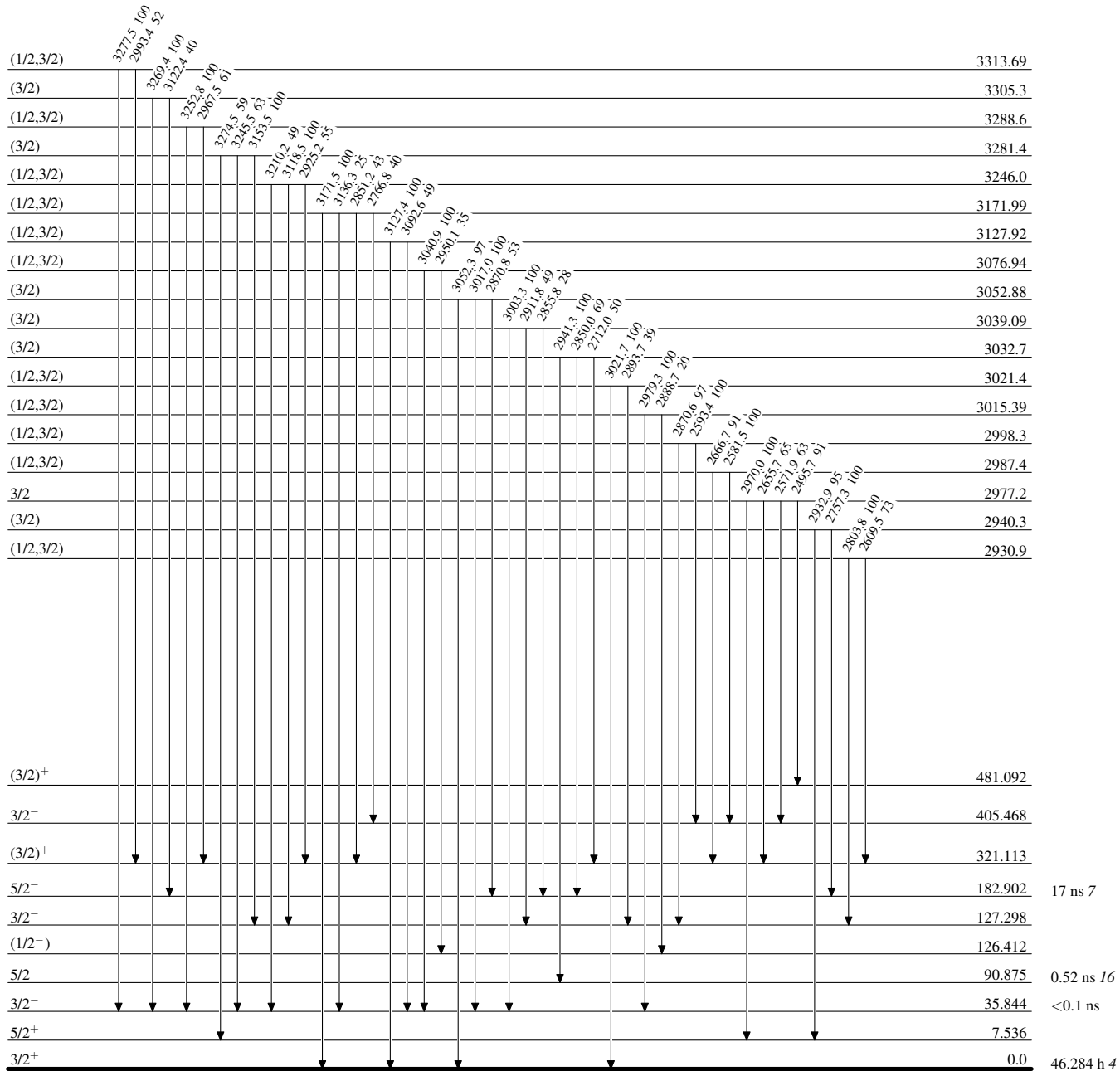


$^{153}_{62}Sm_{91}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

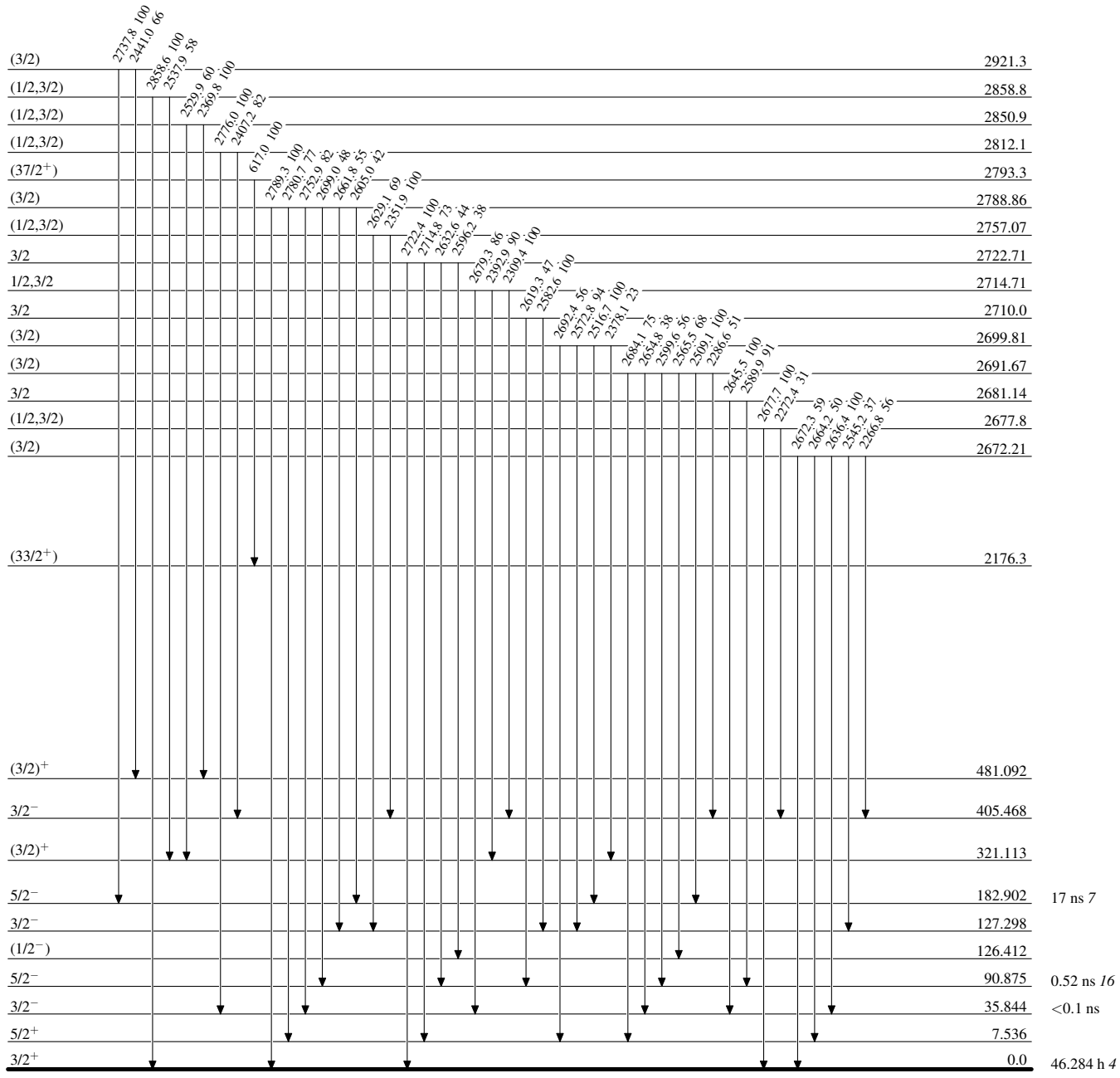


$^{153}_{62}Sm_{91}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

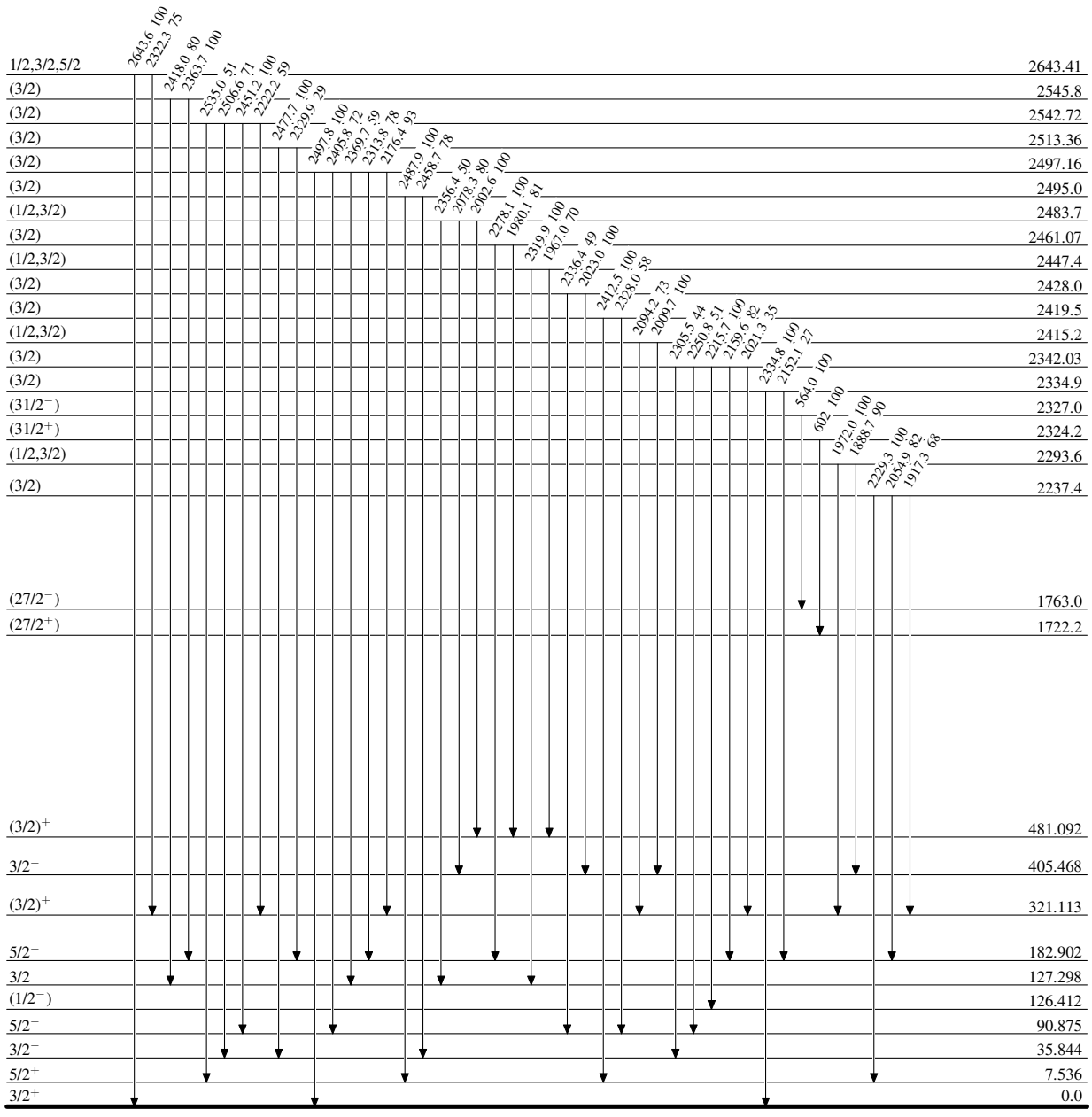


$^{153}_{62}Sm_{91}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

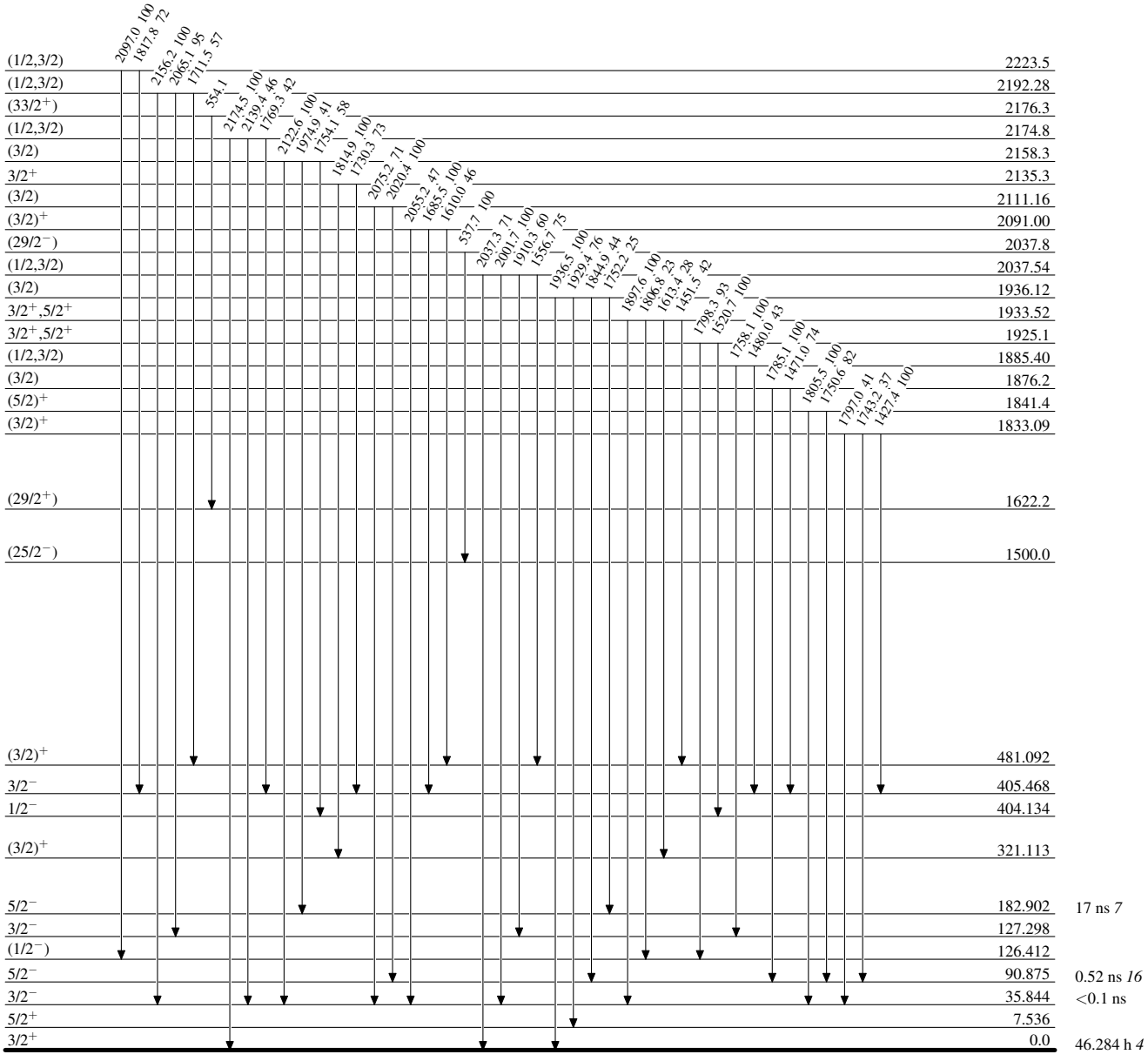


$^{153}_{62}Sm_{91}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

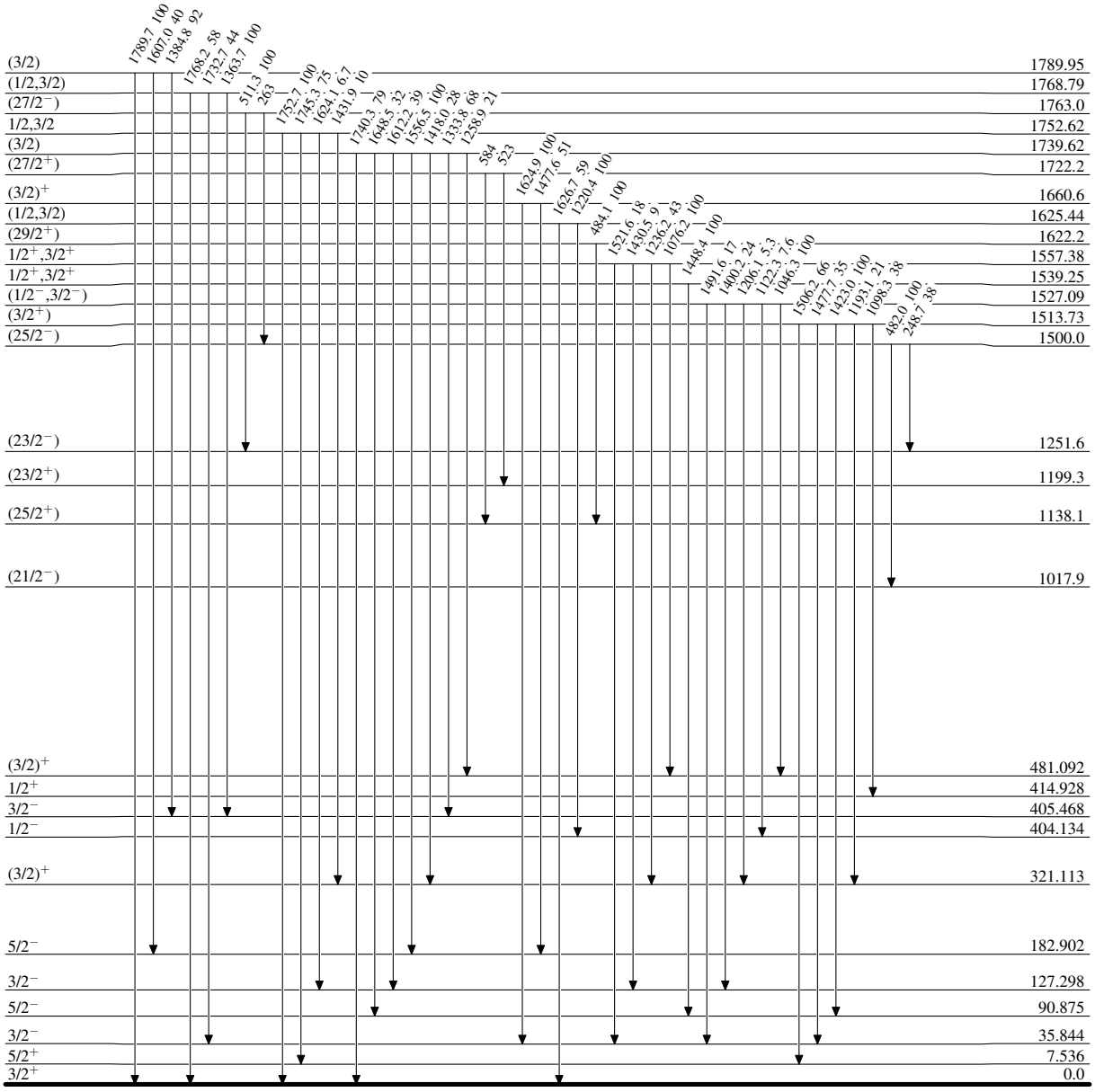


$^{153}_{62}Sm_{91}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

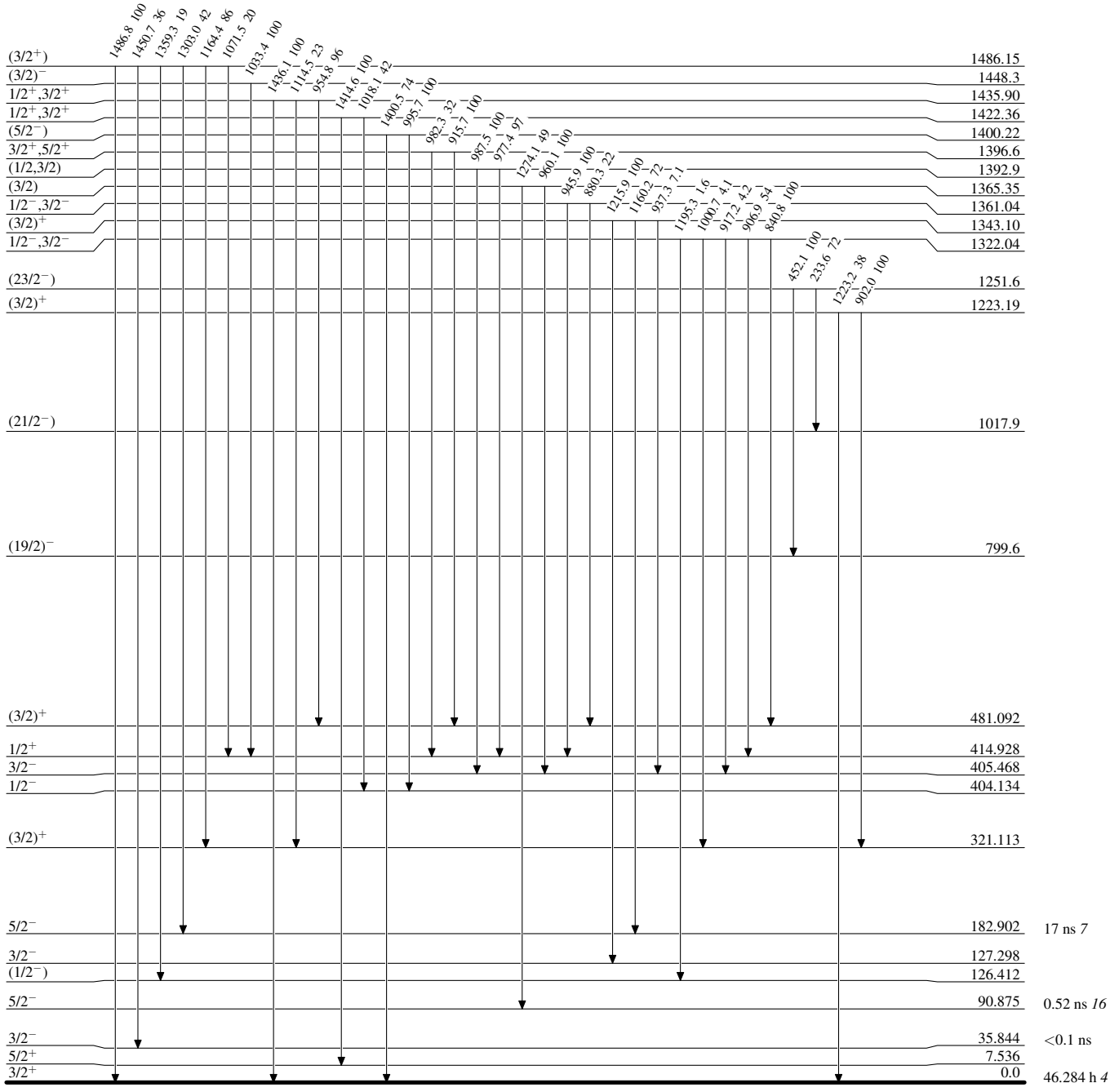


$^{153}_{62}Sm_{91}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

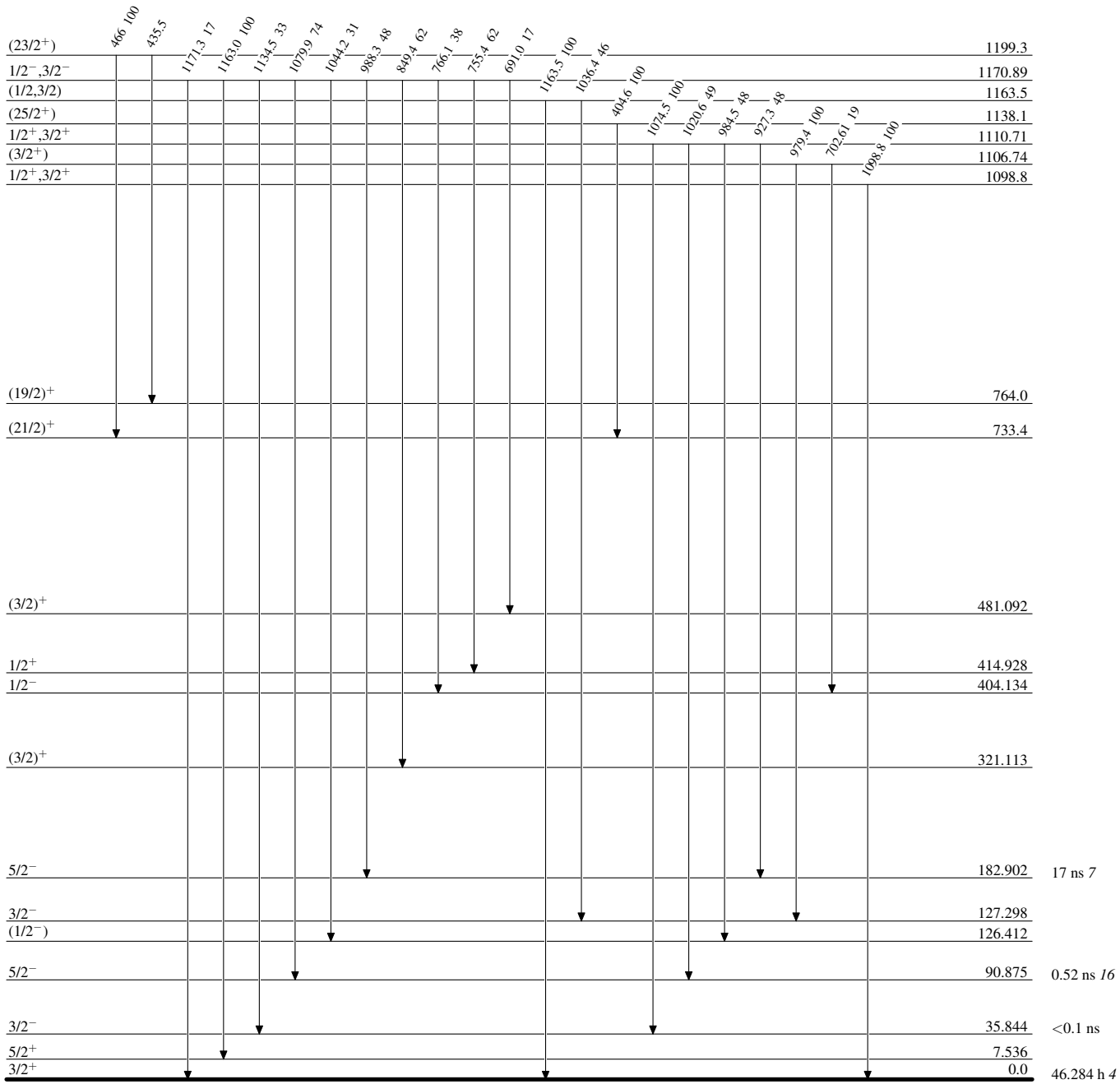


$^{153}_{62}Sm_{91}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

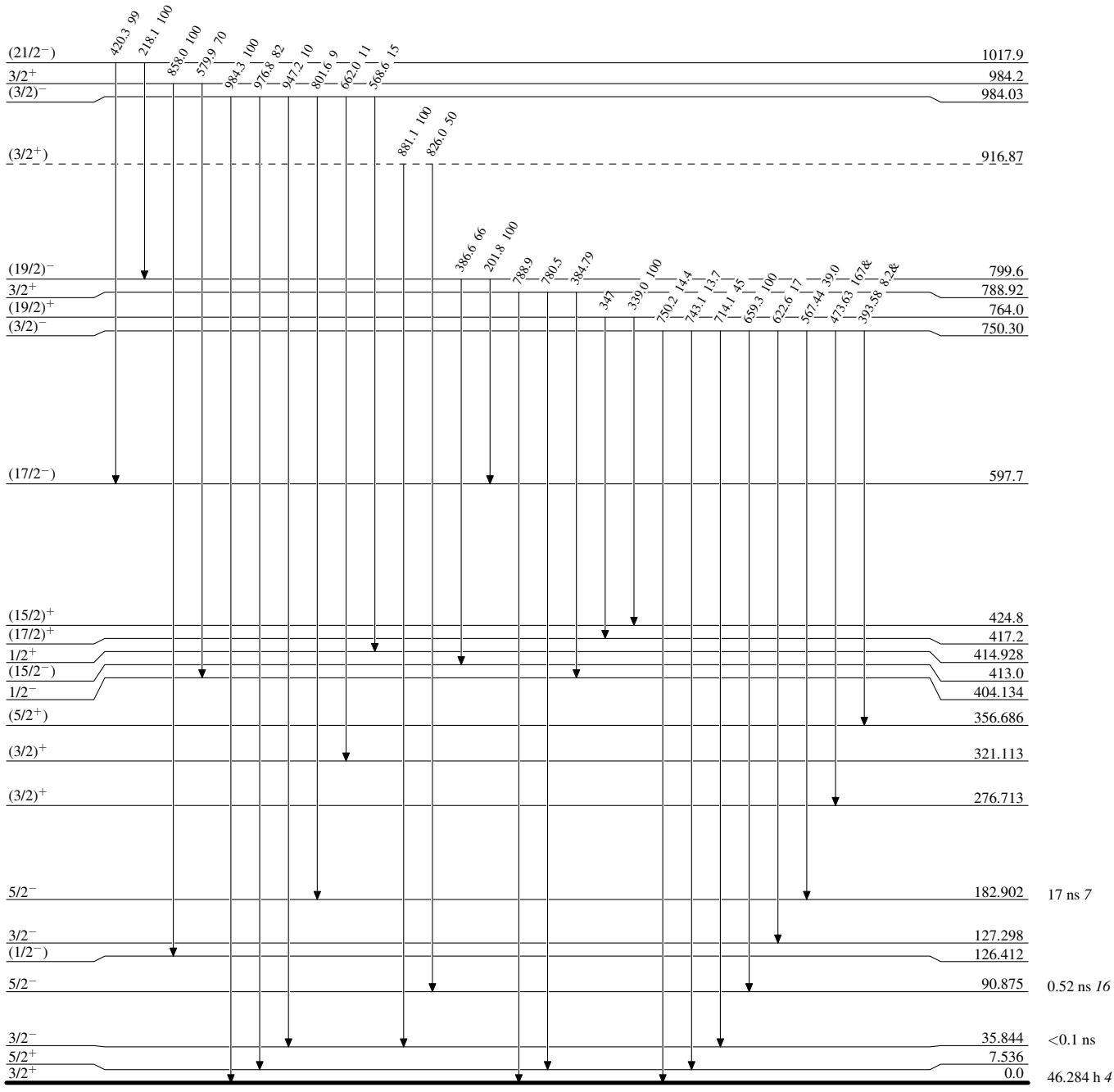


$^{153}_{62}Sm_{91}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



$^{153}_{62}Sm_{91}$

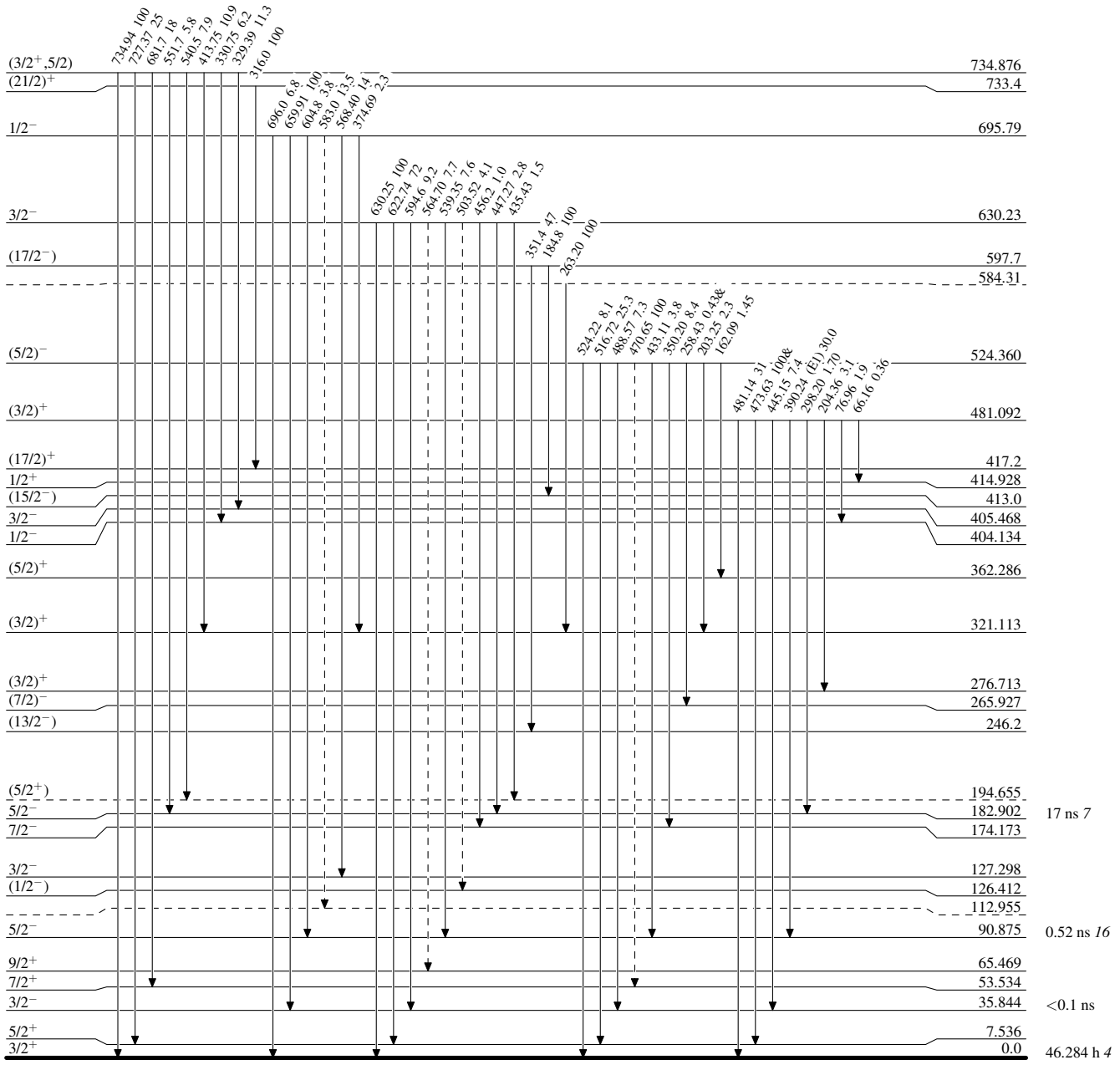
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

Legend

γ Decay (Uncertain)

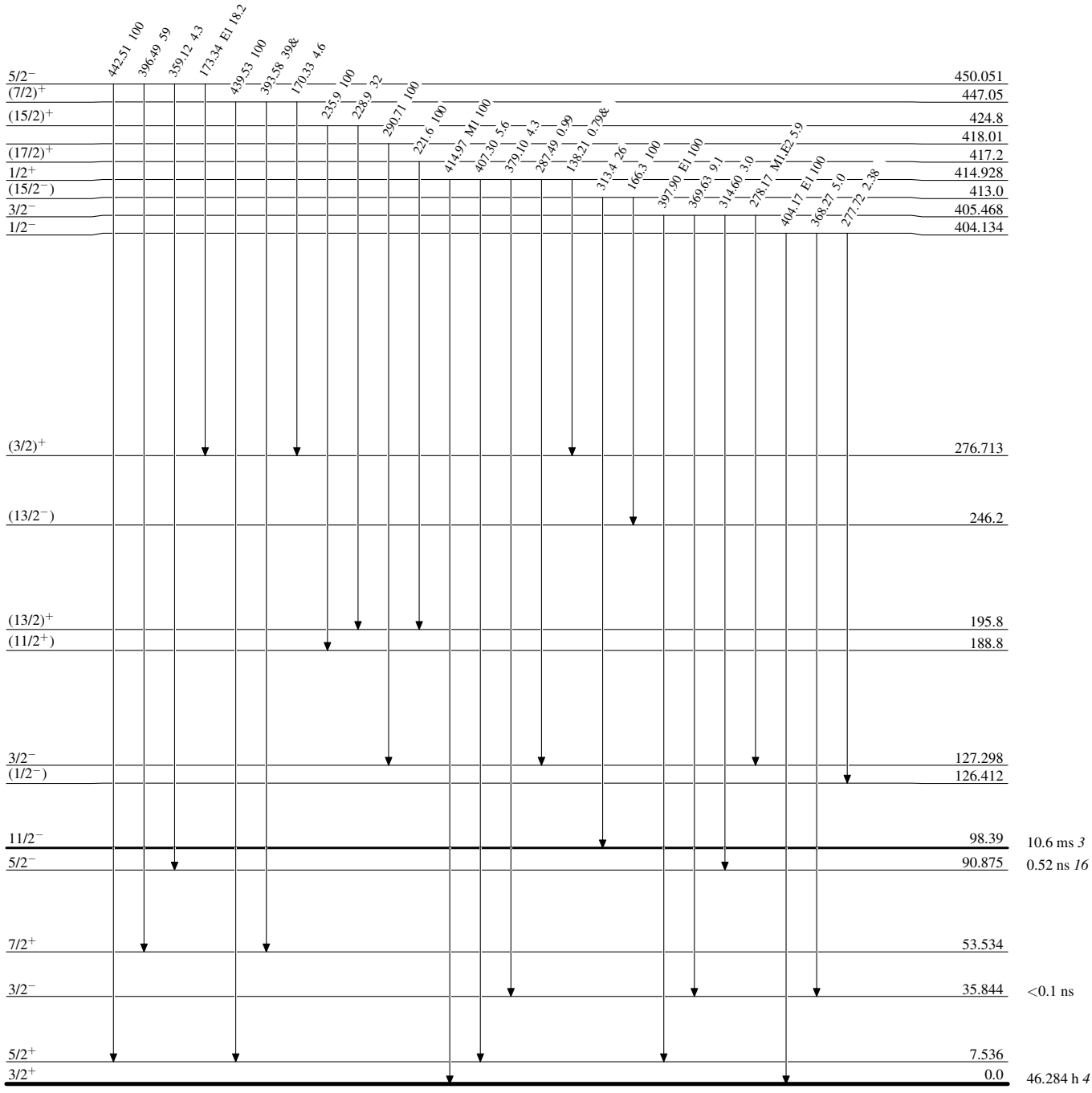


$^{153}_{62}Sm_{91}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

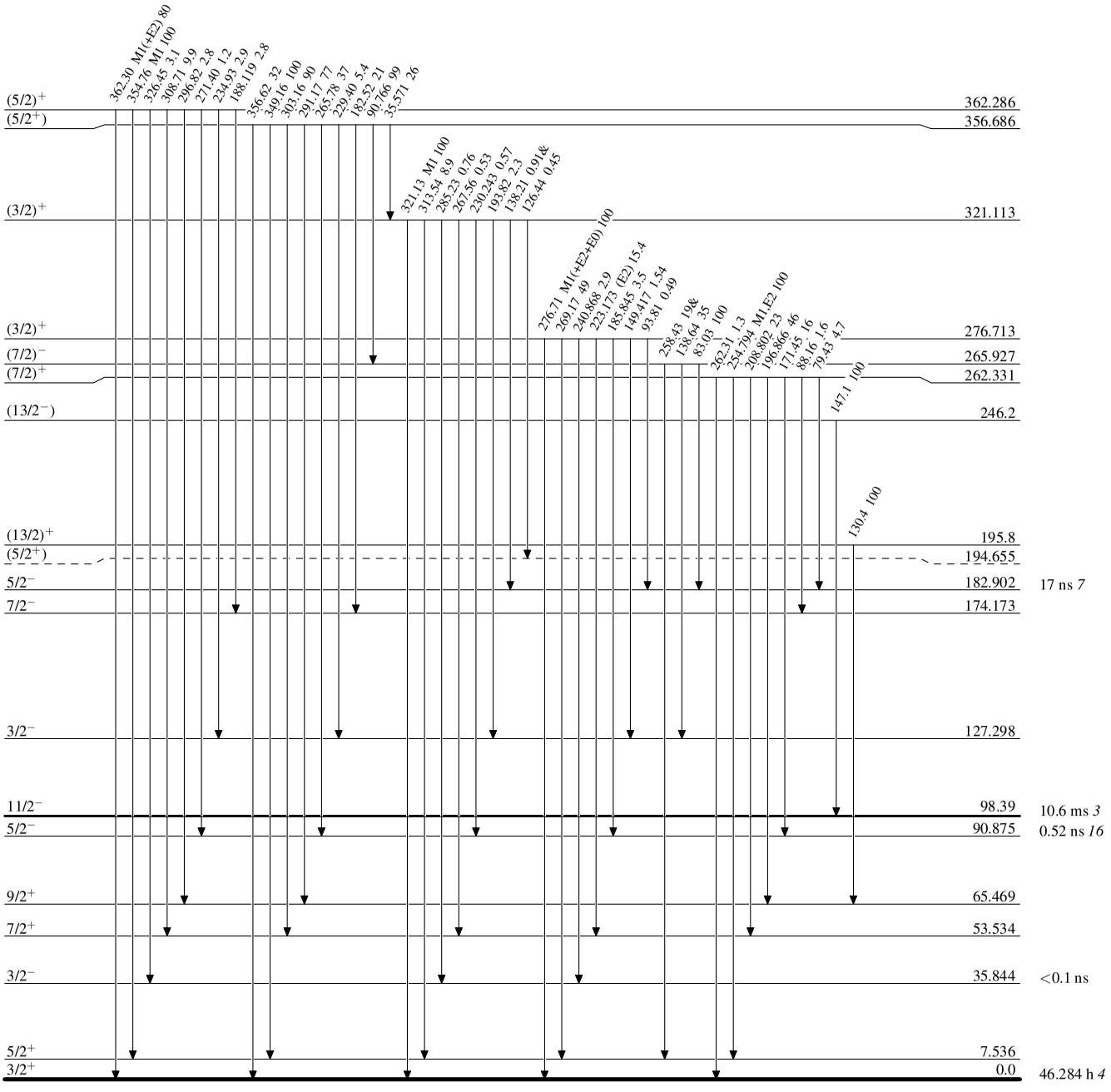


$^{153}_{62}Sm_{91}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



$^{153}_{62}Sm_{91}$

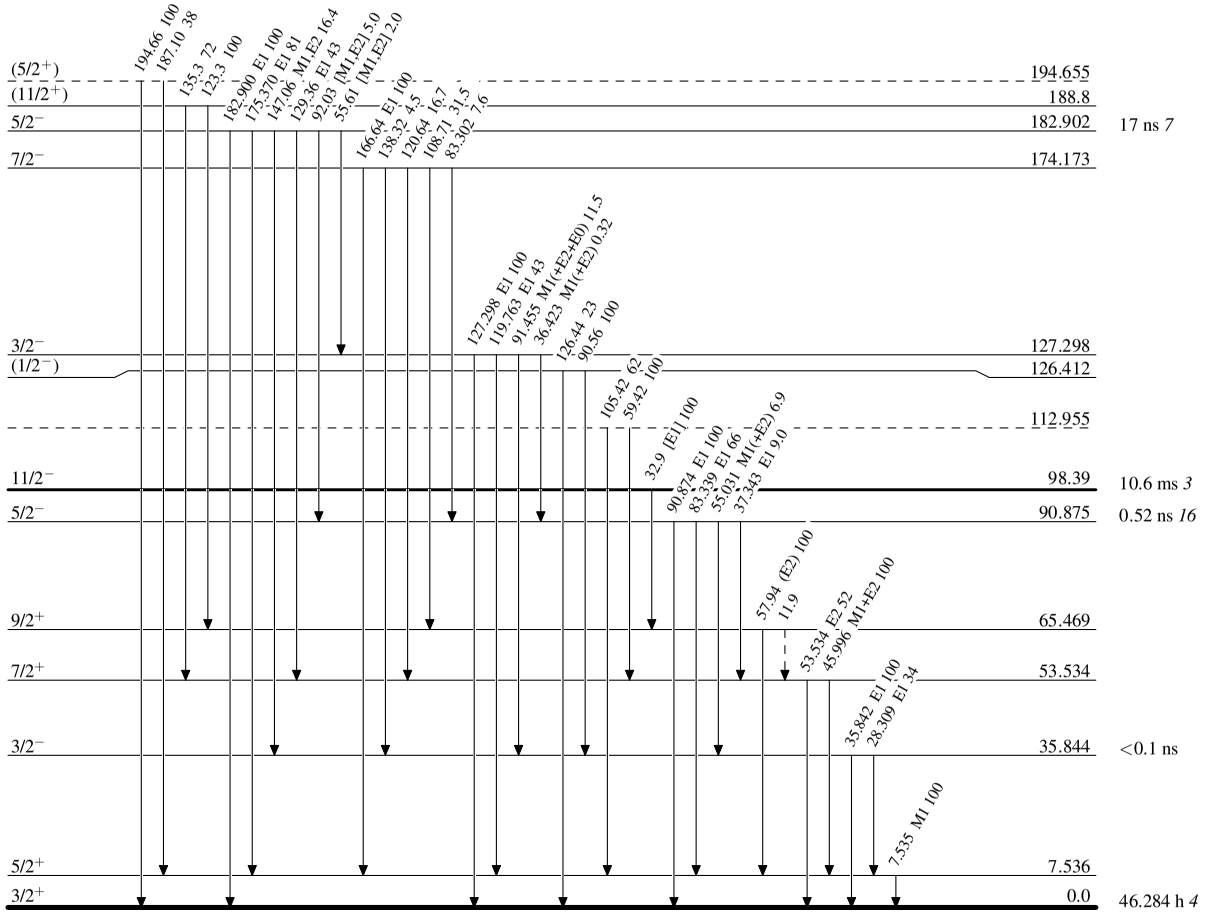
Adopted Levels, Gammas

Legend

Level Scheme (continued)

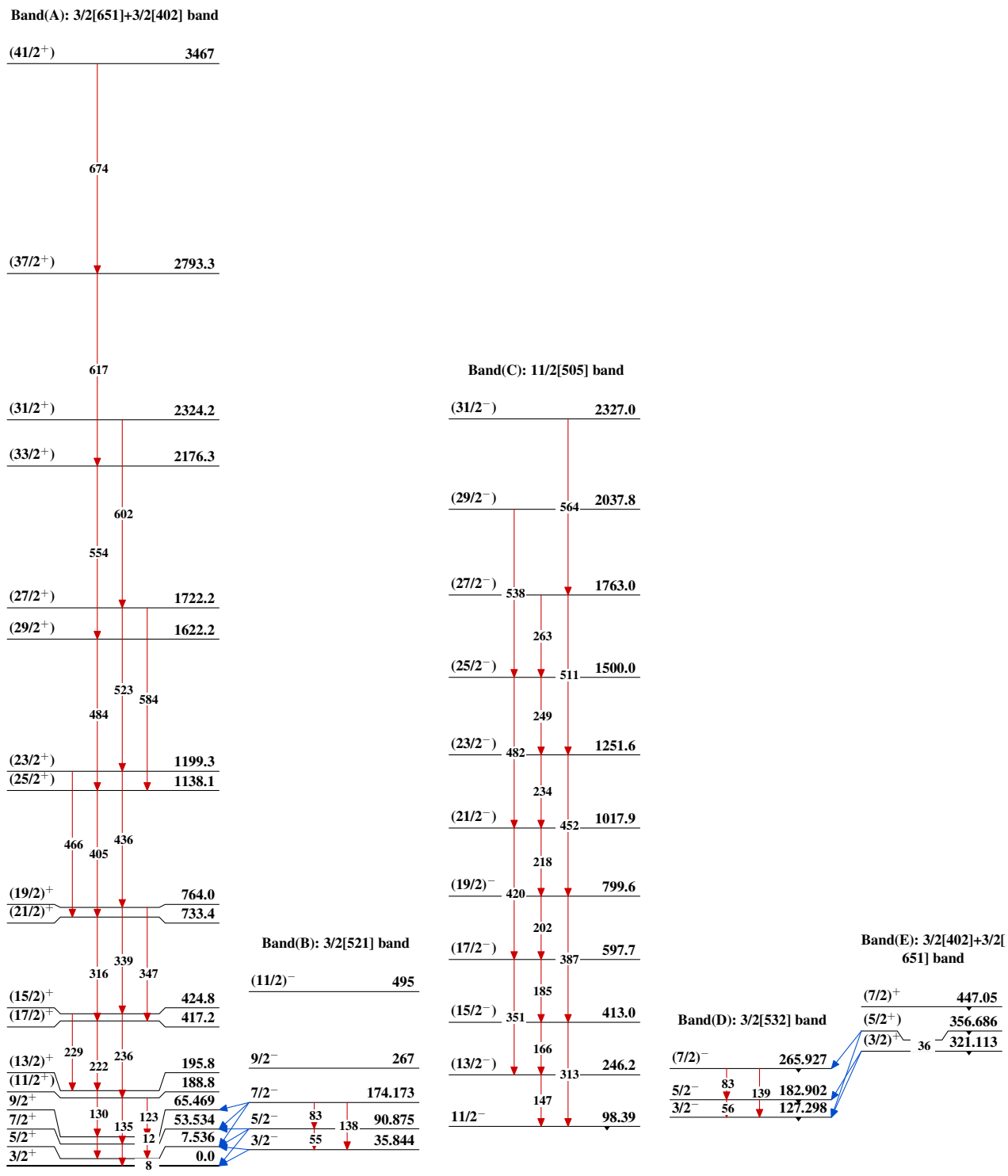
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

- - - - - - ► γ Decay (Uncertain)



$^{153}_{62}Sm_{91}$

Adopted Levels, Gammas



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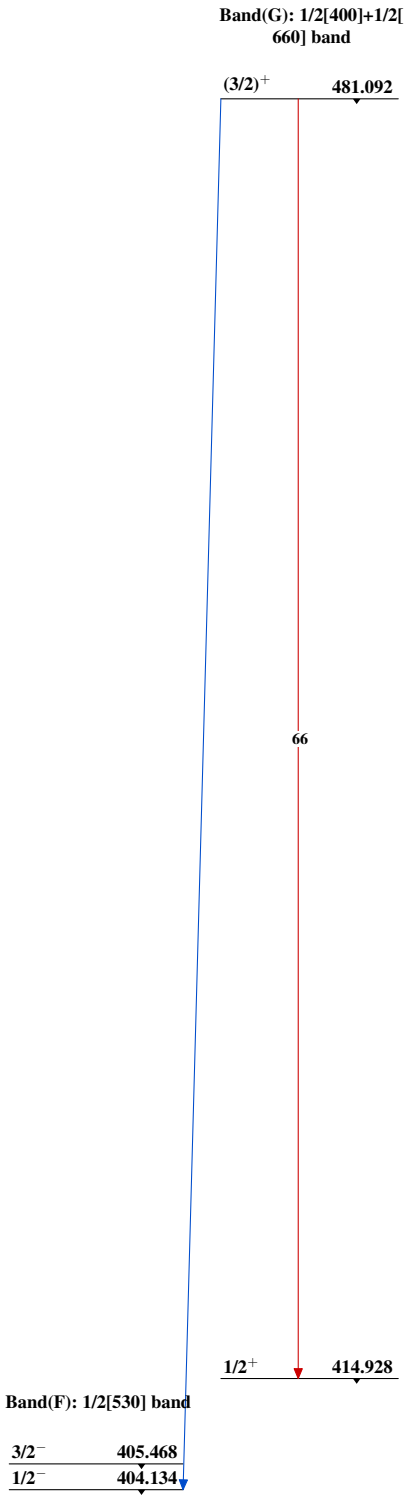
Adopted Levels, Gammas (continued)



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Adopted Levels, Gammas (continued)

Band(H): 1/2[521] band

$(9/2^-)$ 1000

$(7/2^-)$ 922

$(5/2)^-$ 796

$(3/2)^-$ 750.30

$1/2^-$ 695.79

Band(I): 5/2[523] band

$(7/2^-)$ 549

$5/2^-$ 450.051

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