Adopted Levels, Gammas

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

Q(β^-)=76.6 *5*; S(n)=5596.46 *11*; S(p)=8268 *20*; Q(α)=1145.6 *10* 2017Wa10
S(2n)=13583.2 *11*; S(2p)=14778.8 *20* 2017Wa10
Additional information 1.
Additional information 2.
See ^{150}Sm(n,γ),(n,n):resonances dataset for 23 neutron resonances in the energy region 20 eV to 1.6 keV.
1986De36: particle-γ coincidence data in ^{152}Sm(^{208}Pb,^{209}Pbγ).
Isotope shift measurements: 1985Al06, 1985Dy01, 1984Ea01, 1984Al35.

^{151}Sm Levels

Cross Reference (XREF) Flags

A	^{151}Pm β^- decay (28.40 h)	E	^{150}Sm(d,p)	I	^{152}Sm(d,t)
B	^{149}Sm(t,p)	F	^{150}Sm(α,^{3}He)	J	^{152}Sm(^{3}He,^{4}He)
C	^{150}Nd(α,3nγ)	G	Coulomb excitation	K	^{152}Eu(t,α)
D	^{150}Sm(n,γ) E=th	H	^{152}Sm(p,d)	L	^{153}Eu(μ,2nγ)

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	XREF	Comments
0.0[b]	5/2$^-$	90 y *8*	AbCD G J L	%β^-=100 μ=−0.3611 *13* (1990En01,2005St24) Q=+0.71 *7* (1990En01,2005St24) <r^2>$^{1/2}$=5.054 fm *9* (2004An14 evaluation). μ: Others: 0.368 *3* (1985Dy01),−0.3625 *17* (1985Al06,1986Al33), −0.3630 *5* (1981Do07), 0.355 *15* (1971Ro21). 1989Ra17 evaluation adopted value from 1981Do07. μ: crossed-beam LASER fluorescence method (1990En01). Others: Atomic-beam resonance fluorescence method (1981Do07,1985Dy01,1985Al06, 1986Al33), EPR technique (1971Ro21). Q: crossed-beam LASER fluorescence method (1990En01). Others: Atomic-beam resonance fluorescence method: 0.67 *7* (1985Dy01), +0.65 *15* (1985Al06,1986Al33), +0.67 *7* (1981Do07). Δ<r^2>(^{151}Sm−^{152}Sm)=0.279 fm^2 *12* (1985Dy01), 0.269 fm^2 *25* (1985Al06), 0.262 fm^2 *10* (1984Ea01). Δ<r^2>(^{151}Sm−^{144}Sm)=0.974 fm^2 *25* (1986Al33). Δ<r^2>(^{150}Sm−^{151}Sm)=0.149 fm^2 (1990En01). Δ<r^2> measured by LASER spectroscopic studies (1985Al06,1986Al33,1985Dy01,1984Ea01). Review of hyperfine data: 1995Ga38. J$^\pi$: spin measured by EPR method (1971Ro21). M1 γ between g.s. and 4.82 level and L(d,t)=1 for 4.82 level give negative parity for both levels and J=3/2 for 4.82 level. $T_{1/2}$: average of 93 y *8* (1968Re04) and 87 y *9* (1965Fl02). Others: 1955Me52 1952Ru10, 1952Ka26, 1950In01. Configurations: mainly 5/2[523] and 3/2[532]. The 3/2[521] component does not contribute much as suggested by the non-observation of the 91, 5/2$^-$ level in ^{153}Sm with 3/2[521] configuration in ^{151}Sm(t,p) reaction (2005Bu21).
4.821[h] *3*	3/2$^-$	35 ns *1*	AbCDE HIJ L	J$^\pi$: see J$^\pi$ comment for g.s. $T_{1/2}$: γ(ce)(t) (1971Dr05). Other: 1963Bu02.
65.826[a] *5*	7/2$^-$	0.40 ns *6*	AbCDEfGHij	E(level): main contribution in (t,p) is from 65.8, 7/2$^-$ level as suggested by L=0 transfer.

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Adopted Levels, Gammas (continued)

^{151}Sm Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	XREF	Comments
				J$^{\pi}$: L(t,p)=0 from 7/2$^-$ target. $T_{1/2}$: B(E2) in Coul. ex., δ(65.8γ) and branching. Others: $\gamma\gamma$(t) (1971Ho09,1962Ch06).
69.703[e] *6*	5/2$^-$	<0.5 ns	AbCD f ij	$T_{1/2}$: $\gamma\gamma$(t) (1971Ho09). J$^{\pi}$: M1 γ's to 3/2$^-$ and 5/2$^-$. J=3/2 not allowed by 275$\gamma(\theta)$ from 345, 3/2$^+$ level.
91.532[#] *9*	(9/2)$^+$	78 ns *1*	A CDE HIJ	μ=−0.95 *5* (1974Dr03,1989Ra17) μ: PAC method. J$^{\pi}$: E1 γ to 7/2$^-$ and γ from (13/2)$^+$. L(d,t)=3 assignment for this level must be incorrect. See 1973Ne16 for discussion of this discrepancy. $T_{1/2}$: $\gamma\gamma$(t) (1971Ho09).
104.831 *5*	3/2$^-$	0.48 ns *3*	A CD G	μ=+0.31 *11* (1971Be23,1989Ra17) μ: IPAC method. μ=0.52 (1971Be23) corrected for J=3/2. See also 2005St24 compilation of moments. J$^{\pi}$: M1 γ's to 3/2$^-$ and 5/2$^-$, $\gamma\gamma(\theta)$ and $\gamma(\theta)$ in ^{151}Pm β^-. $T_{1/2}$: $\beta\gamma$(t) (1965Fo08). Others: 0.48 ns *6* from γ(ce)(t) (1971An07), 1971Ho09, 1962Ch06. From B(E2) in Coul. ex., δ(105γ) and branching $T_{1/2}$=0.62 ns *23*.
147.91[#] *6*	13/2$^+$		C EF HIJ	Doublet in (p,d). J$^{\pi}$: L(^{3}He,α)=6 and band ($i_{13/2}$) assignment. See also J$^{\pi}$ comment for 531 level.
167.750 *7*	5/2$^+$	0.38 ns *4*	A CDe i L	μ=+1.8 *5* (1971Be23,1989Ra17) μ: IPAC method. μ=0.57 (1971Be23) corrected for J=5/2 and $T_{1/2}$=0.38 ns. See also 2005St24 compilation of moments. J$^{\pi}$: E1 γ's to 3/2$^-$ and 7/2$^-$. $T_{1/2}$: $\beta\gamma$(t) (1971An07). Others: 0.76 ns *35* (quoted by 1971An07 from an other group), 1971Ho09.
168.402 *8*	(5/2)$^-$	39 ps *+66−36*	A CDe G i L	J$^{\pi}$: M1 γ's to 3/2$^-$ and 5/2$^-$. In (d,t), L=2+3 for the 167.7, 168.4 doublet. L=2 most probably corresponds to 167.7, 5/2$^+$ level whereas L=3 corresponds to 168.4 level. $T_{1/2}$: B(E2) in Coul. ex., δ(168γ) and branching. Other: $\gamma\gamma$(t) (1971Ho09).
175.38[e] *2*	9/2$^-$		A CDEF HIJ	J$^{\pi}$: L(^{3}He,α)=L(d,t)=5 and ΔJ=1, 109.5γ to 7/2$^-$.
208.991[h] *8*	7/2$^-$	≈47 ps	ABCDE G IJ L	J$^{\pi}$: L(d,t)=3; L(t,p)=0 from 7/2$^-$ target; $\gamma(\theta)$ and $\gamma\gamma(\theta)$ in ^{151}Pm β^-. $T_{1/2}$: B(E2) in Coul. ex., δ(209γ) and adopted branching.
220 *10*	3/2$^+$,5/2$^+$		H	J$^{\pi}$: L(p,d)=2.
261.13[@] *4*	(11/2)$^-$	1.4 μs *1*	C HIJK	%IT=100 J$^{\pi}$: L(p,d)=L(d,t)=L(^{3}He,α)=5 and γ to (13/2)$^+$. Spectroscopic strengths agree with 11/2[505] assignment. $T_{1/2}$: γ(t) in (α,3nγ) (1973Co34).
284.95 *2*	1/2$^-$,3/2$^-$		A D I	J$^{\pi}$: primary γ from 1/2$^+$ in (n,γ) and M1,E2 γ to 3/2$^-$.
294.82[b] *4*	9/2$^-$	26 ps *7*	ABCD G	J$^{\pi}$: $\gamma\gamma(\theta)$ in Coul. ex. and direct excitation in Coul. ex. from 5/2$^-$. $T_{1/2}$: B(E2) in Coul. ex., mult=E2 for 295γ and adopted Branching.
302.62 *2*	7/2$^-$		AB D	J$^{\pi}$: L(t,p)=0 from 7/2$^-$ target; γ's to 3/2$^-$ and (9/2)$^+$.
306.79 *2*	3/2$^+$		A DE HIJ	In single particle reactions assignment to this level is based on L transfers. Uncertain doublet in (p,d). J$^{\pi}$: $\gamma(\theta)$ of 202γ and $\gamma\gamma(\theta)$ in ^{151}Pm β^-. L=2 in (d,t).
313.85 *2*	(1/2$^-$,3/2$^-$)		Ab De i	J$^{\pi}$: weak (E1) primary γ from 1/2$^+$ in (n,γ).
315.28 *2*	(3/2$^-$)		AbCDe i	J$^{\pi}$: (E1) primary γ from 1/2$^+$ in (n,γ) and γ's to 7/2$^-$, 3/2$^-$.
323.944 *8*	7/2$^+$		A CD	J$^{\pi}$: $\gamma(\theta)$ of 324γ and (258γ)(65γ)(θ) in ^{151}Pm β^-. E1 γ's to 5/2$^-$ and 7/2$^-$.
344.909 *6*	3/2$^+$	9.3 ps *2*	A D HIJ L	Doublet in (p,d).

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Adopted Levels, Gammas (continued)

^{151}Sm Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	XREF	Comments
				J$^{\pi}$: E1 γ's to 3/2$^-$ and 5/2$^-$, $\gamma(\theta)$ and $\gamma\gamma(\theta)$ in ^{151}Pm β^-. $T_{1/2}$: from (β)(ce)(t) (1977Bu12). Others: 1971An07, 1965Fo08.
355.65 *2*	1/2$^+$		A DE I	J$^{\pi}$: L=0 in (d,t).
358.0?			D	
383.20[#] *7*	(17/2$^+$)		C J	J$^{\pi}$: probable band assignment and stretched E2 transition to 13/2$^+$.
395.581 *8*	5/2$^+$		A D HIJ	J$^{\pi}$: E1 γ's to 3/2$^-$ and 5/2$^-$, $\gamma(\theta)$ and $\gamma\gamma(\theta)$ in ^{151}Pm β^-.
405.5?	(1/2,3/2,5/2$^+$)		D	J$^{\pi}$: primary γ from 1/2$^+$ in (n,γ).
415.64 *2*	(5/2$^-$,7/2$^-$)		A DE G	Doublet in Coulomb excitation. J$^{\pi}$: γ's to 3/2$^-$, 7/2$^-$ and 7/2$^+$. (M1,E2) γ to 7/2$^-$.
419.1[&] *2*	(11/2$^+$)		C	J$^{\pi}$: ΔJ=1 γ's to 13/2$^+$ and 9/2$^-$.
423.18[a] *9*	(11/2)$^-$		BC J	J$^{\pi}$: L=5 in (^{3}He,α), γ to 13/2$^+$.
437.5 *3*	(5/2$^+$)		D	J$^{\pi}$: (E1) γ following p-wave capture in ^{150}Sm g.s. gives J$^{\pi}\leq$5/2$^+$. Absence in s-wave capture favors 5/2$^+$.
445.20[@] *5*	(13/2$^-$)		C L	J$^{\pi}$: ΔJ=1, D+Q γ to (11/2)$^-$ and band assignment.
445.68 *1*	5/2$^+$	20 ps *3*	A D K	J$^{\pi}$: E1 γ's to 3/2$^-$, 5/2$^-$. 441$\gamma(\theta)$ and $\gamma\gamma(\theta)$ in ^{151}Pm β^-. $T_{1/2}$: (β)(ce)(t) (1977Bu12). Other: 1971An07.
448.58 *3*	(3/2)$^-$		AB DE I	J$^{\pi}$: L(d,t)=1; γ's to 7/2$^-$ and 5/2$^+$.
470.41 *3*	(5/2,7/2$^+$)		A DE I	J$^{\pi}$: γ's to 7/2$^-$, 7/2$^+$, 3/2$^+$.
478 *2*			B	
490.34 *3*	(7/2)$^-$		A D F J	J$^{\pi}$: L=3 in (^{3}He,α) and γ to (9/2)$^+$.
502.27[h] *8*	(11/2$^-$)		C G	J$^{\pi}$: ΔJ=1 γ to 9/2$^-$ and band assignment.
502.33 *3*	1/2$^+$		D HI	Doublet in (p,d). J$^{\pi}$: L=0 in (d,t).
505.3	(5/2$^+$)		D H	J$^{\pi}$: L=2+0 in (p,d). L=0 probably corresponds to the 502.29 level and L=2 to the 505.3 level. (E1) primary γ following p-wave capture in (n,γ) supports J$^{\pi}$=5/2$^+$.
521.15 *2*	3/2$^+$		A D HIJ	J$^{\pi}$: L=2 in (d,t) and $\gamma(\theta)$ in ^{151}Pm β^-.
530.2[d] *3*	(9/2$^+$)		C	
531.81[e] *15*	13/2$^-$		C G J	J$^{\pi}$: ΔJ=2 γ to 9/2$^-$, ΔJ=0 γ to 13/2$^+$ and RUL.
620.51 *6*	(3/2$^-$,5/2,7/2$^+$)		A D G	J$^{\pi}$: γ's to 7/2$^-$ and 3/2$^+$.
632.07 *3*	(5/2)$^+$		D HI	J$^{\pi}$: L=2 in (p,d) and γ to (7/2)$^-$.
648.26[@] *6*	(15/2$^-$)		C JK	J$^{\pi}$: ΔJ=1, D+Q γ to (13/2$^-$) and ΔJ=2 γ to (11/2)$^-$.
663.01 *3*	3/2$^{(+)}$		A De	J$^{\pi}$: (M1) primary γ from 1/2$^+$ in (n,γ) and γ's to 5/2$^-$, 5/2$^+$, 1/2$^+$.
663.53 *6*	(5/2$^-$,7/2,9/2$^-$)		A De G	J$^{\pi}$: γ's to 5/2$^-$, 9/2$^-$.
671.99[&] *10*	(15/2$^+$)		C	J$^{\pi}$: ΔJ=2 γ to (11/2$^+$) and ΔJ=1, D+Q γ to (17/2$^+$).
673.1 *2*	(1/2$^-$,3/2$^-$)		D	J$^{\pi}$: (E1) primary γ from 1/2$^+$ capture state.
696.31[b] *11*	(13/2$^-$)		C	J$^{\pi}$: ΔJ=2 γ to 9/2$^-$ and ΔJ=1, D+Q γ to (11/2)$^-$.
703.28 *3*	3/2$^{(-)}$		DE G	J$^{\pi}$: (E1) primary γ from 1/2$^+$ in (n,γ) and γ's to 1/2$^+$, 7/2$^-$.
705.8[d] *3*	(13/2)$^+$		C E HIJ	J$^{\pi}$: L=6 in (p,d); ΔJ=1 γ's to (11/2$^+$) and (11/2)$^-$.
715 *1*	7/2$^-$		B DEFG	XREF: D(712.8?). J$^{\pi}$: L(t,p)=0 from 7/2$^-$ target.
721.96 *4*	(1/2$^-$,3/2$^-$)		D	J$^{\pi}$: (E1) primary γ from 1/2$^+$ in (n,γ). γ's to 1/2$^+$, 3/2$^+$ and 3/2$^-$.
741.03 *3*	3/2$^{(+)}$	<0.1 ns	A D	J$^{\pi}$: 636$\gamma(\theta)$ and $\gamma\gamma(\theta)$ in ^{151}Pm β^-. $T_{1/2}$: (β)(γ)(t) (1971An07).
742.0? *2*	(1/2$^-$,3/2$^-$)		D	J$^{\pi}$: (E1) primary γ from 1/2$^+$ in (n,γ).
750 *15*	11/2$^-$,9/2$^-$		E HIJ	J$^{\pi}$: L=5 in (p,d) and (^{3}He,α).
754.3[f] *4*	(11/2$^+$)		C	J$^{\pi}$: γ's to 9/2$^-$ and (11/2)$^-$; band assignment.
754.83 *6*	(5/2$^-$,7/2$^-$)		D	J$^{\pi}$: γ's to 9/2$^-$, (3/2$^-$).
757.68[#] *9*	(21/2$^+$)		C	J$^{\pi}$: ΔJ=2 γ to (17/2$^+$) and band assignment.
770.5 *2*	(1/2$^-$,3/2$^-$)		D	J$^{\pi}$: (E1) primary γ from 1/2$^+$ in (n,γ).
773.98 *4*	5/2$^{(+)}$		A DE	J$^{\pi}$: from 565$\gamma(\theta)$ in ^{151}Pm β^-.
777.4? *10*	($\leq$7/2)		A D	J$^{\pi}$: γ to (3/2)$^-$.

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Adopted Levels, Gammas (continued)

^{151}Sm Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
791.9 *4*	(5/2$^+$)		D G	XREF: D(?). Jπ: (E1) primary γ following p-wave capture in ^{150}Sm g.s. gives Jπ≤5/2$^+$. Absence in s-wave capture favors 5/2$^+$; however, positive parity is not supported by its population in Coul. ex.
796.8[i] *5*	(11/2$^+$)		C	Jπ: γ to 9/2$^-$ and band assignment.
804.70 *5*	(3/2$^-$,5/2)		D	Jπ: γ′s to 3/2$^+$, 3/2$^-$, 7/2$^-$.
813.5[a] *3*	(15/2$^-$)		C	Jπ: ΔJ=1 γ to (17/2$^+$) and γ to (11/2)$^-$.
821.98 *8*	(3/2$^-$)		D	E(level): this level may be populated in ^{151}Pm β$^-$ decay, also; if 718γ and 753γ are treated as doublets there. Jπ: γ′s to 3/2$^+$, 3/2$^-$, and (7/2)$^-$; possible (E1) primary γ from 1/2$^+$.
822.64 *3*	(3/2$^+$,5/2$^+$)	<0.1 ns	A DE H J	Jπ: (E1) γ to 5/2$^-$. In particle transfer reactions the level corresponds to either of the two levels near 822 keV. L(p,d)=2 gives positive parity for one of these levels. $T_{1/2}$: (β)(ce)(t) (1971An07).
836.2? *4*	(5/2$^+$)		D	Jπ: (E1) primary γ following p-wave capture in ^{150}Sm g.s. gives Jπ≤5/2$^+$. Absence in s-wave capture favors 5/2$^+$.
844.5 *2*	(1/2$^-$,3/2$^-$)		B DE	Jπ: (E1) primary γ from 1/2$^+$ in (n,γ).
850.6[g] *3*	(13/2$^+$)		C	Jπ: ΔJ=1 γ to (11/2)$^-$ and γ to (9/2)$^+$.
851.6 *3*			A D	XREF: D(?).
869.43[@] *8*	(17/2$^-$)		C F K	Jπ: ΔJ=1, D+Q γ to (15/2$^-$), γ to (13/2$^-$).
869.8 *4*	(5/2$^+$)		D	Jπ: (E1) primary γ following p-wave capture in ^{150}Sm g.s. and absence in s-wave capture.
877.62 *4*	5/2$^{(+)}$		A DE	XREF: D(?). Jπ: γ(θ) in ^{151}Pm β$^-$. γ′s known from ^{151}Pm β$^-$ only.
887.32 *8*	(5/2$^-$,7/2)		AB e	Jπ: γ′s to (9/2)$^-$ and 5/2$^-$; log *ft*=7.4 from 5/2$^+$.
889.0 *6*	(1/2,3/2,5/2$^+$)		A De HI	XREF: H(?). γ′s are from ^{151}Pm β$^-$. Jπ: primary γ in (n,γ) from 1/2$^+$ capture state.
894.9[h] *2*	(15/2$^-$)		C	Jπ: ΔJ=1 γ to (17/2$^+$), γ to (11/2$^-$).
898.4?			D	
920.79 *5*	(≤5/2)		D	Jπ: γ to 1/2$^+$.
925.9 *2*	(5/2,7/2)		AB J	Jπ: γ′s to 7/2$^+$, 7/2$^-$, 5/2$^+$ and 5/2$^-$.
937.0?			D	
951.42 *5*	(3/2$^-$)		b D	Jπ: primary γ from 1/2$^+$; γ to 7/2$^-$.
953.48 *4*	3/2$^{(+)}$		Ab DE	Jπ: γ(θ) in ^{151}Pm β$^-$.
955.5?			D	
960.48 *9*	(≤7/2)		D	Jπ: γ′s to 5/2$^+$, (5/2)$^-$.
964.21 *6*	5/2$^{(+)}$		A D H	XREF: D(?). Doublet in (p,d) at 988 *10* with L=2+4. The L=2 component probably corresponds to 964 level and the L=4 to 988 level. Jπ: from 796γ(θ) in ^{151}Pm β$^-$. γ′s known from ^{151}Pm β$^-$ only.
974.7[d] *3*	(17/2$^+$)		C	Jπ: ΔJ=2 γ to 13/2$^+$; ΔJ=1, D+Q γ to (15/2$^+$).
988 *10*	(7/2$^+$,9/2$^+$)		H J	Doublet in both reactions. See comment for 964 level. In (^{3}He,α) the second component probably corresponds to 1016 level. Jπ: L=2+4 for doublet in (p,d). L=4 probably corresponds to 988 level.
993.5[c] *3*	(13/2$^-$)		C	Jπ: γ to 9/2$^-$ and band assignment.
994.15[e] *13*	(17/2$^-$)		C	Jπ: ΔJ=2 γ to 13/2$^-$ and ΔJ=0 γ to (17/2$^+$).
1016.5 *4*	(3/2$^-$,5/2,7/2$^-$)		A E J	See comment for 988 level. Jπ: log *ft*=8.0 from 5/2$^+$ and γ′s to 3/2$^-$, (7/2$^-$).
1017.31 *5*	1/2,3/2,5/2$^+$		D	Jπ: primary γ from 1/2$^+$ in (n,γ).
1022 *2*			B D	XREF: D(1020.7?).

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Adopted Levels, Gammas (continued)

^{151}Sm Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	XREF	Comments
1041.4[i] *3*	(15/2$^+$)	C	J$^{\pi}$: γ's to (11/2$^+$) and 13/2$^+$; band assignment.
1054.25[&] *12*	(19/2$^+$)	C	J$^{\pi}$: ΔJ=1, D+Q γ's to (17/2$^+$) and (21/2$^+$).
1060 *15*	(9/2$^-$,11/2$^-$)	H	J$^{\pi}$: L(p,d)=2+5 for an unresolved doublet.
1077.6?		D	
1081 *2*	(3/2$^+$,5/2$^+$)	B DE H	XREF: H(1060). J$^{\pi}$: L(p,d)=2+5 for a doublet. Primary γ from 1/2$^+$ in (n,γ).
1087.8?		D	
1091.5[f] *3*	(15/2$^+$)	C	J$^{\pi}$: ΔJ=1 γ to 13/2$^-$ and band assignment.
1096 *2*		B	
1107.55[@] *9*	(19/2$^-$)	C	J$^{\pi}$: ΔJ=2 γ to (15/2$^-$) and ΔJ=1, D+Q γ to (17/2$^-$).
1115.8?		D	
1139.9?		D	
1142.2[a] *2*	(19/2$^-$)	C	J$^{\pi}$: ΔJ=1 γ's to (17/2$^+$) and (21/2$^+$).
1145 *2*		B F H J	E(level): doublet in (p,d) at 1140 *15*. J$^{\pi}$: L=2+4 or 2+5 in (p,d) gives J$^{\pi}$=5/2$^+$, 3/2$^+$ for one component and 9/2$^+$, 7/2$^+$ or 11/2$^-$, 9/2$^-$ for the second.
1161.04[b] *16*	(17/2$^-$)	C	J$^{\pi}$: ΔJ=2 γ to 13/2$^-$, γ to (17/2$^+$).
1170 *9*		JK	J$^{\pi}$: L=(5,4) in (^{3}He,α) gives J$^{\pi}$=11/2$^-$, 9/2$^-$, 9/2$^+$ or 7/2$^+$.
1188 *2*	1/2,3/2,5/2$^+$	B DE	J$^{\pi}$: primary γ from 1/2$^+$ in (n,γ).
1190.6[g] *2*	(17/2$^+$)	C	J$^{\pi}$: ΔJ=1 γ to (15/2$^-$), ΔJ=0 γ to (17/2$^+$).
1193.9?		D	
1205.7?		D	
1211 *2*	1/2,3/2,5/2$^+$	DE	J$^{\pi}$: primary γ from 1/2$^+$.
1220.0?		D	
1223.97[c] *16*	(17/2$^-$)	C	J$^{\pi}$: ΔJ=1 γ to (15/2$^+$), γ to (17/2$^+$).
1226 *4*		B	E(level): IT is possible that this level corresponds to 1220 in (n,γ) and/or 1236 in (^{3}He,^{4}He).
1236		J	
1236.53[#] *9*	(25/2$^+$)	C	J$^{\pi}$: ΔJ=2 γ to (21/2$^+$) and band assignment.
1277 *2*	1/2,3/2,5/2$^+$	DE K	J$^{\pi}$: primary γ from 1/2$^+$ in (n,γ).
1304 *2*	1/2,3/2,5/2$^+$	DE	J$^{\pi}$: primary γ from 1/2$^+$ in (n,γ).
1321.83[d] *13*	(21/2$^+$)	C	J$^{\pi}$: ΔJ=1, D+Q to (19/2$^+$); ΔJ=2 γ's to (17/2$^+$).
1322 *15*		J	
1345 *2*	(3/2$^+$,5/2$^+$)	DE H	J$^{\pi}$: L=2 in (p,d).
1354 *3*	7/2$^-$	B	J$^{\pi}$: L(t,p)=0 from 7/2$^-$ target.
1361.32[@] *13*	(21/2$^-$)	C	J$^{\pi}$: ΔJ=2 γ to (17/2$^-$); ΔJ=1, D+Q γ to (19/2$^-$).
1379.04[h] *16*	(19/2$^-$)	C	J$^{\pi}$: ΔJ=1 γ to (17/2$^+$), γ to (21/2$^+$).
1380 *15*	(11/2$^-$,9/2$^-$)	HIJ	Doublet in (p,d). J$^{\pi}$: L=5 in (^{3}He,α).
1386 *2*	(5/2$^+$,3/2$^+$)	B DE H	Doublet in (p,d). J$^{\pi}$: L=2+5 for the doublet in (p,d). L=5 probably corresponds to 1380 level. Primary γ from 1/2$^+$ in (n,γ) supports 3/2$^+$, 5/2$^+$.
1386.6[i] *2*	(19/2$^+$)	C	J$^{\pi}$: γ to (17/2$^+$) and band assignment.
1409 *2*	1/2,3/2,5/2$^+$	DE K	J$^{\pi}$: primary γ from 1/2$^+$ in (n,γ).
1439 *2*	1/2,3/2,5/2$^+$	DEF	J$^{\pi}$: primary γ from 1/2$^+$ in (n,γ).
1478.6[e] *3*	(21/2$^-$)	C	J$^{\pi}$: ΔJ=2 γ to (17/2$^-$); ΔJ=1 γ to (19/2$^+$).
1479 *2*	5/2$^+$,3/2$^+$	B E H	XREF: E(1455). J$^{\pi}$: L=2 in (p,d).
1490.0[f] *2*	(19/2$^+$)	C	J$^{\pi}$: ΔJ=2 γ to (15/2$^+$), ΔJ=1 γ to (17/2$^-$).
1490.5 *3*	(13/2$^+$,11/2$^+$)	F JK	J$^{\pi}$: L=6 in (α,^{3}He).
1502.5[a] *2*	(23/2$^-$)	C	J$^{\pi}$: ΔJ=1 γ's to (21/2$^+$) and (25/2$^+$).
1524 *30*		F J	XREF: J(1568).
1531.17[c] *16*	(21/2$^-$)	C	J$^{\pi}$: ΔJ=2 γ to (17/2$^-$); γ to (21/2$^+$).

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Adopted Levels, Gammas (continued)

^{151}Sm Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
1532.88[&] *13*	(23/2+)	C	Jπ: ΔJ=1, D+Q to (25/2+); γ to (19/2+).
1546 *10*		F JK	
1625 *15*		F JK	
1625.56[g] *16*	(21/2+)	C	Jπ: ΔJ=2 γ to (17/2+); ΔJ=1 γ to (19/2−).
1628.1[l] *2*	(17/2)	C	Jπ: γ to (15/2−) and band assignment.
1630.0[@] *2*	(23/2−)	C	Jπ: ΔJ=2 γ to (19/2−); ΔJ=1, D+Q γ to (21/2−).
1705 *3*	(3/2+,5/2+)	B H JK	XREF: H(1670). Jπ: L=2 in (p,d) and (^{3}He,α).
1705.8[b] *2*	(21/2−)	C	Jπ: ΔJ=1 γ to (19/2+); γ to (23/2−).
1721.1[k] *3*	(19/2)	C	Jπ: γ to (19/2−) and band assignment.
1740.17[d] *15*	(25/2+)	C	Jπ: ΔJ=2 γ's to (21/2+), γ to (25/2+).
1746 *9*	(3/2+,5/2+)	H JK	Jπ: L=2 in (p,d).
1771 *9*		K	
1798.2[#] *4*	(29/2+)	C	Jπ: ΔJ=2 γ to (25/2+) and band assignment.
1815 *3*		B H JK	E(level): doublet in (p,d) and (^{3}He,α). E(level) from (t,p). Jπ: L=(2+4) in (p,d) and L=4,5 in (^{3}He,α) suggests that there are at least two levels, one with Jπ=(3/2+5/2+) and the other with Jπ=9/2+, 7/2+, 11/2−, 9/2−.
1830.4[i] *2*	(23/2+)	C	Jπ: γ's to (21/2+) and (21/2−); band assignment.
1835.4[l] *2*	(19/2)	C	Jπ: γ to (17/2−) and band assignment.
1845 *11*		K	
1871 *11*		K	
1883.1[j] *2*	(21/2)	C	Jπ: ΔJ=1 γ to (19/2−); γ to (21/2−) and band assignment.
1904 *13*		H JK	Jπ: L=2+5 in (p,d) suggests a doublet with Jπ=3/2+, 5/2+ for one level and Jπ=9/2−, 11/2− for the other.
1906.57[c] *15*	(25/2−)	C	Jπ: ΔJ=2 γ to (21/2−); ΔJ=1 γ to (23/2−).
1911.87[@] *16*	(25/2−)	C	Jπ: ΔJ=2 γ to (21/2−); ΔJ=1, D+Q γ to (23/2−).
1916.6[k] *2*	(21/2)	C	Jπ: ΔJ=1, D+Q γ to (19/2−); γ to (21/2−) and band assignment.
1927.26[a] *15*	(27/2−)	C	Jπ: ΔJ=1 γ to (25/2+); γ to (29/2+).
1936.6[h] *2*	(23/2−)	C	Jπ: ΔJ=1 γ to (21/2+); γ to (19/2−) and band assignment.
1953 *8*		K	
1955.1[f] *2*	(23/2+)	C	Jπ: ΔJ=2 γ to (19/2+); γ to (25/2+).
1991 *10*		K	
2018.69[e] *15*	(25/2−)	C	Jπ: ΔJ=2 γ to (21/2−); ΔJ=0 γ to (25/2+).
2040 *11*	(3/2+,5/2+)	H K	Jπ: L=2 in (p,d).
2041.3[l] *2*	(21/2)	C	Jπ: γ to (19/2−) and band structure.
2045 *11*		K	
2080 *11*		K	
2089.10[&] *14*	(27/2+)	C	Jπ: ΔJ=2 γ to (23/2+); ΔJ=1, D+Q γ's to (29/2+) and (25/2+).
2097.7[g] *3*	(25/2+)	C	Jπ: ΔJ=2 γ to (21/2+); ΔJ=0 γ to (25/2+).
2102?		K	
2107.2[j] *2*	(23/2)	C	Jπ: ΔJ=1 γ to (21/2); γ to (23/2−).
2119?		K	
2132.8[k] *2*	(23/2)	C	Jπ: ΔJ=1 γ to (21/2−); γ to (23/2−).
2134 *11*		K	
2165 *11*		K	
2205?		K	
2205.5[@] *2*	(27/2−)	C	Jπ: ΔJ=2 γ to (23/2−); ΔJ=1 γ to (25/2−).
2229.2[d] *2*	(29/2+)	C	Jπ: ΔJ=2 γ's to (25/2+); ΔJ=1 γ to (27/2−).
2233 *13*		K	
2242.1[b] *3*	(25/2−)	C	Jπ: ΔJ=1 γ to (23/2+); γ to (27/2−).
2248.3[l] *2*	(23/2)	C	Jπ: γ to (21/2−) and band assignment.

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Adopted Levels, Gammas (continued)

^{151}Sm Levels (continued)

E(level)†	Jπ‡	XREF	Comments
2259 *13*		K	
2299 *11*		K	
2350.9[j] *2*	(25/2)	C	Jπ: γ's to (21/2) and (25/2⁻); band assignment.
2351.2[i] *2*	(27/2⁺)	C	Jπ: γ's to (25/2⁺) and (25/2⁻); band assignment.
2364.3[k] *2*	(25/2)	C	Jπ: ΔJ=1 γ to (23/2⁻) and γ to (25/2⁻); band assignment.
2375.8[c] *2*	(29/2⁻)	C	Jπ: ΔJ=2 γ to (25/2⁻); ΔJ=1, D+Q γ to (27/2⁻).
2423.1[a] *2*	(31/2⁻)	C	Jπ: ΔJ=1 γ to (29/2⁺) and band assignment.
2427.1[#] *2*	(33/2⁺)	C	Jπ: ΔJ=2 γ to (29/2⁺) and band assignment.
2444.2[l] *2*	(25/2)	C	Jπ: γ to (23/2) and band assignment.
2472.0[f] *3*	(27/2⁺)	C	Jπ: ΔJ=2 γ to (23/2⁺); γ to (29/2⁺).
2509.8[@] *2*	(29/2⁻)	C	Jπ: ΔJ=2 γ to (25/2⁻) and ΔJ=1, D+Q γ to (27/2⁻).
2560.2[e] *2*	(29/2⁻)	C	Jπ: ΔJ=2 γ to (25/2⁻); ΔJ=0 γ to (29/2⁺).
2601.4[g] *3*	(29/2⁺)	C	Jπ: ΔJ=2 γ to (25/2⁺); ΔJ=0 γ to (29/2⁺).
2610.8[k] *3*	(27/2)	C	Jπ: γ to (25/2) and band assignment. $T_{1/2}$: from analysis of delayed γ-ray intensities, 1992Ch43 report $T_{1/2}$=23 ns *4* for a 2606 level deexciting by a 693.6γ. But no such γ is reported in their later work (1994Ba01) and by 1994Kh01. It is possible that this γ is the same as the 698.8γ.
2613.1[j] *2*	(27/2)	C	Jπ: ΔJ=1 γ to (25/2⁻); γ to (27/2⁻).
2650.8[l] *3*	(27/2)	C	Jπ: γ to (25/2) and band assignment.
2711.6[&] *2*	(31/2⁺)	C	Jπ: ΔJ=1, D+Q γ to (29/2⁺); γ to (31/2⁻).
2762.3[b] *5*	(29/2⁻)	C	Jπ: γ's to (25/2⁻) and (31/2⁻); band assignment.
2788.4[d] *2*	(33/2⁺)	C	Jπ: ΔJ=2 γ to (29/2⁺); γ to (33/2⁺).
2821.4[@] *3*	(31/2⁻)	C	Jπ: ΔJ=1, D+Q γ to (29/2⁻) and band assignment.
2861.3[k] *3*	(29/2)	C	Jπ: γ to (27/2) and band assignment.
2892.1[j] *3*	(29/2)	C	Jπ: ΔJ=2 γ to (25/2); γ to (29/2⁻).
2898.1[c] *2*	(33/2⁻)	C	Jπ: ΔJ=2 γ to (29/2⁻); γ to (33/2⁺).
2.9×10³ *9*		H J	E(level),Jπ: center of a wide structure. In (p,d) L=(2+5) or (2+4) for the structure suggests presence of 5/2⁺ and 11/2⁻ states.
2935.6[i] *4*	(31/2⁺)	C	Jπ: γ to (29/2⁺) and band assignment.
2991.0[a] *2*	(35/2⁻)	C	Jπ: ΔJ=2 γ to (31/2⁻); ΔJ=1 γ to (33/2⁺).
3035.0[f] *4*	(31/2⁺)	C	Jπ: γ's to (33/2⁺) and (27/2⁺); band assignment.
3107[k] *1*	(31/2)	C	Jπ: γ to (29/2) and band assignment.
3108.2[#] *2*	(37/2⁺)	C	Jπ: ΔJ=2 γ to (33/2⁺); γ to (35/2⁻).
3132.8[@] *4*	(33/2⁻)	C	Jπ: γ to (31/2⁻) and band assignment.
3140.2[e] *3*	(33/2⁻)	C	Jπ: ΔJ=(0) γ to (33/2⁺) and band assignment.
3183.2[g] *5*	(33/2⁺)	C	Jπ: γ's to (33/2⁺) and (29/2⁺); band assignment.
3186.0[j] *3*	(31/2)	C	Jπ: γ to (29/2) and band assignment.
3358.0[b] *6*	(33/2⁻)	C	Jπ: γ to (29/2⁻) and band assignment.
3388.8[&] *3*	(35/2⁺)	C	Jπ: γ's to (31/2⁺) and (37/2⁺); band assignment.
3408.7[d] *2*	(37/2⁺)	C	Jπ: γ's to (33/2⁺) and (37/2⁺); band assignment.
3439.6[@] *5*	(35/2⁻)	C	Jπ: γ to (33/2⁻) and band assignment.
3478.1[c] *3*	(37/2⁻)	C	Jπ: ΔJ=2 γ to (33/2⁻); γ to (35/2⁻).
3493.7[j] *5*	(33/2)	C	Jπ: γ to (31/2) and band assignment.
3627.0[a] *4*	(39/2⁻)	C	Jπ: ΔJ=1 γ to (37/2⁺) and band assignment.
3764.7[e] *5*	(37/2⁻)	C	Jπ: γ to (33/2⁻) and band assignment.
3812[j] *1*	(35/2)	C	Jπ: γ to (33/2) and band assignment.
3829.0[#] *4*	(41/2⁺)	C	Jπ: ΔJ=2 γ to (37/2⁺); γ to (39/2⁻).
4080.0[d] *5*	(41/2⁺)	C	Jπ: γ to (37/2⁺) and band assignment.
4105.6[&] *5*	(39/2⁺)	C	Jπ: γ to (35/2⁺) and band assignment.

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Adopted Levels, Gammas (continued)

^{151}Sm Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	XREF	Comments
4122.2[c] *5*	(41/2$^-$)	C	J$^{\pi}$: γ to (37/2$^-$) and band assignment.
4323.5[a] *5*	(43/2$^-$)	C	J$^{\pi}$: γ's to (41/2$^+$) and (39/2$^-$); band assignment.
4574.0[#] *6*	(45/2$^+$)	C	J$^{\pi}$: γ to (41/2$^+$) and band assignment.
5.9×10^3 *21*		H	E(level): center of a wide structure with L=(2+5) or (2+4).

[†] From least squares fitting of adopted Eγ's for levels populated in γ-ray studies. Weighted averages taken in other cases.

[‡] For levels populated in (α,3nγ), many assignments are based on $\gamma\gamma(\theta)$ (DCO) data which give ΔJ and δ, but not $\Delta\pi$. In the interpretation of such data the following multipolarities are assumed: E2 for ΔJ=2, E1 (or M1) for ΔJ=1, M1+E2 for ΔJ=1, D+Q. The spins are generally assumed to be in ascending order as the excitation energy increases.

[#] Band(A): ΔJ=2, i$_{13/2}$ band. Assignment from 1976Ge03 and 1994Kh01.

[@] Band(B): ΔJ=1, 11/2[505] band. Band assignment from 1976Ge03, 1976Co12, 1994Kh01.

[&] Band(C): Band 1. ΔJ=2.

[a] Band(D): Band 2. ΔJ=2.

[b] Band(E): Band 3. ΔJ=2.

[c] Band(F): Band 4. ΔJ=2.

[d] Band(G): Band 5. ΔJ=2.

[e] Band(H): Band 6. ΔJ=2.

[f] Band(I): Band 7. ΔJ=2.

[g] Band(J): Band 8. ΔJ=2.

[h] Band(K): Band 9. ΔJ=2.

[i] Band(L): Band 10. ΔJ=2.

[j] Band(M): Band 11. ΔJ=1.

[k] Band(N): Band 12. ΔJ=1.

[l] Band(O): Band 13. ΔJ=1.

Adopted Levels, Gammas (continued)

$\gamma(^{151}Sm)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
4.821	3/2$^-$	4.821 *3*	100	0.0	5/2$^-$	M1+E2	0.024 *3*	8.8×10^2 *12*	B(M1)(W.u.)=5.9×10^{-3} *9*; B(E2)(W.u.)=79 *23* α(M)=7.0×10^2 *10*; α(N+..)=177 *24* α(N)=155 *21*; α(O)=20.9 *25*; α(P)=0.711 *10* E_γ,Mult.,δ: ce data in ^{151}Pm β^- (1963Ge10). δ from M subshell data.
65.826	7/2$^-$	61.01 *1*	0.59 *20*	4.821	3/2$^-$	(E2)		15.16	B(E2)(W.u.)=30 *12* α(K)=3.56 *5*; α(L)=8.99 *13*; α(M)=2.10 *3*; α(N+..)=0.515 *8* α(N)=0.458 *7*; α(O)=0.0564 *8*; α(P)=0.0001604 *23*
		65.83 *1*	100	0.0	5/2$^-$	M1+E2	−0.22 *2*	5.90 *10*	B(M1)(W.u.)=0.026 *5*; B(E2)(W.u.)=160 *40* α(K)=4.70 *7*; α(L)=0.94 *5*; α(M)=0.207 *12*; α(N+..)=0.053 *3* α(N)=0.0464 *25*; α(O)=0.0066 *3*; α(P)=0.000298 *5* δ: L-subshell ratios and $\gamma\gamma(\theta)$ in ^{151}Pm β^-.
69.703	5/2$^-$	64.88 *1*	100 *8*	4.821	3/2$^-$	M1+E2	−0.076 *9*	5.92	B(M1)(W.u.)>0.018; B(E2)(W.u.)>10 α(K)=4.97 *7*; α(L)=0.746 *14*; α(M)=0.161 *3*; α(N+..)=0.0421 *8* α(N)=0.0364 *7*; α(O)=0.00540 *10*; α(P)=0.000318 *5* δ,Mult.: ce and $\gamma\gamma(\theta)$ data in ^{151}Pm β^-.
		69.70 *2*	25 *2*	0.0	5/2$^-$	M1+E2	0.16 *2*	4.89 *8*	B(M1)(W.u.)>3.6×10^{-3}; B(E2)(W.u.)>10 α(K)=4.02 *6*; α(L)=0.68 *3*; α(M)=0.149 *7*; α(N+..)=0.0386 *17* α(N)=0.0335 *15*; α(O)=0.00485 *18*; α(P)=0.000256 *4* δ,Mult.: ce data in ^{151}Pm β^-.
91.532	(9/2)$^+$	25.71 *1*	100	65.826	7/2$^-$	E1		1.99	B(E1)↓=6.0×10^{-5} *2* α(L)=1.564 *22*; α(M)=0.339 *5*; α(N+..)=0.0826 *12* α(N)=0.0732 *11*; α(O)=0.00914 *13*; α(P)=0.000299 *5* Mult.: ce data in ^{151}Pm β^-.
104.831	3/2$^-$	35.13 *1*	1.1 *2*	69.703	5/2$^-$	M1+E2	0.5 *2*	38 *22*	B(M1)(W.u.)=0.002 *1*; B(E2)(W.u.)=200 *100* α(L)=30 *17*; α(M)=7 *4*; α(N+..)=1.7 *10* α(N)=1.5 *9*; α(O)=0.19 *10*; α(P)=0.00163 *20* δ,Mult.: ce data in ^{150}Sm(n,γ). Other: δ=0.6 *1* (ce data in ^{151}Pm β^-).
		39.01[@] *1*	0.12 *3*	65.826	7/2$^-$	[E2]		101.8	B(E2)(W.u.)=65 *18* α(L)=78.9 *11*; α(M)=18.4 *3*; α(N+..)=4.49 *7* α(N)=4.00 *6*; α(O)=0.488 *7*; α(P)=0.000348 *5*
		100.02 *1*	72 *5*	4.821	3/2$^-$	M1(+E2)	<0.02	1.689	B(M1)(W.u.)=6.6×10^{-3} *6*; B(E2)(W.u.)<0.16 α(K)=1.431 *20*; α(L)=0.203 *3*; α(M)=0.0436 *7*; α(N+..)=0.01146 *16* α(N)=0.00989 *14*; α(O)=0.001481 *21*; α(P)=9.13×10^{-5} *13* Mult.,δ: from ce data in ^{151}Pm β^-.
		104.84 *1*	100 *7*	0.0	5/2$^-$	M1+E2	−0.12 *3*	1.483 *22*	B(M1)(W.u.)=7.8×10^{-3} *10*; B(E2)(W.u.)=5 *3* α(K)=1.248 *18*; α(L)=0.185 *5*; α(M)=0.0399 *12*; α(N+..)=0.0104 *3* α(N)=0.0090 *3*; α(O)=0.00134 *4*; α(P)=7.93×10^{-5} *12* Mult.,δ: from ce and $\gamma\gamma(\theta)$ in ^{151}Pm β^-.

$^{151}_{62}Sm_{89}$-9

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
147.91	$13/2^+$	56.37 *10*	100	91.532	$(9/2)^+$	[E2]		20.8 *4*	α(K)=3.87 *6*; α(L)=13.14 *22*; α(M)=3.07 *5*; α(N+..)=0.752 *13* α(N)=0.669 *11*; α(O)=0.0822 *14*; α(P)=0.000188 *3*
167.750	$5/2^+$	62.91 *2*	2.5 *2*	104.831	$3/2^-$	E1		0.956	B(E1)(W.u.)=3.8×10^{-5} *6* α(K)=0.796 *12*; α(L)=0.1263 *18*; α(M)=0.0271 *4*; α(N+..)=0.00685 *10* α(N)=0.00599 *9*; α(O)=0.000823 *12*; α(P)=3.61×10^{-5} *5*
		76.22 *2*	2.4 *2*	91.532	$(9/2)^+$	(E2)		6.40	B(E2)(W.u.)=170 *30* α(K)=2.36 *4*; α(L)=3.13 *5*; α(M)=0.729 *11*; α(N+..)=0.179 *3* α(N)=0.1595 *23*; α(O)=0.0198 *3*; α(P)=9.87×10^{-5} *14*
		98.05 *2*	4.7 *3*	69.703	$5/2^-$	E1		0.291	B(E1)(W.u.)=1.9×10^{-5} *3* α(K)=0.245 *4*; α(L)=0.0361 *5*; α(M)=0.00772 *11*; α(N+..)=0.00197 *3* α(N)=0.001719 *24*; α(O)=0.000243 *4*; α(P)=1.183×10^{-5} *17*
		101.93 *1*	15 *1*	65.826	$7/2^-$	E1		0.262	B(E1)(W.u.)=5.3×10^{-5} *7* α(K)=0.221 *3*; α(L)=0.0323 *5*; α(M)=0.00692 *10*; α(N+..)=0.001771 *25* α(N)=0.001542 *22*; α(O)=0.000218 *3*; α(P)=1.072×10^{-5} *15* δ: $\gamma(\theta)$ in ^{151}Pm β^- gives δ=0.02 *3*.
		162.93 *2*	11 *1*	4.821	$3/2^-$	(E1)		0.0732	B(E1)(W.u.)=9.6×10^{-6} *14* α(K)=0.0622 *9*; α(L)=0.00873 *13*; α(M)=0.00187 *3*; α(N+..)=0.000481 *7* α(N)=0.000418 *6*; α(O)=6.03×10^{-5} *9*; α(P)=3.21×10^{-6} *5*
		167.75 *2*	100 *6*	0.0	$5/2^-$	E1		0.0677	B(E1)(W.u.)=8.0×10^{-5} *11* α(K)=0.0575 *8*; α(L)=0.00806 *12*; α(M)=0.001722 *25*; α(N+..)=0.000444 *7* α(N)=0.000386 *6*; α(O)=5.57×10^{-5} *8*; α(P)=2.98×10^{-6} *5*
168.402	$(5/2)^-$	63.58[@] *1*	0.7 *2*	104.831	$3/2^-$	[M1,E2]		10 *4*	α(K)=4.3 *10*; α(L)=4 *4*; α(M)=0.9 *8*; α(N+..)=0.23 *19* α(N)=0.21 *17*; α(O)=0.026 *21*; α(P)=0.00024 *10* B(M1)(W.u.)<0.02.
		98.71 *3*	3.8 *6*	69.703	$5/2^-$	[M1,E2]		2.1 *4*	α(K)=1.36 *13*; α(L)=0.6 *4*; α(M)=0.13 *9*; α(N+..)=0.033 *22* α(N)=0.029 *19*; α(O)=0.0038 *23*; α(P)=7.4×10^{-5} *22* B(M1)(W.u.)>0.12; B(E2)(W.u.)>89.
		102.57 *3*	2.0 *10*	65.826	$7/2^-$	[M1,E2]		1.9 *3*	α(K)=1.22 *12*; α(L)=0.5 *3*; α(M)=0.11 *8*; α(N+..)=0.028 *18* α(N)=0.025 *16*; α(O)=0.0032 *19*; α(P)=6.6×10^{-5} *19* B(M1)(W.u.)>1.6×10^{-3}; B(E2)(W.u.)>90.
		163.58 *2*	100 *7*	4.821	$3/2^-$	M1+E2	−0.15 *5*	0.420	B(M1)(W.u.)=0.05 *+60−3*; B(E2)(W.u.)=23 *+500−20* α(K)=0.355 *6*; α(L)=0.0514 *12*; α(M)=0.0111 *3*; α(N+..)=0.00290 *7* α(N)=0.00250 *6*; α(O)=0.000373 *8*; α(P)=2.25×10^{-5} *4* δ: $\gamma\gamma(\theta)$ and $\gamma(\theta)$ in ^{151}Pm β^-.
		168.41 *5*	59 *6*	0.0	$5/2^-$	M1+E2	+0.15 *10*	0.387	B(M1)(W.u.)=0.03 *+35−2*; B(E2)(W.u.)=12 *+400−11* α(K)=0.327 *6*; α(L)=0.0473 *19*; α(M)=0.0102 *5*; α(N+..)=0.00267

$^{151}_{62}Sm_{89}$-10

Adopted Levels, Gammas (continued)

γ(^{151}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
									11 α(N)=0.00230 *10*; α(O)=0.000344 *11*; α(P)=2.07×10^{-5} *5* δ: γγ(θ) in ^{151}Pm β$^-$.
175.38	9/2$^-$	83.8 *4*	8 *1*	91.532	(9/2)$^+$				
		105.7 *4*	16 *2*	69.703	5/2$^-$				
		109.56 *2*	100 *27*	65.826	7/2$^-$	M1,E2		1.49 *20*	α(K)=1.01 *10*; α(L)=0.37 *22*; α(M)=0.09 *6*; α(N+..)=0.021 *13* α(N)=0.019 *12*; α(O)=0.0025 *14*; α(P)=5.5×10^{-5} *16*
		175.41[@] *5*	13 *4*	0.0	5/2$^-$	[E2]		0.325	α(K)=0.225 *4*; α(L)=0.0778 *11*; α(M)=0.01771 *25*; α(N+..)=0.00443 *7* α(N)=0.00391 *6*; α(O)=0.000513 *8*; α(P)=1.082×10^{-5} *16*
208.991	7/2$^-$	139.29 *2*	28 *2*	69.703	5/2$^-$	M1+E2	−0.18 *7*	0.661	B(M1)(W.u.)=0.025; B(E2)(W.u.)=22 α(K)=0.556 *9*; α(L)=0.083 *4*; α(M)=0.0179 *9*; α(N+..)=0.00468 *22* α(N)=0.00405 *19*; α(O)=0.000600 *23*; α(P)=3.52×10^{-5} *7* δ: γγ(θ) in ^{151}Pm β$^-$.
		143.18 *3*	12 *1*	65.826	7/2$^-$	M1,E2		0.632 *24*	α(K)=0.47 *5*; α(L)=0.13 *6*; α(M)=0.029 *14*; α(N+..)=0.007 *4* α(N)=0.006 *3*; α(O)=0.0009 *4*; α(P)=2.6×10^{-5} *7* B(M1)(W.u.)=0.010.
		204.18 *3*	7.5 *7*	4.821	3/2$^-$	(E2)		0.195	B(E2)(W.u.)=27 α(K)=0.1408 *20*; α(L)=0.0420 *6*; α(M)=0.00950 *14*; α(N+..)=0.00239 *4* α(N)=0.00210 *3*; α(O)=0.000280 *4*; α(P)=7.01×10^{-6} *10*
		208.99 *1*	100 *7*	0.0	5/2$^-$	M1(+E2)	<0.10	0.214	B(M1)(W.u.)=0.026; B(E2)(W.u.)<9 α(K)=0.181 *3*; α(L)=0.0255 *4*; α(M)=0.00547 *8*; α(N+..)=0.001437 *21* α(N)=0.001240 *18*; α(O)=0.000186 *3*; α(P)=1.151×10^{-5} *17* δ: γ(θ) and γ(θ) in ^{151}Pm β$^-$.
261.13	(11/2)$^-$	85.7 *1*	7 *2*	175.38	9/2$^-$	[M1,E2]		3.4 *8*	α(K)=2.01 *23*; α(L)=1.1 *8*; α(M)=0.24 *18*; α(N+..)=0.06 *5* α(N)=0.05 *4*; α(O)=0.007 *5*; α(P)=0.00011 *4* Additional information 3.
		113.21 *5*	19 *4*	147.91	13/2$^+$	[E1]		0.197	B(E1)(W.u.)=8×10^{-9} *2* α(K)=0.1662 *24*; α(L)=0.0241 *4*; α(M)=0.00515 *8*; α(N+..)=0.001321 *19* α(N)=0.001149 *17*; α(O)=0.0001634 *23*; α(P)=8.19×10^{-6} *12*
		169.57 *7*	100 *10*	91.532	(9/2)$^+$	[E1]		0.0658	B(E1)(W.u.)=1.2×10^{-8} *2* α(K)=0.0558 *8*; α(L)=0.00782 *11*; α(M)=0.001671 *24*; α(N+..)=0.000432 *6* α(N)=0.000375 *6*; α(O)=5.41×10^{-5} *8*; α(P)=2.90×10^{-6} *4*
		195.26 *5*	64 *7*	65.826	7/2$^-$	[E2]		0.226	B(E2)(W.u.)=6.7×10^{-3} *12* α(K)=0.1616 *23*; α(L)=0.0502 *7*; α(M)=0.01139 *16*; α(N+..)=0.00286 *4* α(N)=0.00252 *4*; α(O)=0.000334 *5*; α(P)=7.97×10^{-6} *12*

$^{151}_{62}Sm_{89}$-11

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
284.95	$1/2^-,3/2^-$	180.13[@] *5*	3.7 *7*	104.831	$3/2^-$	[M1,E2]	0.309 *14*	α(K)=0.24 *4*; α(L)=0.054 *16*; α(M)=0.012 *4*; α(N+..)=0.0031 *9* α(N)=0.0027 *9*; α(O)=0.00037 *9*; α(P)=1.4×10^{-5} *4*
		215.26 *6*	3.8 *10*	69.703	$5/2^-$	[M1,E2]	0.180 *18*	α(K)=0.144 *24*; α(L)=0.029 *6*; α(M)=0.0064 *14*; α(N+..)=0.0016 *3* α(N)=0.0014 *3*; α(O)=0.00020 *3*; α(P)=8.3×10^{-6} *23*
		280.13 *3*	100 *9*	4.821	$3/2^-$	M1,E2	0.083 *14*	α(K)=0.068 *15*; α(L)=0.0120 *6*; α(M)=0.00262 *17*; α(N+..)=0.00068 *4* α(N)=0.00059 *4*; α(O)=8.41×10^{-5} *14*; α(P)=4.0×10^{-6} *12*
		285.00 *9*	0.7 *1*	0.0	$5/2^-$			
294.82	$9/2^-$	119.3 *4*		175.38	$9/2^-$			
		229.00 *7*	100 *10*	65.826	$7/2^-$	[M1,E2]	0.150 *17*	α(K)=0.120 *22*; α(L)=0.023 *4*; α(M)=0.0051 *9*; α(N+..)=0.00132 *21* α(N)=0.00115 *19*; α(O)=0.000162 *18*; α(P)=7.0×10^{-6} *20* Additional information 4.
		294.84 *9*	48 *10*	0.0	$5/2^-$	[E2]	0.0593	α(K)=0.0461 *7*; α(L)=0.01035 *15*; α(M)=0.00231 *4*; α(N+..)=0.000586 *9* α(N)=0.000513 *8*; α(O)=7.05×10^{-5} *10*; α(P)=2.47×10^{-6} *4* B(E2)(W.u.)=60 *22*, if 119γ is weak.
302.62	$7/2^-$	134.22 *4*	17 *7*	168.402	$(5/2)^-$	[M1,E2]	0.78 *5*	α(K)=0.56 *6*; α(L)=0.16 *8*; α(M)=0.037 *19*; α(N+..)=0.009 *5* α(N)=0.008 *4*; α(O)=0.0011 *5*; α(P)=3.1×10^{-5} *9*
		134.88 *4*	7 *2*	167.750	$5/2^+$			
		197.81[@] *6*	5 *1*	104.831	$3/2^-$			
		211.11[@] *6*	5 *1*	91.532	$(9/2)^+$			
		232.94 *7*	39 *8*	69.703	$5/2^-$	[M1,E2]	0.143 *17*	α(K)=0.115 *21*; α(L)=0.022 *3*; α(M)=0.0048 *8*; α(N+..)=0.00124 *18* α(N)=0.00108 *17*; α(O)=0.000153 *16*; α(P)=6.7×10^{-6} *19*
		236.81 *7*	100 *14*	65.826	$7/2^-$	(M1,E2)	0.136 *17*	α(K)=0.109 *20*; α(L)=0.021 *3*; α(M)=0.0046 *7*; α(N+..)=0.00118 *16* α(N)=0.00102 *15*; α(O)=0.000145 *14*; α(P)=6.4×10^{-6} *18*
		297.80 *5*	24 *3*	4.821	$3/2^-$			
		302.61 *9*	20 *12*	0.0	$5/2^-$			
306.79	$3/2^+$	138.40 *4*	4.4 *5*	168.402	$(5/2)^-$	[E1]	0.1139	α(K)=0.0965 *14*; α(L)=0.01373 *20*; α(M)=0.00293 *5*; α(N+..)=0.000755 *11* α(N)=0.000656 *10*; α(O)=9.41×10^{-5} *14*; α(P)=4.89×10^{-6} *7*
		139.04 *4*	3.1 *8*	167.750	$5/2^+$	[M1,E2]	0.69 *4*	α(K)=0.51 *6*; α(L)=0.14 *7*; α(M)=0.032 *16*; α(N+..)=0.008 *4* α(N)=0.007 *4*; α(O)=0.0010 *4*; α(P)=2.8×10^{-5} *8*
		201.96 *2*	100 *8*	104.831	$3/2^-$			
		237.11 *7*	59 *9*	69.703	$5/2^-$	(E1)	0.0270	α(K)=0.0230 *4*; α(L)=0.00315 *5*; α(M)=0.000673 *10*; α(N+..)=0.0001747 *25* α(N)=0.0001513 *22*; α(O)=2.21×10^{-5} *3*; α(P)=1.236×10^{-6} *18*
		241.04[@] *10*	0.9 *5*	65.826	$7/2^-$			
		301.99[@] *9*	4.4 *7*	4.821	$3/2^-$			
		306.76 *6*	28 *2*	0.0	$5/2^-$			
313.85	$(1/2^-,3/2^-)$	145.459[@] *13*	1.2 *2*	168.402	$(5/2)^-$	[M1,E2]	0.601 *20*	α(K)=0.45 *5*; α(L)=0.12 *5*; α(M)=0.027 *13*; α(N+..)=0.007 *3* α(N)=0.006 *3*; α(O)=0.0008 *3*; α(P)=2.5×10^{-5} *7*
		244.13[@] *7*	1.5 *3*	69.703	$5/2^-$			

$^{151}_{62}Sm_{89}$-12

Adopted Levels, Gammas (continued)

γ(^{151}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
313.85	(1/2$^-$,3/2$^-$)	309.00 *8*	100 *15*	4.821	3/2$^-$	(M1,E2)		0.063 *12*	α(K)=0.052 *12*; α(L)=0.00877 *13*; α(M)=0.00192 *4*; α(N+..)=0.000496 *7* α(N)=0.000430 *7*; α(O)=6.20×10^{-5} *24*; α(P)=3.1×10^{-6} *10*
		313.93[@] *10*	0.8 *2*	0.0	5/2$^-$				
315.28	(3/2$^-$)	146.90[@] *4*	3.2 *6*	168.402	(5/2)$^-$	[M1,E2]		0.583 *18*	α(K)=0.43 *5*; α(L)=0.12 *5*; α(M)=0.026 *12*; α(N+..)=0.007 *3* α(N)=0.0058 *25*; α(O)=0.0008 *3*; α(P)=2.4×10^{-5} *7*
		147.55 *4*	100 *6*	167.750	5/2$^+$				Mult.,δ: ce data in (n,γ) give mult=E2(+M1) with δ>1 which disagrees with mult=(E1) from proposed J^π's.
		210.49[@] *6*	0.6 *1*	104.831	3/2$^-$				
		245.61[@] *7*	2.0 *3*	69.703	5/2$^-$				
		249.47[@] *8*	0.7 *1*	65.826	7/2$^-$				
		310.5 *1*	7 *1*	4.821	3/2$^-$				
		315.34 *9*	2.0 *3*	0.0	5/2$^-$				
323.944	7/2$^+$	148.59 *5*	4.4 *4*	175.38	9/2$^-$	[E1]		0.0940	α(K)=0.0797 *12*; α(L)=0.01127 *16*; α(M)=0.00241 *4*; α(N+..)=0.000621 *9* α(N)=0.000539 *8*; α(O)=7.75×10^{-5} *11*; α(P)=4.07×10^{-6} *6*
		155.5[&] *2*	2.0 *4*	168.402	(5/2)$^-$				
		156.19 *5*	12 *2*	167.750	5/2$^+$	M1,E2		0.481 *8*	α(K)=0.36 *5*; α(L)=0.09 *4*; α(M)=0.021 *9*; α(N+..)=0.0052 *20* α(N)=0.0046 *18*; α(O)=0.00062 *21*; α(P)=2.0×10^{-5} *6*
		232.43 *2*	85 *7*	91.532	(9/2)$^+$	M1+E2	−0.09 *1*	0.1599	α(K)=0.1357 *19*; α(L)=0.0190 *3*; α(M)=0.00409 *6*; α(N+..)=0.001074 *15* α(N)=0.000926 *13*; α(O)=0.0001389 *20*; α(P)=8.60×10^{-6} *12* Mult.,δ: from ce and γγ(θ) data in ^{151}Pm β$^-$.
		254.26 *3*	14 *2*	69.703	5/2$^-$				
		258.11 *2*	46 *4*	65.826	7/2$^-$	E1		0.0216	α(K)=0.0184 *3*; α(L)=0.00252 *4*; α(M)=0.000538 *8*; α(N+..)=0.0001396 *20* α(N)=0.0001210 *17*; α(O)=1.770×10^{-5} *25*; α(P)=1.000×10^{-6} *14*
		323.94 *1*	100 *7*	0.0	5/2$^-$	E1		0.01213	α(K)=0.01036 *15*; α(L)=0.001401 *20*; α(M)=0.000299 *5*; α(N+..)=7.78×10^{-5} *11* α(N)=6.73×10^{-5} *10*; α(O)=9.90×10^{-6} *14*; α(P)=5.73×10^{-7} *8*
344.909	3/2$^+$	59.93[&] *5*	0.11 *1*	284.95	1/2$^-$,3/2$^-$	[E1]		1.086	B(E1)(W.u.)=7.1×10^{-5} *8* α(K)=0.902 *13*; α(L)=0.1448 *21*; α(M)=0.0311 *5*; α(N+..)=0.00784 *12* α(N)=0.00686 *10*; α(O)=0.000940 *14*; α(P)=4.07×10^{-5} *6*
		176.52 *3*	3.8 *3*	168.402	(5/2)$^-$	(E1)		0.0590	B(E1)(W.u.)=9.5×10^{-5} *9*

$^{151}_{62}Sm_{89}$-13

Adopted Levels, Gammas (continued)

γ(^{151}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
									α(K)=0.0501 *7*; α(L)=0.00700 *10*; α(M)=0.001497 *21*; α(N+..)=0.000387 *6*
									α(N)=0.000335 *5*; α(O)=4.85×10^{-5} *7*; α(P)=2.62×10^{-6} *4*
344.909	3/2$^+$	177.16 *1*	17 *1*	167.750	5/2$^+$	M1+E2	−0.36 *5*	0.334	B(M1)(W.u.)=0.035 *3*; B(E2)(W.u.)=77 *20* α(K)=0.278 *5*; α(L)=0.0441 *12*; α(M)=0.0096 *3*; α(N+..)=0.00249 *7* α(N)=0.00216 *6*; α(O)=0.000316 *8*; α(P)=1.73×10^{-5} *4* δ: from γ(θ) in ^{151}Pm β$^-$.
		240.09 *1*	17 *1*	104.831	3/2$^-$	E1		0.0261	B(E1)(W.u.)=1.7×10^{-4} *1* α(K)=0.0222 *4*; α(L)=0.00305 *5*; α(M)=0.000651 *10*; α(N+..)=0.0001690 *24* α(N)=0.0001464 *21*; α(O)=2.14×10^{-5} *3*; α(P)=1.198×10^{-6} *17*
		275.21 *2*	30 *2*	69.703	5/2$^-$	E1		0.0183	B(E1)(W.u.)=2.0×10^{-4} *2* α(K)=0.01562 *22*; α(L)=0.00213 *3*; α(M)=0.000455 *7*; α(N+..)=0.0001181 *17* α(N)=0.0001023 *15*; α(O)=1.499×10^{-5} *21*; α(P)=8.53×10^{-7} *12*
		340.08 *1*	100 *5*	4.821	3/2$^-$	E1		0.01075	B(E1)(W.u.)=3.5×10^{-4} *2* α(K)=0.00918 *13*; α(L)=0.001239 *18*; α(M)=0.000264 *4*; α(N+..)=6.88×10^{-5} *10* α(N)=5.95×10^{-5} *9*; α(O)=8.77×10^{-6} *13*; α(P)=5.10×10^{-7} *8*
		344.90 *1*	9.4 *5*	0.0	5/2$^-$	E1		0.01039	B(E1)(W.u.)=3.2×10^{-5} *2* α(K)=0.00887 *13*; α(L)=0.001196 *17*; α(M)=0.000255 *4*; α(N+..)=6.64×10^{-5} *10* α(N)=5.75×10^{-5} *8*; α(O)=8.47×10^{-6} *12*; α(P)=4.93×10^{-7} *7*
355.65	1/2$^+$	70.71[@] *2*	14 *5*	284.95	1/2$^-$,3/2$^-$	[E1]		0.701	α(K)=0.586 *9*; α(L)=0.0908 *13*; α(M)=0.0195 *3*; α(N+..)=0.00493 *7* α(N)=0.00431 *6*; α(O)=0.000597 *9*; α(P)=2.70×10^{-5} *4*
		187.90[@] *6*	29 *5*	167.750	5/2$^+$	[E2]		0.257	α(K)=0.182 *3*; α(L)=0.0587 *9*; α(M)=0.01333 *19*; α(N+..)=0.00334 *5* α(N)=0.00294 *5*; α(O)=0.000389 *6*; α(P)=8.89×10^{-6} *13*
		250.83 *8*	100 *13*	104.831	3/2$^-$				
		350.85[@] *11*	43 *6*	4.821	3/2$^-$				
383.20	(17/2$^+$)	235.29 *5*	100	147.91	13/2$^+$	[E2]		0.1219	α(K)=0.0911 *13*; α(L)=0.0241 *4*; α(M)=0.00541 *8*; α(N+..)=0.001367 *20* α(N)=0.001201 *17*; α(O)=0.0001617 *23*; α(P)=4.67×10^{-6} *7*
395.581	5/2$^+$	88.80[&] *9*	1.5 *2*	306.79	3/2$^+$	M1,E2		3.0 *7*	α(K)=1.82 *20*; α(L)=0.9 *7*; α(M)=0.21 *15*; α(N+..)=0.05 *4* α(N)=0.05 *4*; α(O)=0.006 *4*; α(P)=0.00010 *3*
		92.97 *4*	4.1 *3*	302.62	7/2$^-$	[E1]		0.336	α(K)=0.283 *4*; α(L)=0.0419 *6*; α(M)=0.00897 *13*; α(N+..)=0.00229 *4* α(N)=0.00200 *3*; α(O)=0.000281 *4*; α(P)=1.355×10^{-5} *19*
		186.59 *2*	22 *3*	208.991	7/2$^-$	(E1)		0.0509	α(K)=0.0432 *6*; α(L)=0.00602 *9*; α(M)=0.001286 *18*; α(N+..)=0.000332 *5* α(N)=0.000288 *4*; α(O)=4.18×10^{-5} *6*; α(P)=2.27×10^{-6} *4*

$^{151}_{62}Sm_{89}$-14

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
395.581	$5/2^+$	227.18 *2*	41 *3*	168.402	$(5/2)^-$	(E1)	0.0302	α(K)=0.0257 *4*; α(L)=0.00353 *5*; α(M)=0.000755 *11*; α(N+..)=0.000196 *3* α(N)=0.0001696 *24*; α(O)=2.47×10^{-5} *4*; α(P)=1.377×10^{-6} *20*
		227.85 *7*	6 *2*	167.750	$5/2^+$	(M1,E2)	0.152 *17*	α(K)=0.122 *22*; α(L)=0.024 *4*; α(M)=0.0052 *10*; α(N+..)=0.00134 *21* α(N)=0.00117 *20*; α(O)=0.000165 *19*; α(P)=7.1×10^{-6} *20*
		290.75 *1*	100	104.831	$3/2^-$	E1	0.01593	α(K)=0.01358 *19*; α(L)=0.00185 *3*; α(M)=0.000394 *6*; α(N+..)=0.0001025 *15* α(N)=8.87×10^{-5} *13*; α(O)=1.302×10^{-5} *19*; α(P)=7.45×10^{-7} *11*
		325.85 *10*	13 *2*	69.703	$5/2^-$			
		329.75 *2*	26 *2*	65.826	$7/2^-$	(E1)	0.01161	α(K)=0.00991 *14*; α(L)=0.001339 *19*; α(M)=0.000286 *4*; α(N+..)=7.44×10^{-5} *11* α(N)=6.43×10^{-5} *9*; α(O)=9.47×10^{-6} *14*; α(P)=5.49×10^{-7} *8*
		390.70 *6*	6.5 *6*	4.821	$3/2^-$			
		395.68 *10*	5.1 *6*	0.0	$5/2^-$			
415.64	$(5/2^-,7/2^-)$	91.7[&] *3*	4 *2*	323.944	$7/2^+$	[E1]	0.349 *6*	α(K)=0.293 *5*; α(L)=0.0436 *8*; α(M)=0.00933 *16*; α(N+..)=0.00238 *4* α(N)=0.00207 *4*; α(O)=0.000292 *5*; α(P)=1.403×10^{-5} *23*
		113.04 *3*	6.8 *11*	302.62	$7/2^-$	[M1,E2]	1.35 *16*	α(K)=0.93 *9*; α(L)=0.33 *19*; α(M)=0.07 *5*; α(N+..)=0.019 *11* α(N)=0.017 *10*; α(O)=0.0022 *12*; α(P)=5.1×10^{-5} *14*
		206.67 *6*	25 *5*	208.991	$7/2^-$	[M1,E2]	0.204 *17*	α(K)=0.16 *3*; α(L)=0.033 *7*; α(M)=0.0073 *18*; α(N+..)=0.0019 *4* α(N)=0.0016 *4*; α(O)=0.00023 *4*; α(P)=9.E−6 *3*
		247.26 *7*	13 *3*	168.402	$(5/2)^-$	[M1,E2]	0.120 *16*	α(K)=0.097 *19*; α(L)=0.0180 *20*; α(M)=0.0040 *6*; α(N+..)=0.00102 *12* α(N)=0.00089 *11*; α(O)=0.000126 *9*; α(P)=5.7×10^{-6} *17*
		247.91 *8*	20 *3*	167.750	$5/2^+$			
		310.85 *9*	25 *4*	104.831	$3/2^-$			
		346.0 *1*	27 *6*	69.703	$5/2^-$			
		349.81 *3*	100 *10*	65.826	$7/2^-$	(M1,E2)	0.045 *10*	α(K)=0.037 *9*; α(L)=0.0060 *4*; α(M)=0.00131 *6*; α(N+..)=0.000339 *19* α(N)=0.000294 *15*; α(O)=4.3×10^{-5} *4*; α(P)=2.2×10^{-6} *7*
		410.79 *7*	44 *5*	4.821	$3/2^-$			
		415.72 *12*	16 *3*	0.0	$5/2^-$			
419.1	$(11/2^+)$	124.2 *4*	70 *7*	294.82	$9/2^-$			
		271.2 *4*	100 *33*	147.91	$13/2^+$			
		327.6 *4*	33 *33*	91.532	$(9/2)^+$			
423.18	$(11/2)^-$	128.35 *25*	20 *2*	294.82	$9/2^-$	[M1,E2]	0.89 *7*	α(K)=0.64 *7*; α(L)=0.20 *10*; α(M)=0.045 *24*; α(N+..)=0.011 *6* α(N)=0.010 *5*; α(O)=0.0013 *6*; α(P)=3.5×10^{-5} *10*
		247.8		175.38	$9/2^-$			
		275.50 *25*	25 *2*	147.91	$13/2^+$			
		331.58 *15*	86 *3*	91.532	$(9/2)^+$			
		357.38 *15*	100 *2*	65.826	$7/2^-$			
445.20	$(13/2^-)$	184.02 *5*	100	261.13	$(11/2)^-$	[M1]	0.303	α(K)=0.257 *4*; α(L)=0.0361 *5*; α(M)=0.00776 *11*; α(N+..)=0.00204 *3* α(N)=0.001759 *25*; α(O)=0.000264 *4*; α(P)=1.638×10^{-5} *23* Mult.: $\gamma(\theta)$ and level scheme.
445.68	$5/2^+$	100.6[&] *3*	0.30 *9*	344.909	$3/2^+$	[M1,E2]	2.0 *4*	α(K)=1.29 *13*; α(L)=0.5 *4*; α(M)=0.12 *8*; α(N+..)=0.031 *20*

$^{151}_{62}Sm_{89}$-15

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
								α(N)=0.027 *18*; α(O)=0.0035 *21*; α(P)=7.0×10^{-5} *20* B(M1)(W.u.)≤1.9×10^{-3} *7*; B(E2)(W.u.)≤100 *35*.
445.68	5/2$^+$	121.77[&] *4*	2.3 *2*	323.944	7/2$^+$	(M1,E2)	1.06 *10*	α(K)=0.75 *7*; α(L)=0.24 *13*; α(M)=0.06 *3*; α(N+..)=0.014 *8* α(N)=0.012 *7*; α(O)=0.0016 *8*; α(P)=4.1×10^{-5} *11* B(M1)(W.u.)≤7.9×10^{-3} *15*; B(E2)(W.u.)≤280 *50*.
		130.43 *2*	1.7 *1*	315.28	(3/2$^-$)	[E1]	0.1339	B(E1)(W.u.)=5.3×10^{-5} *9* α(K)=0.1133 *16*; α(L)=0.01620 *23*; α(M)=0.00346 *5*; α(N+..)=0.000890 *13* α(N)=0.000774 *11*; α(O)=0.0001107 *16*; α(P)=5.69×10^{-6} *8*
		143.2[&] *3*	0.25 *8*	302.62	7/2$^-$	[E1]	0.1039 *16*	B(E1)(W.u.)=5.9×10^{-6} *21* α(K)=0.0880 *14*; α(L)=0.01248 *19*; α(M)=0.00267 *4*; α(N+..)=0.000687 *11* α(N)=0.000597 *9*; α(O)=8.57×10^{-5} *13*; α(P)=4.48×10^{-6} *7*
		236.68 *7*	4.0 *5*	208.991	7/2$^-$			B(E1)(W.u.)=2.1×10^{-5} *4*
		277.4 *1*	1.5 *3*	168.402	(5/2)$^-$	[E1]	0.0180	B(E1)(W.u.)=4.9×10^{-6} *13* α(K)=0.01531 *22*; α(L)=0.00209 *3*; α(M)=0.000445 *7*; α(N+..)=0.0001157 *17* α(N)=0.0001002 *14*; α(O)=1.469×10^{-5} *21*; α(P)=8.36×10^{-7} *12*
		278.0 *1*	0.20 *9*	167.750	5/2$^+$	[M1,E2]	0.085 *14*	α(K)=0.070 *15*; α(L)=0.0123 *6*; α(M)=0.00269 *19*; α(N+..)=0.00069 *4* α(N)=0.00060 *4*; α(O)=8.62×10^{-5} *16*; α(P)=4.1×10^{-6} *12* I_γ: 1.9 *8* in (n,γ). B(M1)(W.u.)≤6×10^{-5} *3*; B(E2)(W.u.)≤0.4 *2*.
		340.9 *1*	1.8 *5*	104.831	3/2$^-$	[E1]	0.01069	B(E1)(W.u.)=3.1×10^{-6} *10* α(K)=0.00913 *13*; α(L)=0.001232 *18*; α(M)=0.000263 *4*; α(N+..)=6.84×10^{-5} *10* α(N)=5.92×10^{-5} *9*; α(O)=8.72×10^{-6} *13*; α(P)=5.07×10^{-7} *8* I_γ: 4.6 *12* in (n,γ).
		354.14[@] *11*	2.4 *5*	91.532	(9/2)$^+$	[E2]	0.0339	B(E2)(W.u.)=1.5 *4* α(K)=0.0270 *4*; α(L)=0.00543 *8*; α(M)=0.001203 *17*; α(N+..)=0.000307 *5* α(N)=0.000268 *4*; α(O)=3.74×10^{-5} *6*; α(P)=1.491×10^{-6} *21*
		376.04[@]	2.6 *8*	69.703	5/2$^-$	[E1]	0.00841	B(E1)(W.u.)=3.4×10^{-6} *12* α(K)=0.00718 *10*; α(L)=0.000965 *14*; α(M)=0.000206 *3*; α(N+..)=5.36×10^{-5} *8* α(N)=4.64×10^{-5} *7*; α(O)=6.84×10^{-6} *10*; α(P)=4.01×10^{-7} *6*
		379.86 *3*	24 *2*	65.826	7/2$^-$	(E1)	0.00821	B(E1)(W.u.)=3.0×10^{-5} *6* α(K)=0.00701 *10*; α(L)=0.000941 *14*; α(M)=0.000201 *3*; α(N+..)=5.23×10^{-5} *8* α(N)=4.52×10^{-5} *7*; α(O)=6.68×10^{-6} *10*; α(P)=3.92×10^{-7} *6*
		440.85 *2*	28 *2*	4.821	3/2$^-$	E1	0.00576	B(E1)(W.u.)=2.3×10^{-5} *4* α(K)=0.00493 *7*; α(L)=0.000657 *10*; α(M)=0.0001400 *20*; α(N+..)=3.65×10^{-5} *6* α(N)=3.16×10^{-5} *5*; α(O)=4.67×10^{-6} *7*; α(P)=2.78×10^{-7} *4*
		445.68 *2*	100 *6*	0.0	5/2$^-$	E1	0.00562	B(E1)(W.u.)=7.8×10^{-5} *13* α(K)=0.00480 *7*; α(L)=0.000640 *9*; α(M)=0.0001364 *19*; α(N+..)=3.56×10^{-5}

$^{151}_{62}Sm_{89}$-16

Adopted Levels, Gammas (continued)

γ(^{151}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
								5 α(N)=3.08×10^{-5} *5*; α(O)=4.56×10^{-6} *7*; α(P)=2.71×10^{-7} *4*
448.58	(3/2)$^-$	280.21[@] *8*	20 *8*	168.402	(5/2)$^-$			
		280.85[@] *8*	5.3 *8*	167.750	5/2$^+$			
		343.79[@] *10*	3.1 *5*	104.831	3/2$^-$			
		378.9 *1*	30 *4*	69.703	5/2$^-$			
		382.78[@]	2.2 *7*	65.826	7/2$^-$			
		443.8 *1*	84 *12*	4.821	3/2$^-$			
		448.6 *1*	100 *13*	0.0	5/2$^-$			
470.41	(5/2,7/2$^+$)	125.49 *4*	6 *3*	344.909	3/2$^+$	[D,E2]	0.6 *5*	
		146.45[@] *5*	13 *3*	323.944	7/2$^+$	[D,E2]	0.3 *2*	
		261.42 *8*	17 *5*	208.991	7/2$^-$			
		301.8[&] *2*	21 *7*	168.402	(5/2)$^-$			
		302.67 *9*	41 *10*	167.750	5/2$^+$			
		400.74 *12*	11 *5*	69.703	5/2$^-$			
		404.72 *6*	100 *9*	65.826	7/2$^-$			
		470.5 *2*	28 *9*	0.0	5/2$^-$			
490.34	(7/2)$^-$	195.56 *6*	21 *4*	294.82	9/2$^-$	[M1,E2]	0.241 *17*	α(K)=0.19 *3*; α(L)=0.040 *10*; α(M)=0.0089 *24*; α(N+..)=0.0023 *6* α(N)=0.0020 *5*; α(O)=0.00028 *6*; α(P)=1.1×10^{-5} *3*
		314.96 *10*	49 *5*	175.38	9/2$^-$			
		321.95 *10*	77 *9*	168.402	(5/2)$^-$			
		385.59[@] *12*	29 *9*	104.831	3/2$^-$			
		398.9 *1*	25 *4*	91.532	(9/2)$^+$			
		420.65 *6*	45 *6*	69.703	5/2$^-$			
		424.55 *6*	39 *5*	65.826	7/2$^-$			
		490.26 *5*	100 *7*	0.0	5/2$^-$			
502.27	(11/2$^-$)	207.39 *18*	60 *15*	294.82	9/2$^-$	[M1,E2]	0.202 *17*	α(K)=0.16 *3*; α(L)=0.033 *7*; α(M)=0.0072 *17*; α(N+..)=0.0019 *4* α(N)=0.0016 *4*; α(O)=0.00023 *4*; α(P)=9.E−6 *3*
		293.36 *13*	100 *20*	208.991	7/2$^-$			
		327.1 *3*	27 *9*	175.38	9/2$^-$			
		410.8		91.532	(9/2)$^+$			
502.33	1/2$^+$	157.37 *5*	31 *6*	344.909	3/2$^+$	[M1,E2]	0.470	α(K)=0.36 *5*; α(L)=0.09 *4*; α(M)=0.020 *8*; α(N+..)=0.0051 *20* α(N)=0.0044 *18*; α(O)=0.00061 *20*; α(P)=2.0×10^{-5} *6*
		187.01 *6*	65 *11*	315.28	(3/2$^-$)			
		188.47 *6*	55 *9*	313.85	(1/2$^-$,3/2$^-$)			
		195.50 *6*	9 *2*	306.79	3/2$^+$	[M1,E2]	0.241 *17*	α(K)=0.19 *3*; α(L)=0.040 *10*; α(M)=0.0089 *24*; α(N+..)=0.0023 *6* α(N)=0.0020 *5*; α(O)=0.00028 *6*; α(P)=1.1×10^{-5} *3*
		334.55 *10*	17 *2*	167.750	5/2$^+$			
		397.45 *13*	3.1 *12*	104.831	3/2$^-$			
		497.49 *15*	100 *12*	4.821	3/2$^-$			
521.15	3/2$^+$	105.49[@] *3*	4 *2*	415.64	(5/2$^-$,7/2$^-$)	[E1]	0.238	α(K)=0.201 *3*; α(L)=0.0294 *5*; α(M)=0.00628 *9*; α(N+..)=0.001609

$^{151}_{62}Sm_{89}$-17

Adopted Levels, Gammas (continued)

γ(^{151}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
								23 α(N)=0.001400 *20*; α(O)=0.000198 *3*; α(P)=9.82×10^{-6} *14*
521.15	3/2$^+$	125.55 *4*	4.1 *6*	395.581	5/2$^+$	[M1,E2]	0.96 *8*	α(K)=0.68 *7*; α(L)=0.21 *11*; α(M)=0.05 *3*; α(N+..)=0.012 *7* α(N)=0.011 *6*; α(O)=0.0014 *7*; α(P)=3.8×10^{-5} *10*
		165.50[@] *5*	1.8 *6*	355.65	1/2$^+$	[M1,E2]	0.402 *8*	α(K)=0.31 *4*; α(L)=0.07 *3*; α(M)=0.017 *6*; α(N+..)=0.0042 *15* α(N)=0.0037 *14*; α(O)=0.00050 *15*; α(P)=1.7×10^{-5} *5*
		176.23[@] *5*	2.6 *7*	344.909	3/2$^+$	[M1,E2]	0.331 *12*	α(K)=0.26 *4*; α(L)=0.059 *18*; α(M)=0.013 *5*; α(N+..)=0.0033 *11* α(N)=0.0029 *10*; α(O)=0.00040 *11*; α(P)=1.5×10^{-5} *4*
		205.87 *6*	3.1 *8*	315.28	(3/2$^-$)			
		207.34 *6*	2.6 *7*	313.85	(1/2$^-$,3/2$^-$)			
		236.20 *7*	33 *5*	284.95	1/2$^-$,3/2$^-$			
		352.74[@] *11*	2.2 *6*	168.402	(5/2)$^-$			
		353.36 *10*	37 *4*	167.750	5/2$^+$			
		451.40 *2*	100 *8*	69.703	5/2$^-$	(E1)	0.00545	α(K)=0.00466 *7*; α(L)=0.000621 *9*; α(M)=0.0001324 *19*; α(N+..)=3.45×10^{-5} *5* α(N)=2.99×10^{-5} *5*; α(O)=4.42×10^{-6} *7*; α(P)=2.63×10^{-7} *4*
		516.25 *6*	67 *5*	4.821	3/2$^-$			
		521.1 *2*	11 *2*	0.0	5/2$^-$			
530.2	(9/2$^+$)	107.0		423.18	(11/2)$^-$			
		438.7 *4*		91.532	(9/2)$^+$			
531.81	13/2$^-$	356.42 *15*	100 *4*	175.38	9/2$^-$			
		383.8 *4*	15.2 *6*	147.91	13/2$^+$			
620.51	(3/2$^-$,5/2,7/2$^+$)	275.60[@] *8*	4.7 *12*	344.909	3/2$^+$			
		411.50[@] *12*	4.4 *11*	208.991	7/2$^-$			
		452.16 *13*	19 *6*	168.402	(5/2)$^-$			
		550.8 *2*	22 *4*	69.703	5/2$^-$			
		554.6 *2*	23 *4*	65.826	7/2$^-$			
		620.6 *2*	100 *10*	0.0	5/2$^-$			
632.07	(5/2)$^+$	110.89 *3*	48 *15*	521.15	3/2$^+$	[M1,E2]	1.43 *18*	α(K)=0.98 *9*; α(L)=0.36 *21*; α(M)=0.08 *5*; α(N+..)=0.020 *12* α(N)=0.018 *11*; α(O)=0.0024 *13*; α(P)=5.3×10^{-5} *15*
		183.44 *6*	16 *3*	448.58	(3/2)$^-$			
		216.31 *10*	10 *8*	415.64	(5/2$^-$,7/2$^-$)			
		236.42 *7*	11 *3*	395.581	5/2$^+$	[M1,E2]	0.136 *17*	α(K)=0.110 *21*; α(L)=0.021 *3*; α(M)=0.0046 *8*; α(N+..)=0.00118 *16* α(N)=0.00103 *15*; α(O)=0.000146 *14*; α(P)=6.4×10^{-6} *19*
		276.35 *8*	9 *4*	355.65	1/2$^+$			
		308.08 *9*	23 *4*	323.944	7/2$^+$			
		325.24 *10*	42 *6*	306.79	3/2$^+$			
		423.04 *13*	40 *6*	208.991	7/2$^-$			
		464.29 *14*	43 *9*	167.750	5/2$^+$			
		562.3 *3*	19 *10*	69.703	5/2$^-$			

$^{151}_{62}Sm_{89}$-18

Adopted Levels, Gammas (continued)

γ(^{151}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
632.07	(5/2)$^+$	632.1 *2*	100 *14*	0.0	5/2$^-$			
648.26	(15/2$^-$)	203.07 *5*	100 *4*	445.20	(13/2$^-$)			
		387.10 *8*	24.5 *5*	261.13	(11/2)$^-$			
663.01	3/2$^{(+)}$	192.61 *6*	58 *9*	470.41	(5/2,7/2$^+$)	[D,E2]	0.16 *11*	
		217.31[@] *7*	33 *5*	445.68	5/2$^+$	[M1,E2]	0.175 *18*	α(K)=0.140 *24*; α(L)=0.028 *5*; α(M)=0.0062 *13*; α(N+..)=0.0016 *3* α(N)=0.0014 *3*; α(O)=0.00019 *3*; α(P)=8.1×10^{-6} *23*
		247.37[@] *8*	7 *2*	415.64	(5/2$^-$,7/2$^-$)			
		267.41[@] *8*	6 *1*	395.581	5/2$^+$			
		307.38[@] *9*	22 *4*	355.65	1/2$^+$			
		347.73[@] *11*	27 *5*	315.28	(3/2$^-$)			
		349.20 *11*	97 *15*	313.85	(1/2$^-$,3/2$^-$)			
		356.20[@] *11*	5 *1*	306.79	3/2$^+$			
		378.07[@] *11*	45 *6*	284.95	1/2$^-$,3/2$^-$			
		494.6 *2*	14 *7*	168.402	(5/2)$^-$			
		495.3 *2*	100 *12*	167.750	5/2$^+$			
		558.2[@] *2*	39 *6*	104.831	3/2$^-$			
		593.5 *2*	20 *5*	69.703	5/2$^-$			
		658.2[@] *2*	42 *9*	4.821	3/2$^-$			
663.53	(5/2$^-$,7/2,9/2$^-$)	360.95 *11*	14 *4*	302.62	7/2$^-$			
		368.8 *1*	9 *2*	294.82	9/2$^-$			
		454.4[&] *4*	14 *5*	208.991	7/2$^-$			
		597.7 *1*	100 *41*	65.826	7/2$^-$			
		663.5 *1*	56 *15*	0.0	5/2$^-$			
671.99	(15/2$^+$)	252.8 *4*	5.9 *5*	419.1	(11/2$^+$)			
		288.78 *8*	54 *1*	383.20	(17/2$^+$)			
		524.1 *2*	100 *7*	147.91	13/2$^+$			
696.31	(13/2$^-$)	164.7		531.81	13/2$^-$			
		273.2 *2*	34 *6*	423.18	(11/2)$^-$			
		277.2		419.1	(11/2$^+$)			
		401.48 *11*	100 *3*	294.82	9/2$^-$			
		548.7 *4*	8.5 *12*	147.91	13/2$^+$			
703.28	3/2$^{(-)}$	254.65 *8*	8 *2*	448.58	(3/2)$^-$			
		257.52 *8*	18 *3*	445.68	5/2$^+$			
		307.66 *9*	12 *6*	395.581	5/2$^+$			
		347.60 *11*	64 *8*	355.65	1/2$^+$			
		387.89 *12*	12 *3*	315.28	(3/2$^-$)			
		396.47 *12*	12 *2*	306.79	3/2$^+$			
		534.85 *16*	32 *6*	168.402	(5/2)$^-$			
		535.51 *16*	100 *16*	167.750	5/2$^+$			
		637.4 *3*	24 *12*	65.826	7/2$^-$			

$^{151}_{62}Sm_{89}$-19

Adopted Levels, Gammas (continued)

γ(^{151}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
703.28	3/2(−)	698.5 *2*	76 *12*	4.821	3/2−			
		703.3 *3*	52 *16*	0.0	5/2−			
705.8	(13/2)+	175.6 *4*	57 *29*	530.2	(9/2+)			
		282.65 *20*		423.18	(11/2)−			
		286.4 *4*		419.1	(11/2+)			
		557.9 *4*	100 *9*	147.91	13/2+			
		614.3 *4*	29 *29*	91.532	(9/2)+			
721.96	(1/2−,3/2−)	200.78 *6*	3.3 *7*	521.15	3/2+			
		273.33 *8*	5.4 *9*	448.58	(3/2)−			
		366.28 *8*	30 *4*	355.65	1/2+			
		406.64 *12*	23 *3*	315.28	(3/2−)			
		408.1 *2*	4 *2*	313.85	(1/2−,3/2−)			
		414.9 *3*	4 *2*	306.79	3/2+			
		717.1 *2*	100 *16*	4.821	3/2−			
741.03	3/2(+)	270.72 *3*	4.8 *5*	470.41	(5/2,7/2+)			
		292.4 *3*	0.8 *4*	448.58	(3/2)−			
		295.4 *1*	1.0 *3*	445.68	5/2+			
		325.2[&] *3*	1.0 *2*	415.64	(5/2−,7/2−)			
		396.1[@] *2*	5 *2*	344.909	3/2+			
		425.6[&] *4*	0.7 *2*	315.28	(3/2−)			
		427.25 *4*	4.4 *5*	313.85	(1/2−,3/2−)			
		456.05[&] *13*	2.7 *5*	284.95	1/2−,3/2−			
		572.5[&] *2*	3.6 *8*	168.402	(5/2)−			
		573.2[&] *2*	2.0 *4*	167.750	5/2+			
		636.20 *3*	100 *6*	104.831	3/2−	(E1)	0.00254	B(E1)(W.u.)>4.1×10^{-6} α(K)=0.00218 *3*; α(L)=0.000286 *4*; α(M)=6.08×10^{-5} *9*; α(N+..)=1.591×10^{-5} *23* α(N)=1.374×10^{-5} *20*; α(O)=2.05×10^{-6} *3*; α(P)=1.249×10^{-7} *18*
		671.28 *3*	63 *5*	69.703	5/2−	(E1)	0.00227	B(E1)(W.u.)>2.2×10^{-6} α(K)=0.00195 *3*; α(L)=0.000255 *4*; α(M)=5.42×10^{-5} *8*; α(N+..)=1.418×10^{-5} *20* α(N)=1.224×10^{-5} *18*; α(O)=1.82×10^{-6} *3*; α(P)=1.118×10^{-7} *16*
		736.12 *10*	33 *3*	4.821	3/2−	(E1)	0.00188	B(E1)(W.u.)>8.8×10^{-7} α(K)=0.001612 *23*; α(L)=0.000210 *3*; α(M)=4.46×10^{-5} *7*; α(N+..)=1.168×10^{-5} *17* α(N)=1.008×10^{-5} *15*; α(O)=1.505×10^{-6} *21*; α(P)=9.27×10^{-8} *13*
		740.8[&] *2*	1.6 *3*	0.0	5/2−			
754.3	(11/2+)	331.1		423.18	(11/2)−			
		459.5		294.82	9/2−			
		579.0		175.38	9/2−			
754.83	(5/2−,7/2−)	264.41 *8*	17 *8*	490.34	(7/2)−			

$^{151}_{62}Sm_{89}$-20

Adopted Levels, Gammas (continued)

γ(^{151}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
754.83	(5/2⁻,7/2⁻)	359.21 *11*	20 *8*	395.581	5/2⁺			
		430.9 *2*	22 *11*	323.944	7/2⁺			
		439.47 *13*	1.8×10² *14*	315.28	(3/2⁻)			
		459.8 *2*	100 *20*	294.82	9/2⁻			
		545.9 *2*	46 *16*	208.991	7/2⁻			
757.68	(21/2⁺)	374.49 *5*	100	383.20	(17/2⁺)			
773.98	5/2⁽⁺⁾	358.32 *11*	4.3 *8*	415.64	(5/2⁻,7/2⁻)			
		457.5[&] *10*	1.3 *6*	315.28	(3/2⁻)			
		467.0 *3*	3.0 *12*	306.79	3/2⁺			
		471.3 *2*	3.5 *13*	302.62	7/2⁻			
		479.5[@] *3*	14 *5*	294.82	9/2⁻			
		565.00[&] *4*	100 *6*	208.991	7/2⁻	(E1)	0.00329	α(K)=0.00281 *4*; α(L)=0.000371 *6*; α(M)=7.90×10⁻⁵ *11*; α(N+..)=2.06×10⁻⁵ *3* α(N)=1.783×10⁻⁵ *25*; α(O)=2.65×10⁻⁶ *4*; α(P)=1.606×10⁻⁷ *23*
		598.7[@] *2*	47 *9*	175.38	9/2⁻			
		605.9[&] *5*	2.7 *7*	167.750	5/2⁺			
		669.2 *2*	81 *12*	104.831	3/2⁻			
		704.24 *8*	96 *7*	69.703	5/2⁻			
		769.10[&] *8*	30 *3*	4.821	3/2⁻			
777.4?	(≤7/2)	329.0[&c] *8*	100	448.58	(3/2)⁻			
796.8	(11/2⁺)	502.0		294.82	9/2⁻			
804.70	(3/2⁻,5/2)	358.99 *11*	14 *3*	445.68	5/2⁺			
		459.8 *2*	59 *13*	344.909	3/2⁺			
		490.8 *3*	20 *13*	313.85	(1/2⁻,3/2⁻)			
		519.65 *15*	37 *9*	284.95	1/2⁻,3/2⁻			
		595.7 *2*	49 *11*	208.991	7/2⁻			
		636.7 *3*	120 *70*	167.750	5/2⁺			
		699.8 *3*	100 *20*	104.831	3/2⁻			
		739.0 *3*	100 *33*	65.826	7/2⁻			
813.5	(15/2⁻)	117.0		696.31	(13/2⁻)			
		390.3 *4*	17 *5*	423.18	(11/2)⁻			
		430.30 *25*	100 *9*	383.20	(17/2⁺)			
		665.4 *4*	48 *6*	147.91	13/2⁺			
821.98	(3/2⁻)	376.27 *11*	5 *2*	445.68	5/2⁺			
		477.2 *3*	8 *3*	344.909	3/2⁺			
		508.3 *3*	17 *7*	313.85	(1/2⁻,3/2⁻)			
		536.8 *2*	9 *3*	284.95	1/2⁻,3/2⁻			
		612.9 *3*	23 *7*	208.991	7/2⁻			
		717.1 *2*	100 *16*	104.831	3/2⁻			
		752.4 *3*	51 *25*	69.703	5/2⁻			
		817.1 *3*	26 *12*	4.821	3/2⁻			

$^{151}_{62}Sm_{89}$-21

Adopted Levels, Gammas (continued)

γ(^{151}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
821.98	(3/2⁻)	822.0 *6*	46 *18*	0.0	5/2⁻			
822.64	(3/2⁺,5/2⁺)	119.48[@] *4*	8 *3*	703.28	3/2[(−)]	[E1]	0.1699	B(E1)(W.u.)>6.9×10^{-5} α(K)=0.1436 *21*; α(L)=0.0207 *3*; α(M)=0.00443 *7*; α(N+..)=0.001136 *16* α(N)=0.000988 *14*; α(O)=0.0001409 *20*; α(P)=7.13×10^{-6} *10*
		352.3[&] *3*	0.38 *10*	470.41	(5/2,7/2⁺)			
		374.2[&] *2*	0.54 *11*	448.58	(3/2)⁻			
		376.9 *3*	0.39 *11*	445.68	5/2⁺			
		407.03 *3*	4.6 *4*	415.64	(5/2⁻,7/2⁻)			
		477.75 *4*	2.3 *2*	344.909	3/2⁺			
		507.27[&] *14*	1.2 *2*	315.28	(3/2⁻)			
		537.65[&] *11*	1.1 *2*	284.95	1/2⁻,3/2⁻			
		654.25[&] *6*	5.9 *4*	168.402	(5/2)⁻	(E1)	0.00240	B(E1)(W.u.)>3.1×10^{-7} α(K)=0.00206 *3*; α(L)=0.000269 *4*; α(M)=5.72×10^{-5} *8*; α(N+..)=1.498×10^{-5} *21* α(N)=1.294×10^{-5} *19*; α(O)=1.93×10^{-6} *3*; α(P)=1.179×10^{-7} *17*
		717.72 *8*	100 *6*	104.831	3/2⁻	(E1)	0.00198	B(E1)(W.u.)>4.0×10^{-6} α(K)=0.001697 *24*; α(L)=0.000221 *3*; α(M)=4.70×10^{-5} *7*; α(N+..)=1.231×10^{-5} *18* α(N)=1.063×10^{-5} *15*; α(O)=1.586×10^{-6} *23*; α(P)=9.76×10^{-8} *14*
		752.82 *8*	32 *2*	69.703	5/2⁻	(E1)	0.00179	B(E1)(W.u.)>1.1×10^{-6} α(K)=0.001540 *22*; α(L)=0.000200 *3*; α(M)=4.26×10^{-5} *6*; α(N+..)=1.115×10^{-5} *16* α(N)=9.63×10^{-6} *14*; α(O)=1.437×10^{-6} *21*; α(P)=8.86×10^{-8} *13*
		817.7[&] *2*	2.2 *8*	4.821	3/2⁻			
		822.45[&] *11*	0.8 *2*	0.0	5/2⁻			
850.6	(13/2⁺)	427.3 *4*		423.18	(11/2)⁻			
		759.1		91.532	(9/2)⁺			
851.6		381.2[&] *3*	100	470.41	(5/2,7/2⁺)			
869.43	(17/2⁻)	221.15 *5*	100 *2*	648.26	(15/2⁻)	[M1]	0.183	α(K)=0.1557 *22*; α(L)=0.0218 *3*; α(M)=0.00467 *7*; α(N+..)=0.001227 *18* α(N)=0.001059 *15*; α(O)=0.0001588 *23*; α(P)=9.88×10^{-6} *14* Mult.: γ(θ) and level scheme.
		424.29 *15*	46 *1*	445.20	(13/2⁻)			
877.62	5/2[(+)]	429.1 *3*	1.8 *7*	448.58	(3/2)⁻			
		462.24 *13*	4.0 *5*	415.64	(5/2⁻,7/2⁻)			
		532.5 *2*	3.8 *5*	344.909	3/2⁺			
		562.1 *3*	2.1 *4*	315.28	(3/2⁻)			
		574.97 *7*	13 *1*	302.62	7/2⁻			
		668.7 *2*	40 *4*	208.991	7/2⁻			

$^{151}_{62}Sm_{89}$-22

Adopted Levels, Gammas (continued)

γ(^{151}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
877.62	5/2(+)	709.25 *6*	15 *2*	168.402	(5/2)$^-$			
		772.76 *8*	100 *8*	104.831	3/2$^-$	(E1)	1.70×10^{-3}	α(K)=0.001461 *21*; α(L)=0.000190 *3*; α(M)=4.04×10^{-5} *6*; α(N+..)=1.057×10^{-5} *15* α(N)=9.12×10^{-6} *13*; α(O)=1.362×10^{-6} *19*; α(P)=8.42×10^{-8} *12*
		807.90 *6*	63 *5*	69.703	5/2$^-$	(E1)	1.56×10^{-3}	α(K)=0.001337 *19*; α(L)=0.0001734 *25*; α(M)=3.69×10^{-5} *6*; α(N+..)=9.65×10^{-6} *14* α(N)=8.33×10^{-6} *12*; α(O)=1.245×10^{-6} *18*; α(P)=7.71×10^{-8} *11*
		811.8 *1*	7.5 *5*	65.826	7/2$^-$			
		877.7 *1*	11 *1*	0.0	5/2$^-$	(E1)	1.32×10^{-3}	α(K)=0.001137 *16*; α(L)=0.0001469 *21*; α(M)=3.12×10^{-5} *5*; α(N+..)=8.18×10^{-6} *12* α(N)=7.06×10^{-6} *10*; α(O)=1.055×10^{-6} *15*; α(P)=6.57×10^{-8} *10*
887.32	(5/2$^-$,7/2)	471.3 *2*	11 *3*	415.64	(5/2$^-$,7/2$^-$)			
		584.9 *4*	5.1 *10*	302.62	7/2$^-$			
		678.30 *15*	27 *3*	208.991	7/2$^-$			
		712.0 *1*	56 *6*	175.38	9/2$^-$			
		719.0 *5*	7 *2*	168.402	(5/2)$^-$			
		817.7 *2*	100 *20*	69.703	5/2$^-$			
		887.6 *6*	1.6 *6*	0.0	5/2$^-$			
889.0	(1/2,3/2,5/2$^+$)	575.1 *10*	36 *14*	313.85	(1/2$^-$,3/2$^-$)			
		604.0 *6*	100 *28*	284.95	1/2$^-$,3/2$^-$			
894.9	(15/2$^-$)	198.6		696.31	(13/2$^-$)			
		393.3 *4*		502.27	(11/2$^-$)			
		511.6 *4*		383.20	(17/2$^+$)			
		747.0		147.91	13/2$^+$			
920.79	(≤5/2)	98.01 *3*	18 *9*	822.64	(3/2$^+$,5/2$^+$)	[D,E2]	1.4 *11*	
		418.48 *13*	14 *3*	502.33	1/2$^+$			
		472.29 *14*	19 *6*	448.58	(3/2)$^-$			
		565.12[c] *17*	<73	355.65	1/2$^+$			E_γ: this γ deexcites mainly from 773.9 level. The placement suggested in (n,γ) only.
		635.8 *2*	100 *55*	284.95	1/2$^-$,3/2$^-$			
925.9	(5/2,7/2)	603.0 *6*	100 *30*	323.944	7/2$^+$			
		758.5 *4*	80 *18*	167.750	5/2$^+$			
		856.2 *3*	58 *10*	69.703	5/2$^-$			
		859.8 *3*	74 *10*	65.826	7/2$^-$			
		926.1 *5*	36 *6*	0.0	5/2$^-$			
951.42	(3/2$^-$)	430.2 *2*	3.4 *16*	521.15	3/2$^+$			
		505.70 *15*	33 *16*	445.68	5/2$^+$			
		555.8 *2*	10 *3*	395.581	5/2$^+$			
		595.7 *2*	11 *3*	355.65	1/2$^+$			
		606.6 *2*	21 *3*	344.909	3/2$^+$			

$^{151}_{62}Sm_{89}$-23

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
951.42	(3/2$^-$)	637.4 *3*	9 *5*	313.85	(1/2$^-$,3/2$^-$)				
		648.8 *2*	13 *3*	302.62	7/2$^-$				
		783.6 *2*	57 *9*	167.750	5/2$^+$				
		886.0 *3*	43 *13*	65.826	7/2$^-$				
		951.3 *3*	100 *19*	0.0	5/2$^-$				
953.48	3/2$^{(+)}$	148.85[@] *5*	4 *2*	804.70	(3/2$^-$,5/2)	[D,E2]		0.3 *2*	
		598.0[&] *10*	2.6 *13*	355.65	1/2$^+$				
		668.5[&] *8*	1.0 *5*	284.95	1/2$^-$,3/2$^-$				
		785.10 *7*	63 *5*	168.402	(5/2)$^-$	(E1)		1.65×10^{-3}	α(K)=0.001415 *20*; α(L)=0.000184 *3*; α(M)=3.91×10^{-5} *6*; α(N+..)=1.023×10^{-5} *15* α(N)=8.83×10^{-6} *13*; α(O)=1.319×10^{-6} *19*; α(P)=8.16×10^{-8} *12*
		848.65 *7*	80 *6*	104.831	3/2$^-$	(E1)		1.41×10^{-3}	α(K)=0.001214 *17*; α(L)=0.0001570 *22*; α(M)=3.34×10^{-5} *5*; α(N+..)=8.75×10^{-6} *13* α(N)=7.55×10^{-6} *11*; α(O)=1.128×10^{-6} *16*; α(P)=7.01×10^{-8} *10*
		883.68[&] *13*	13 *2*	69.703	5/2$^-$				
		948.72 *7*	100 *8*	4.821	3/2$^-$	(E1)		1.14×10^{-3}	α(K)=0.000979 *14*; α(L)=0.0001261 *18*; α(M)=2.68×10^{-5} *4*; α(N+..)=7.02×10^{-6} *10* α(N)=6.06×10^{-6} *9*; α(O)=9.07×10^{-7} *13*; α(P)=5.67×10^{-8} *8*
		953.41[&] *11*	28 *3*	0.0	5/2$^-$	(E1)		1.13×10^{-3}	α(K)=0.000970 *14*; α(L)=0.0001249 *18*; α(M)=2.65×10^{-5} *4*; α(N+..)=6.96×10^{-6} *10* α(N)=6.00×10^{-6} *9*; α(O)=8.98×10^{-7} *13*; α(P)=5.61×10^{-8} *8*
960.48	(≤7/2)	328.38 *10*	28 *16*	632.07	(5/2)$^+$				
		514.79 *15*	100 *16*	445.68	5/2$^+$				
		792.1 *3*	80 *20*	168.402	(5/2)$^-$				
964.21	5/2$^{(+)}$	661.5 *2*	36 *14*	302.62	7/2$^-$				
		755 *1*	11 *4*	208.991	7/2$^-$				
		795.74 *9*	93 *7*	168.402	(5/2)$^-$	(E1+M2)	−0.17 *7*	0.0021 *5*	α(K)=0.0018 *4*; α(L)=0.00024 *6*; α(M)=5.1×10^{-5} *12*; α(N+..)=1.3×10^{-5} *3* α(N)=1.1×10^{-5} *3*; α(O)=1.7×10^{-6} *4*; α(P)=1.06×10^{-7} *25* Mult.,δ: from $\gamma(\theta)$ in ^{151}Pm β^-.
		894.1 *7*	4.3 *14*	69.703	5/2$^-$				
		898.58 *12*	39 *4*	65.826	7/2$^-$				
		959.7 *3*	100 *11*	4.821	3/2$^-$				
		964.4 *4*	7.5 *15*	0.0	5/2$^-$				
974.7	(17/2$^+$)	161.7 *4*	2.3 *7*	813.5	(15/2$^-$)				
		269.0 *2*	39 *3*	705.8	(13/2)$^+$				

$^{151}_{62}Sm_{89}$-24

Adopted Levels, Gammas (continued)

γ(^{151}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]
974.7	(17/2$^+$)	302.7 *4*		671.99	(15/2$^+$)		
		591.3 *2*	64 *2*	383.20	(17/2$^+$)		
		826.8 *2*	100 *3*	147.91	13/2$^+$		
993.5	(13/2$^-$)	818.1 *4*	100	175.38	9/2$^-$		
994.15	(17/2$^-$)	180.8		813.5	(15/2$^-$)		
		322.0 *4*	8 *2*	671.99	(15/2$^+$)		
		462.6 *2*	100 *2*	531.81	13/2$^-$		
		610.8 *2*	36 *2*	383.20	(17/2$^+$)		
1016.5	(3/2$^-$,5/2,7/2$^-$)	713.4 *5*	100 *38*	302.62	7/2$^-$		
		1012.2 *5*	40 *10*	4.821	3/2$^-$		
1017.31	1/2,3/2,5/2$^+$	65.89 *2*	68 *36*	951.42	(3/2$^-$)	[D,E2]	6 *5*
		276.10 *8*	23 *11*	741.03	3/2$^{(+)}$		
		396.8 *2*	15 *5*	620.51	(3/2$^-$,5/2,7/2$^+$)		
		568.6 *2*	30 *6*	448.58	(3/2)$^-$		
		601.5 *3*	41 *14*	415.64	(5/2$^-$,7/2$^-$)		
		661.8 *3*	41 *14*	355.65	1/2$^+$		
		672.5 *2*	100 *18*	344.909	3/2$^+$		
1041.4	(15/2$^+$)	244.6 *4*		796.8	(11/2$^+$)		
		893.7 *4*	100 *25*	147.91	13/2$^+$		
1054.25	(19/2$^+$)	296.55 *10*	35 *6*	757.68	(21/2$^+$)		
		382.1 *2*	31 *2*	671.99	(15/2$^+$)		
		670.9 *2*	100 *4*	383.20	(17/2$^+$)		
1091.5	(15/2$^+$)	336.8 *4*		754.3	(11/2$^+$)		
		559.5 *2*	100 *4*	531.81	13/2$^-$		
1107.55	(19/2$^-$)	238.11 *5*	100 *1*	869.43	(17/2$^-$)		
		459.35 *15*	81 *1*	648.26	(15/2$^-$)		
1142.2	(19/2$^-$)	329.3 *4*	1.4 *10*	813.5	(15/2$^-$)		
		385.0 *4*	7.6 *6*	757.68	(21/2$^+$)		
		759.03 *12*	100 *2*	383.20	(17/2$^+$)		
1161.04	(17/2$^-$)	167.5		994.15	(17/2$^-$)		
		266.1		894.9	(15/2$^-$)		
		347.7		813.5	(15/2$^-$)		
		464.7 *2*	100 *5*	696.31	(13/2$^-$)		
		489.0		671.99	(15/2$^+$)		
		629.5 *4*		531.81	13/2$^-$		
		777.8 *4*	23 *2*	383.20	(17/2$^+$)		
1190.6	(17/2$^+$)	295.8 *4*		894.9	(15/2$^-$)		
		339.8 *4*		850.6	(13/2$^+$)		
		377.2		813.5	(15/2$^-$)		
		518.6		671.99	(15/2$^+$)		
		807.1 *4*	100 *6*	383.20	(17/2$^+$)		
		1042.8 *4*	70 *4*	147.91	13/2$^+$		
1223.97	(17/2$^-$)	230.5 *4*	1.8 *6*	993.5	(13/2$^-$)		

$^{151}_{62}Sm_{89}$-25

Adopted Levels, Gammas (continued)

γ(^{151}Sm) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
1223.97	(17/2$^-$)	410.6		813.5	(15/2$^-$)
		527.6		696.31	(13/2$^-$)
		552.0 *2*	100 *12*	671.99	(15/2$^+$)
		692.4 *4*		531.81	13/2$^-$
		840.9 *4*	27 *3*	383.20	(17/2$^+$)
1236.53	(25/2$^+$)	478.86 *5*	100	757.68	(21/2$^+$)
1321.83	(21/2$^+$)	179.5		1142.2	(19/2$^-$)
		267.8 *4*		1054.25	(19/2$^+$)
		347.1 *2*	100 *2*	974.7	(17/2$^+$)
		564.1 *2*	46 *2*	757.68	(21/2$^+$)
		938.7 *2*	70 *2*	383.20	(17/2$^+$)
1361.32	(21/2$^-$)	253.79 *15*	92 *2*	1107.55	(19/2$^-$)
		492.1 *2*	100 *2*	869.43	(17/2$^-$)
1379.04	(19/2$^-$)	188.4		1190.6	(17/2$^+$)
		484.4 *4*		894.9	(15/2$^-$)
		621.8 *4*		757.68	(21/2$^+$)
		995.7 *2*	100 *6*	383.20	(17/2$^+$)
1386.6	(19/2$^+$)	345.4 *4*		1041.4	(15/2$^+$)
		1003.4 *2*	100 *2*	383.20	(17/2$^+$)
1478.6	(21/2$^-$)	254.7		1223.97	(17/2$^-$)
		336.3		1142.2	(19/2$^-$)
		424.8 *2*	48 *6*	1054.25	(19/2$^+$)
		484.4 *2*	49 *2*	994.15	(17/2$^-$)
		721.1 *2*	100 *2*	757.68	(21/2$^+$)
1490.0	(19/2$^+$)	329.0		1161.04	(17/2$^-$)
		347.6		1142.2	(19/2$^-$)
		399.1 *4*		1091.5	(15/2$^+$)
		495.9 *2*	100 *9*	994.15	(17/2$^-$)
		732.3 *4*	45 *4*	757.68	(21/2$^+$)
1502.5	(23/2$^-$)	266.1 *4*	5.8 *3*	1236.53	(25/2$^+$)
		359.7 *4*	1.3 *3*	1142.2	(19/2$^-$)
		744.85 *13*	100 *2*	757.68	(21/2$^+$)
1531.17	(21/2$^-$)	169.7[c] *8*		1361.32	(21/2$^-$)
		307.5 *4*		1223.97	(17/2$^-$)
		388.8		1142.2	(19/2$^-$)
		476.95 *15*	100 *20*	1054.25	(19/2$^+$)
		537.4 *4*		994.15	(17/2$^-$)
		774.0 *5*		757.68	(21/2$^+$)
1532.88	(23/2$^+$)	211.1		1321.83	(21/2$^+$)
		296.3 *2*	29 *6*	1236.53	(25/2$^+$)
		478.9 *2*	77 *4*	1054.25	(19/2$^+$)
		775.4 *2*	100 *6*	757.68	(21/2$^+$)
1625.56	(21/2$^+$)	246.6 *4*		1379.04	(19/2$^-$)
1625.56	(21/2$^+$)	434.8 *4*		1190.6	(17/2$^+$)
		571.6 *2*	100 *10*	1054.25	(19/2$^+$)
		867.7 *4*	23 *2*	757.68	(21/2$^+$)
		1242.3 *4*	37 *2*	383.20	(17/2$^+$)
1628.1	(17/2)	979.7 *4*	100 *14*	648.26	(15/2$^-$)
		1183.6 *4*	89 *11*	445.20	(13/2$^-$)
1630.0	(23/2$^-$)	268.5 *2*	63 *1*	1361.32	(21/2$^-$)
		522.4 *2*	100 *2*	1107.55	(19/2$^-$)
1705.8	(21/2$^-$)	203.3		1502.5	(23/2$^-$)
		544.9 *4*	33 *4*	1161.04	(17/2$^-$)
		563.4		1142.2	(19/2$^-$)
		651.7 *2*	100 *8*	1054.25	(19/2$^+$)
1721.1	(19/2)	613.6		1107.55	(19/2$^-$)
		851.8 *4*	100 *5*	869.43	(17/2$^-$)
1740.17	(25/2$^+$)	207.3		1532.88	(23/2$^+$)
		237.6		1502.5	(23/2$^-$)
		418.3 *2*	100 *1*	1321.83	(21/2$^+$)
		503.7 *4*	0.81 *5*	1236.53	(25/2$^+$)
		982.4 *2*	25 *1*	757.68	(21/2$^+$)
1798.2	(29/2$^+$)	561.7 *1*	100	1236.53	(25/2$^+$)
1830.4	(23/2$^+$)	351.7		1478.6	(21/2$^-$)
		443.7 *4*	15 *1*	1386.6	(19/2$^+$)
		1072.7 *2*	100 *3*	757.68	(21/2$^+$)
1835.4	(19/2)	207.5 *4*		1628.1	(17/2)
		966.1 *4*	100 *6*	869.43	(17/2$^-$)
		1187.1 *4*	7 *2*	648.26	(15/2$^-$)
1883.1	(21/2)	162.0		1721.1	(19/2)
		521.8		1361.32	(21/2$^-$)
		775.6 *2*	100 *2*	1107.55	(19/2$^-$)
1906.57	(25/2$^-$)	373.9 *2*	100 *9*	1532.88	(23/2$^+$)
		375.1 *4*		1531.17	(21/2$^-$)
		403.7 *4*	21 *3*	1502.5	(23/2$^-$)
		427.8 *4*	15 *3*	1478.6	(21/2$^-$)
		670.0 *2*	53 *9*	1236.53	(25/2$^+$)
1911.87	(25/2$^-$)	282.1 *2*	58 *1*	1630.0	(23/2$^-$)
		550.6 *2*	100 *2*	1361.32	(21/2$^-$)
1916.6	(21/2)	195.5 *4*		1721.1	(19/2)
		555.3		1361.32	(21/2$^-$)
		809.3 *4*	100 *9*	1107.55	(19/2$^-$)
1927.26	(27/2$^-$)	129.9 *4*	1.3 *1*	1798.2	(29/2$^+$)
		424.4 *4*	2.7 *4*	1502.5	(23/2$^-$)
		690.6 *2*	100 *1*	1236.53	(25/2$^+$)
1936.6	(23/2$^-$)	311.0		1625.56	(21/2$^+$)

$^{151}_{62}Sm_{89}$-26

Adopted Levels, Gammas (continued)

γ(^{151}Sm) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
1936.6	(23/2$^-$)	557.7		1379.04	(19/2$^-$)
		1178.9 *2*	100 *4*	757.68	(21/2$^+$)
1955.1	(23/2$^+$)	465.1 *2*	100 *7*	1490.0	(19/2$^+$)
		476.4		1478.6	(21/2$^-$)
		718.6 *4*	41 *6*	1236.53	(25/2$^+$)
2018.69	(25/2$^-$)	485.8		1532.88	(23/2$^+$)
		487.5		1531.17	(21/2$^-$)
		516.2		1502.5	(23/2$^-$)
		540.1 *2*	100 *10*	1478.6	(21/2$^-$)
		782.1 *2*	62 *2*	1236.53	(25/2$^+$)
2041.3	(21/2)	206.1 *4*		1835.4	(19/2)
		413.5 *4*		1628.1	(17/2)
		933.9 *4*	100 *6*	1107.55	(19/2$^-$)
		1171.4 *4*	8 *3*	869.43	(17/2$^-$)
2089.10	(27/2$^+$)	182.5		1906.57	(25/2$^-$)
		290.8 *4*	15 *1*	1798.2	(29/2$^+$)
		348.9		1740.17	(25/2$^+$)
		556.3 *2*	100 *2*	1532.88	(23/2$^+$)
		852.5 *2*	56 *1*	1236.53	(25/2$^+$)
2097.7	(25/2$^+$)	161.1		1936.6	(23/2$^-$)
		299.5		1798.2	(29/2$^+$)
		472.3 *4*		1625.56	(21/2$^+$)
		860.8 *4*	100 *7*	1236.53	(25/2$^+$)
2107.2	(23/2)	190.6		1916.6	(21/2)
		224.0 *4*		1883.1	(21/2)
		386.1		1721.1	(19/2)
		477.3		1630.0	(23/2$^-$)
		745.9 *4*	100 *15*	1361.32	(21/2$^-$)
2132.8	(23/2)	216.1 *4*		1916.6	(21/2)
		411.9 *4*		1721.1	(19/2)
		502.9		1630.0	(23/2$^-$)
		771.5 *4*	100 *5*	1361.32	(21/2$^-$)
2205.5	(27/2$^-$)	293.5 *3*	40 *20*	1911.87	(25/2$^-$)
		575.7 *2*	100 *30*	1630.0	(23/2$^-$)
2229.2	(29/2$^+$)	302.0 *4*	10 *2*	1927.26	(27/2$^-$)
		431.0		1798.2	(29/2$^+$)
		488.9 *2*	100 *2*	1740.17	(25/2$^+$)
		992.7 *4*	9 *1*	1236.53	(25/2$^+$)
2242.1	(25/2$^-$)	314.8		1927.26	(27/2$^-$)
		536.3 *4*	20 *6*	1705.8	(21/2$^-$)
		709.1 *4*	100 *7*	1532.88	(23/2$^+$)
2248.3	(23/2)	206.9 *4*		2041.3	(21/2)
		412.8 *4*		1835.4	(19/2)
2248.3	(23/2)	886.9 *4*	100 *14*	1361.32	(21/2$^-$)
		1140.4 *4*	43 *14*	1107.55	(19/2$^-$)
2350.9	(25/2)	218.1		2132.8	(23/2)
		243.8 *4*		2107.2	(23/2)
		434.3		1916.6	(21/2)
		439.0 *4*	100 *8*	1911.87	(25/2$^-$)
		467.9 *4*		1883.1	(21/2)
		720.8 *4*	42 *4*	1630.0	(23/2$^-$)
2351.2	(27/2$^+$)	444.6		1906.57	(25/2$^-$)
		520.8 *4*	38 *2*	1830.4	(23/2$^+$)
		1114.5 *4*	100 *5*	1236.53	(25/2$^+$)
2364.3	(25/2)	231.5 *4*		2132.8	(23/2)
		448.0 *4*		1916.6	(21/2)
		452.4		1911.87	(25/2$^-$)
		734.4 *4*	100 *5*	1630.0	(23/2$^-$)
2375.8	(29/2$^-$)	286.8 *2*	100 *14*	2089.10	(27/2$^+$)
		448.5 *2*	86 *7*	1927.26	(27/2$^-$)
		469.2 *4*	67 *3*	1906.57	(25/2$^-$)
		577.6 *2*	89 *4*	1798.2	(29/2$^+$)
2423.1	(31/2$^-$)	495.7 *4*	8.2 *12*	1927.26	(27/2$^-$)
		624.9 *2*	100 *2*	1798.2	(29/2$^+$)
2427.1	(33/2$^+$)	629.0 *1*	100	1798.2	(29/2$^+$)
2444.2	(25/2)	195.3 *4*		2248.3	(23/2)
		403.1 *4*		2041.3	(21/2)
		814.7 *4*	73 *9*	1630.0	(23/2$^-$)
		1082.9 *4*	100 *18*	1361.32	(21/2$^-$)
2472.0	(27/2$^+$)	453.3		2018.69	(25/2$^-$)
		517.2 *4*	100 *17*	1955.1	(23/2$^+$)
		674.1 *4*	48 *5*	1798.2	(29/2$^+$)
2509.8	(29/2$^-$)	304.1 *4*	25 *1*	2205.5	(27/2$^-$)
		597.9 *2*	100 *2*	1911.87	(25/2$^-$)
2560.2	(29/2$^-$)	541.5 *2*	90 *25*	2018.69	(25/2$^-$)
		633.2 *4*	8 *8*	1927.26	(27/2$^-$)
		761.9 *2*	100 *4*	1798.2	(29/2$^+$)
2601.4	(29/2$^+$)	503.6 *4*		2097.7	(25/2$^+$)
		674.1		1927.26	(27/2$^-$)
		803.3 *4*	100 *4*	1798.2	(29/2$^+$)
2610.8	(27/2)	246.7 *4*		2364.3	(25/2)
		477.9 *4*		2132.8	(23/2)
		698.8 *4*	100 *9*	1911.87	(25/2$^-$)
2613.1	(27/2)	261.9 *4*		2350.9	(25/2)
		407.8 *4*	95 *12*	2205.5	(27/2$^-$)
		480.3		2132.8	(23/2)

$^{151}_{62}Sm_{89}$-27

Adopted Levels, Gammas (continued)

γ(^{151}Sm) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
2613.1	(27/2)	505.7 *4*		2107.2	(23/2)
		701.5 *4*	100 *10*	1911.87	(25/2$^-$)
2650.8	(27/2)	207 *1*		2444.2	(25/2)
		402.5 *4*		2248.3	(23/2)
		739.8[a] *4*	25 *25*	1911.87	(25/2$^-$)
		1020.1[b] *4*	100 *25*	1630.0	(23/2$^-$)
2711.6	(31/2$^+$)	284.5 *4*	8 *2*	2427.1	(33/2$^+$)
		288.5		2423.1	(31/2$^-$)
		335.8		2375.8	(29/2$^-$)
		482.4		2229.2	(29/2$^+$)
		622.4 *2*	100 *6*	2089.10	(27/2$^+$)
		913.6 *4*	26 *2*	1798.2	(29/2$^+$)
2762.3	(29/2$^-$)	339.2		2423.1	(31/2$^-$)
		520.2 *4*	100 *31*	2242.1	(25/2$^-$)
		673.2		2089.10	(27/2$^+$)
2788.4	(33/2$^+$)	361.1 *4*	2.2 *5*	2427.1	(33/2$^+$)
		365.3		2423.1	(31/2$^-$)
		559.1 *2*	100 *3*	2229.2	(29/2$^+$)
		990.2 *4*	3.5 *9*	1798.2	(29/2$^+$)
2821.4	(31/2$^-$)	311.6 *4*	19 *3*	2509.8	(29/2$^-$)
		615.8 *2*	100 *2*	2205.5	(27/2$^-$)
2861.3	(29/2)	250.7 *4*		2610.8	(27/2)
		497.2 *4*		2364.3	(25/2)
		655.6 *4*	100 *6*	2205.5	(27/2$^-$)
2892.1	(29/2)	278.9 *4*		2613.1	(27/2)
		382.3		2509.8	(29/2$^-$)
		541.3 *4*		2350.9	(25/2)
		686.6		2205.5	(27/2$^-$)
2898.1	(33/2$^-$)	186.1 *4*	8 *1*	2711.6	(31/2$^+$)
		471.6 *4*	11 *2*	2427.1	(33/2$^+$)
		475.3 *4*	21 *4*	2423.1	(31/2$^-$)
		522.2 *2*	100 *8*	2375.8	(29/2$^-$)
2935.6	(31/2$^+$)	584.3 *4*	59 *10*	2351.2	(27/2$^+$)
		1137.5 *4*	100 *17*	1798.2	(29/2$^+$)
2991.0	(35/2$^-$)	563.8 *2*	100 *7*	2427.1	(33/2$^+$)
		567.7 *4*	18 *2*	2423.1	(31/2$^-$)
3035.0	(31/2$^+$)	563.6 *4*	100 *25*	2472.0	(27/2$^+$)
		607.3 *4*	40 *5*	2427.1	(33/2$^+$)
3107	(31/2)	246 *1*		2861.3	(29/2)
		495 *1*		2610.8	(27/2)
		597		2509.8	(29/2$^-$)
3108.2	(37/2$^+$)	116.9 *4*	1.5 *4*	2991.0	(35/2$^-$)
3108.2	(37/2$^+$)	681.1 *2*	100 *2*	2427.1	(33/2$^+$)
3132.8	(33/2$^-$)	311.4 *4*	6.2 *10*	2821.4	(31/2$^-$)
		623.2 *4*	100 *3*	2509.8	(29/2$^-$)
3140.2	(33/2$^-$)	580.1 *4*	100 *17*	2560.2	(29/2$^-$)
		713.2 *4*	60 *7*	2427.1	(33/2$^+$)
		716.9 *4*	3 *3*	2423.1	(31/2$^-$)
3183.2	(33/2$^+$)	581.8 *4*		2601.4	(29/2$^+$)
		756.1		2427.1	(33/2$^+$)
		760.1		2423.1	(31/2$^-$)
3186.0	(31/2)	294.1 *4*		2892.1	(29/2)
		573.0 *4*		2613.1	(27/2)
		676.0 *4*	100 *10*	2509.8	(29/2$^-$)
3358.0	(33/2$^-$)	595.7 *4*		2762.3	(29/2$^-$)
3388.8	(35/2$^+$)	280.5 *4*	2.4 *6*	3108.2	(37/2$^+$)
		490.7		2898.1	(33/2$^-$)
		600.4		2788.4	(33/2$^+$)
		677.4 *4*	100 *9*	2711.6	(31/2$^+$)
		961.6 *4*	27 *12*	2427.1	(33/2$^+$)
3408.7	(37/2$^+$)	300.5 *4*	8 *2*	3108.2	(37/2$^+$)
		620.1 *2*	100 *20*	2788.4	(33/2$^+$)
		982.3 *4*	28 *3*	2427.1	(33/2$^+$)
3439.6	(35/2$^-$)	306.8 *4*		3132.8	(33/2$^-$)
		618 *1*		2821.4	(31/2$^-$)
3478.1	(37/2$^-$)	371.3 *4*	3.6 *9*	3108.2	(37/2$^+$)
		487.1		2991.0	(35/2$^-$)
		580.0 *2*	100 *9*	2898.1	(33/2$^-$)
3493.7	(33/2)	308 *1*		3186.0	(31/2)
		601.6 *4*		2892.1	(29/2)
3627.0	(39/2$^-$)	518.7 *4*	100 *8*	3108.2	(37/2$^+$)
		636.1 *4*	48 *16*	2991.0	(35/2$^-$)
3764.7	(37/2$^-$)	624.5 *4*		3140.2	(33/2$^-$)
3812	(35/2)	318 *1*		3493.7	(33/2)
		626 *1*		3186.0	(31/2)
3829.0	(41/2$^+$)	202.0		3627.0	(39/2$^-$)
		720.8 *4*	100 *7*	3108.2	(37/2$^+$)
4080.0	(41/2$^+$)	671.3 *4*		3408.7	(37/2$^+$)
4105.6	(39/2$^+$)	716.8 *4*		3388.8	(35/2$^+$)
4122.2	(41/2$^-$)	644.1 *4*		3478.1	(37/2$^-$)
4323.5	(43/2$^-$)	494.5		3829.0	(41/2$^+$)
		696.5 *4*		3627.0	(39/2$^-$)
4574.0	(45/2$^+$)	745.0 *4*	100	3829.0	(41/2$^+$)

$^{151}_{62}Sm_{89}$-28

Adopted Levels, Gammas (continued)

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

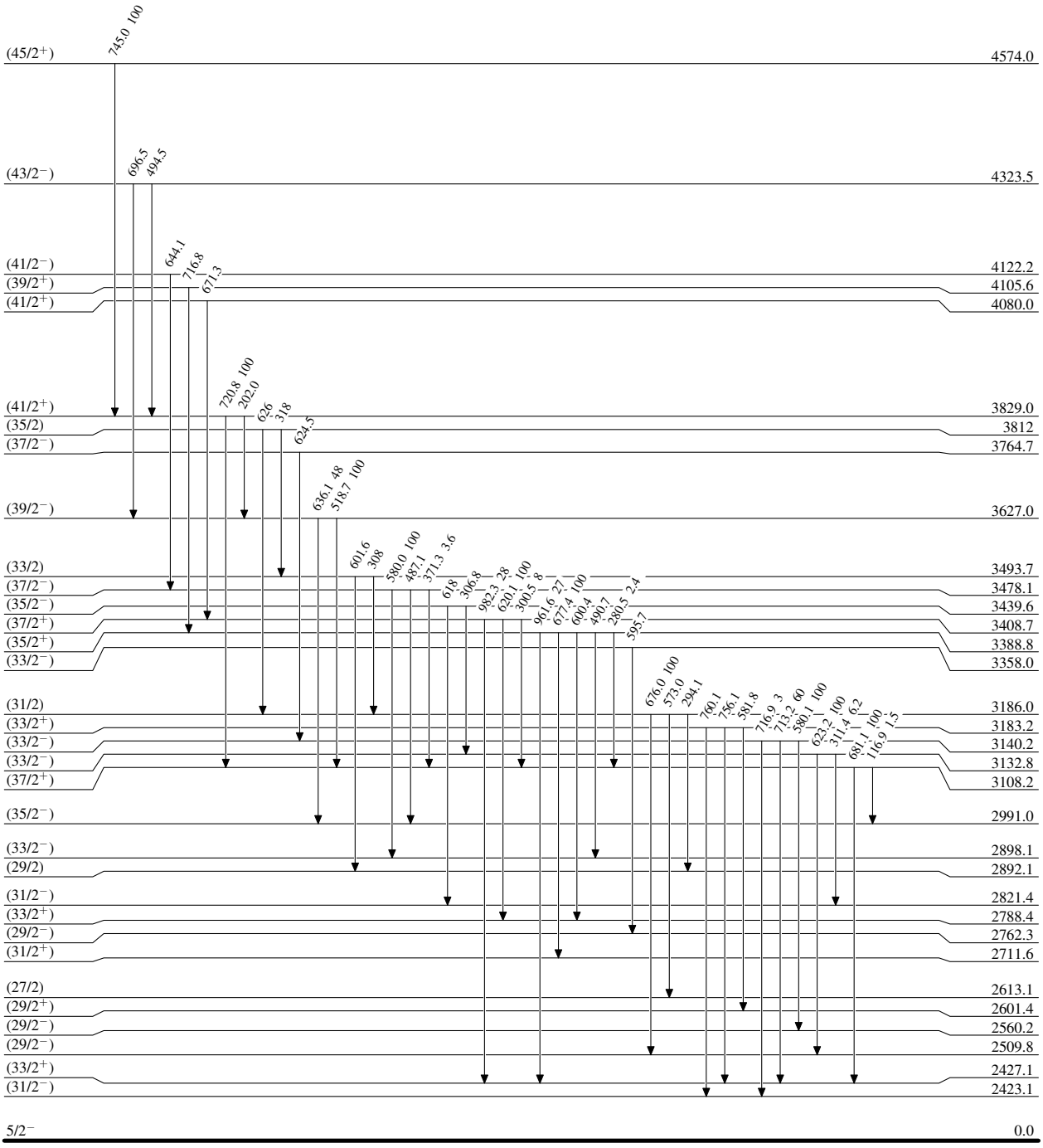
† Weighted average of values available from γ-ray studies.
‡ From ce, $\gamma(\theta)$, $\gamma\gamma(\theta)$ studies in ^{151}Pm β^- decay and ce data in $^{150}Sm(n,\gamma)$. From $\gamma\gamma(\theta)$ (DCO) data in $(\alpha,3n\gamma)$ multipolarities for many transitions are implied: E2 for $\Delta J=2$; E1 or M1 for $\Delta J=1$; M1+E2 for $\Delta J=1$, D+Q. These assignments are not given here but have been used in J^π assignments. See $(\alpha,3n\gamma)$ dataset for details.
# Theoretical values (from BrIcc code) for assigned mult and δ. In cases where multipolarities are assumed from ΔJ^π, values are given only for transitions below about 250 keV where α is expected to be>0.1. For mult=M1,E2 α overlaps that for M1 and E2.
@ γ from (n,γ) only, not seen in ^{151}Pm β^- decay.
& γ from ^{151}Pm β^- decay only, not seen in (n,γ).
a Poor energy fit. Level energy difference is 738.9.
b Poor energy fit. Level energy difference is 1020.9.
c Placement of transition in the level scheme is uncertain.

$^{151}_{62}Sm_{89}$-29

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

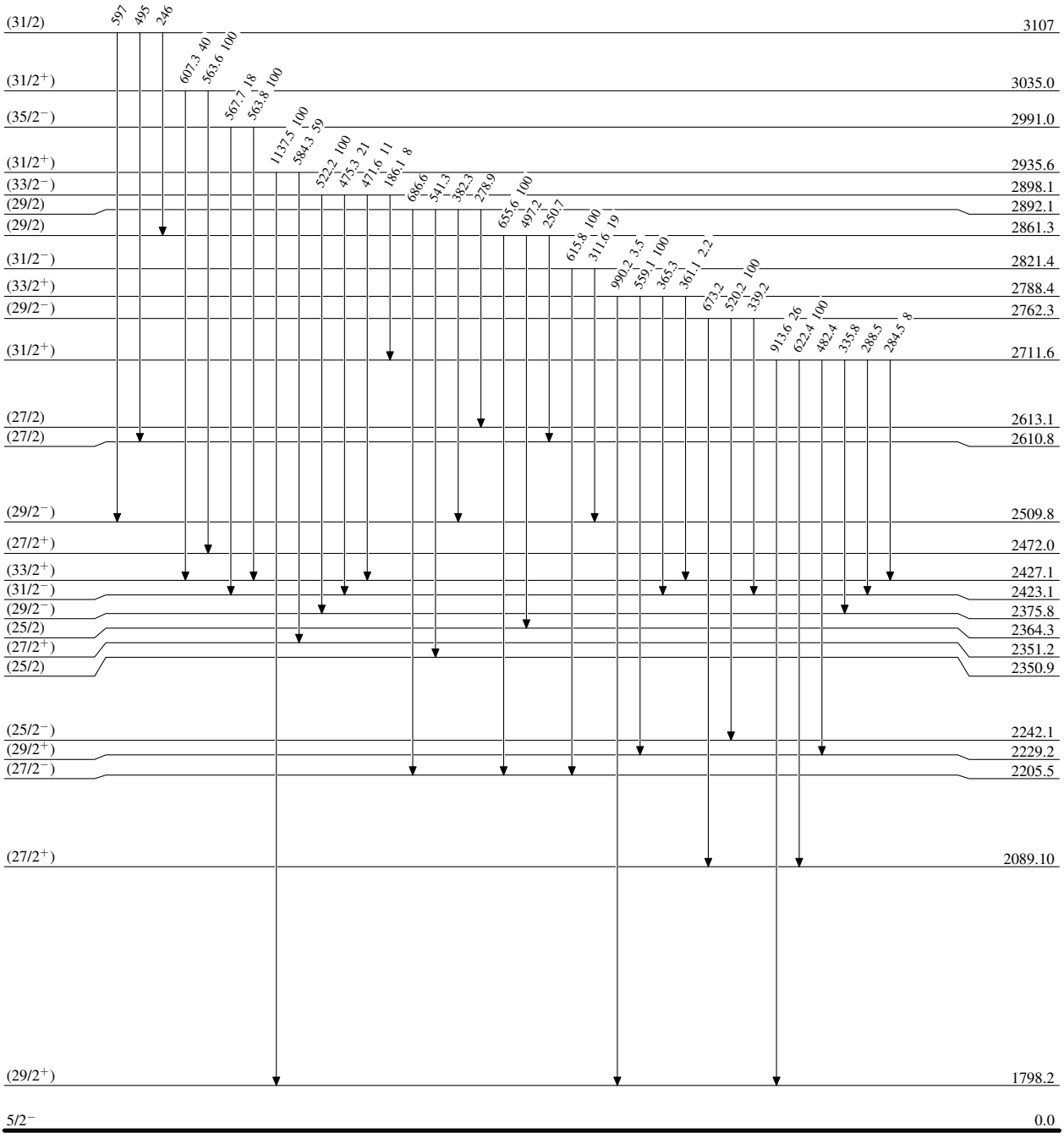


$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

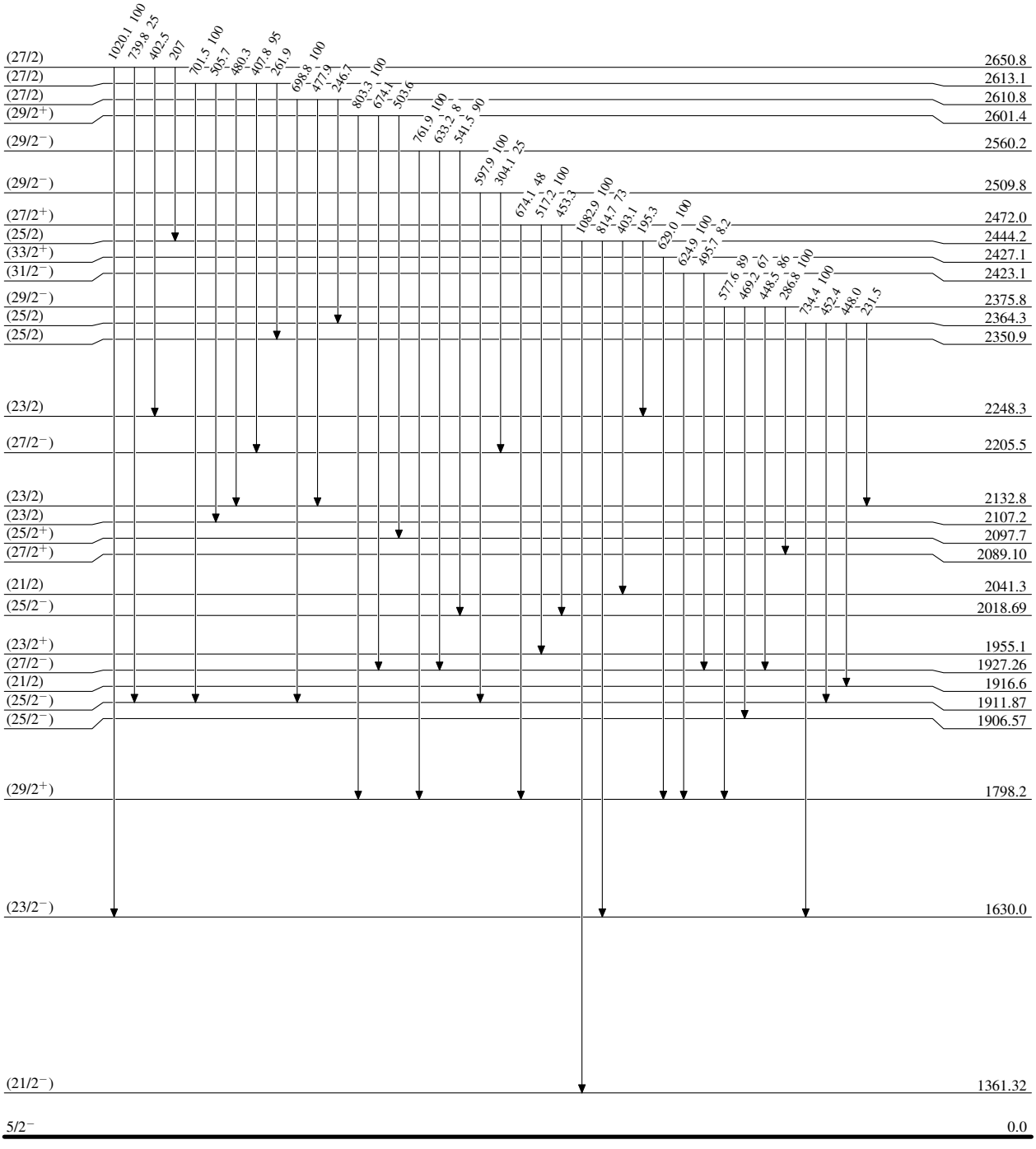


$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

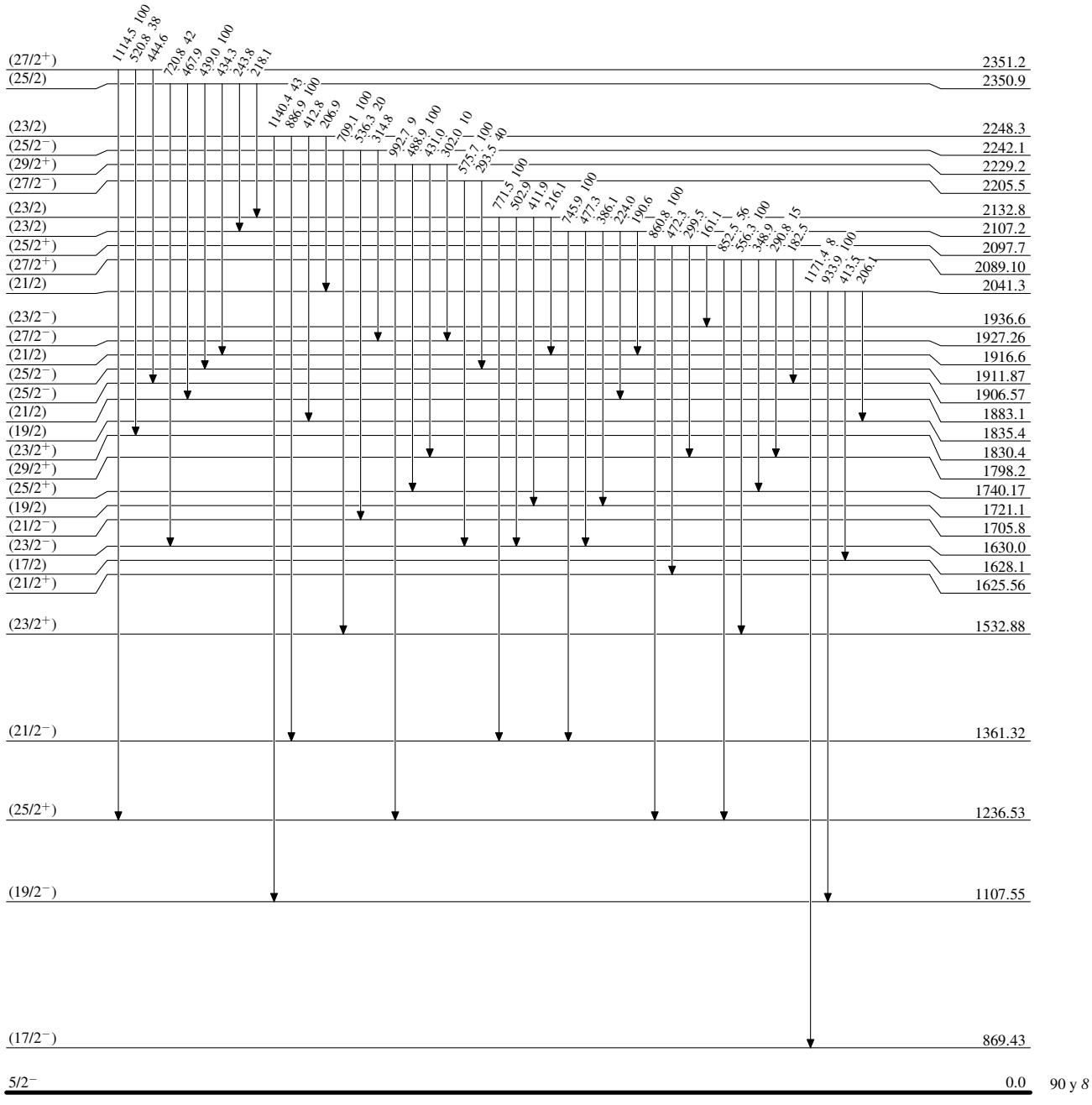


$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

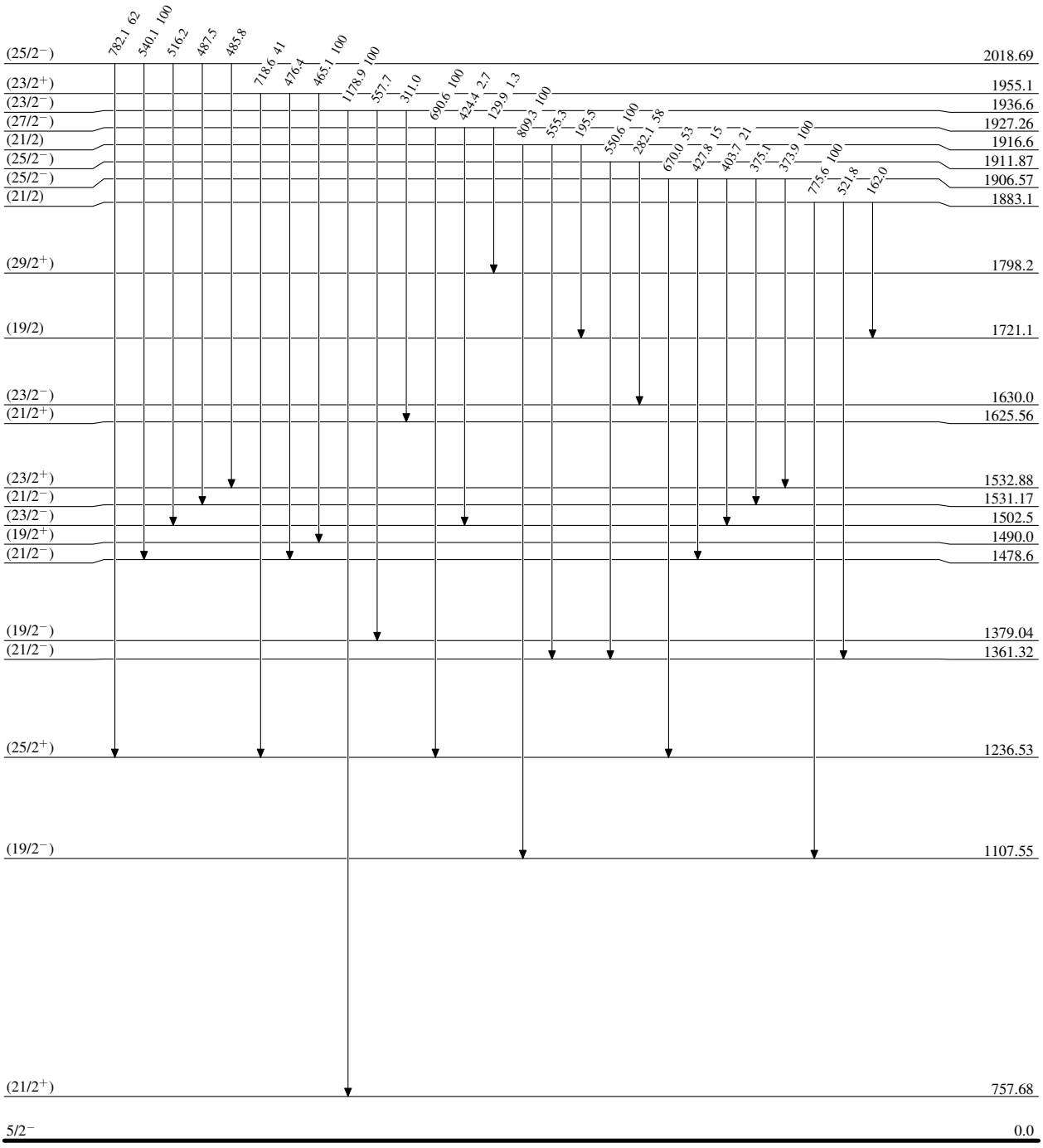


$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{151}_{62}Sm_{89}$

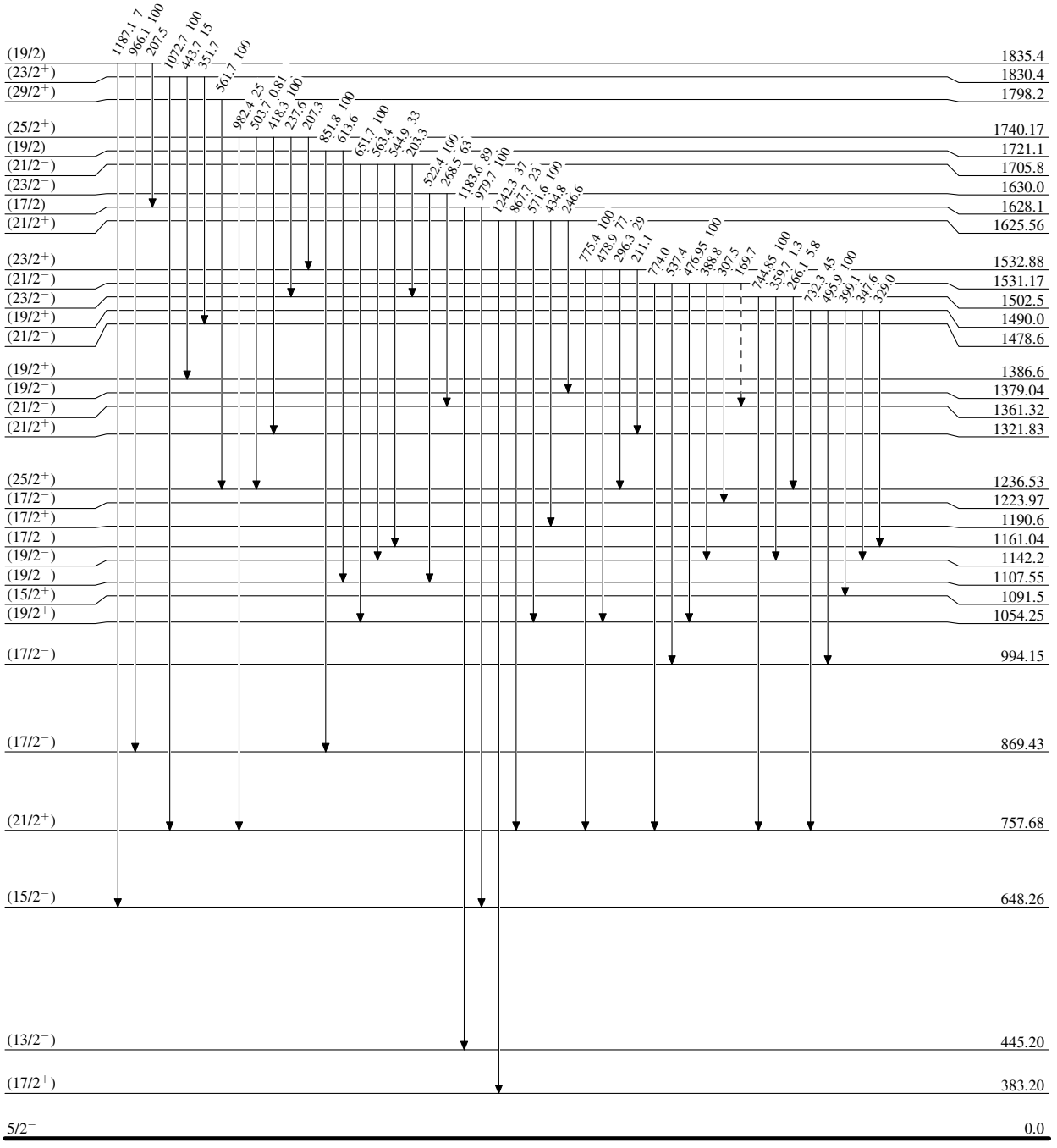
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)

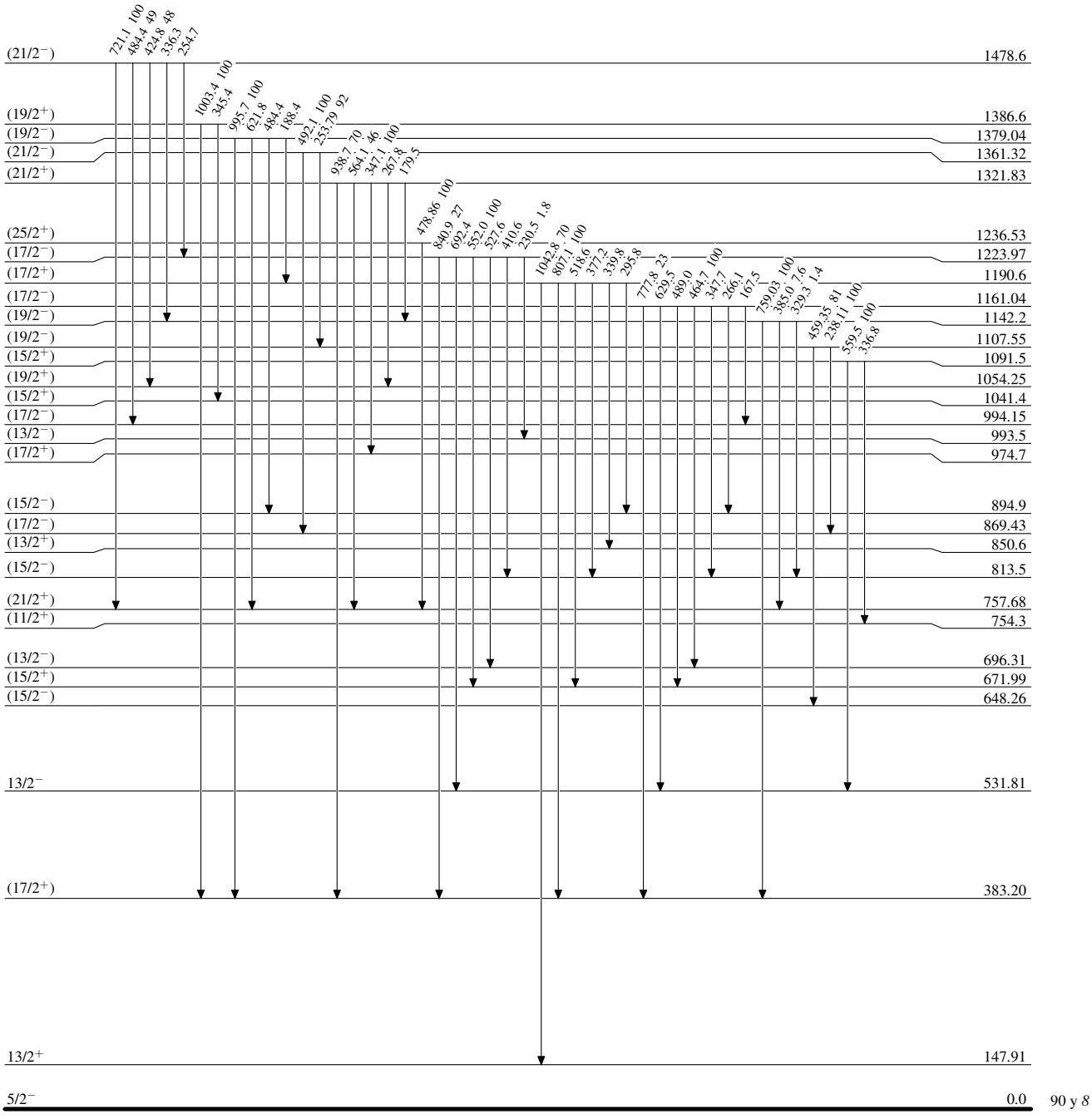


$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

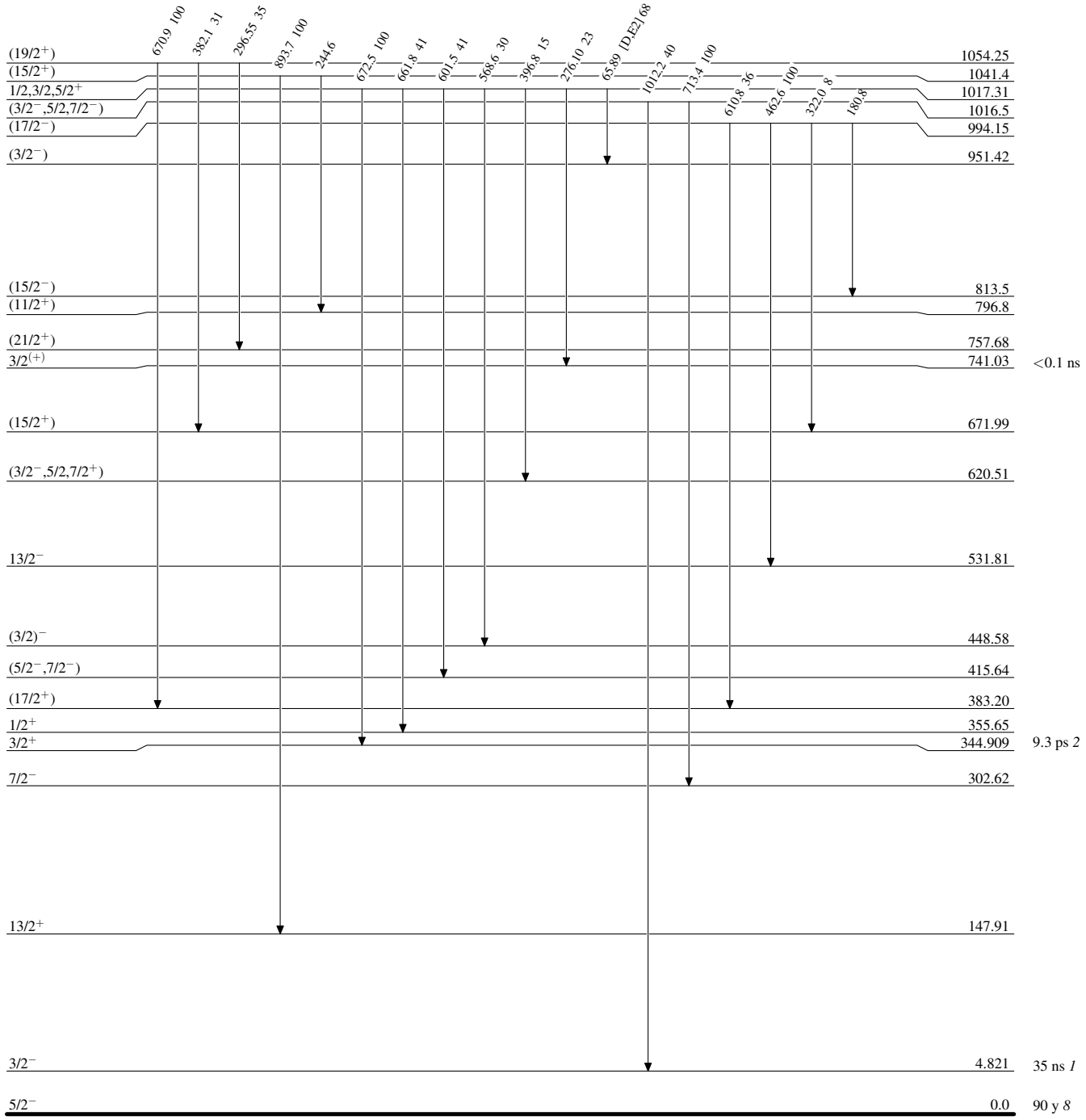


$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

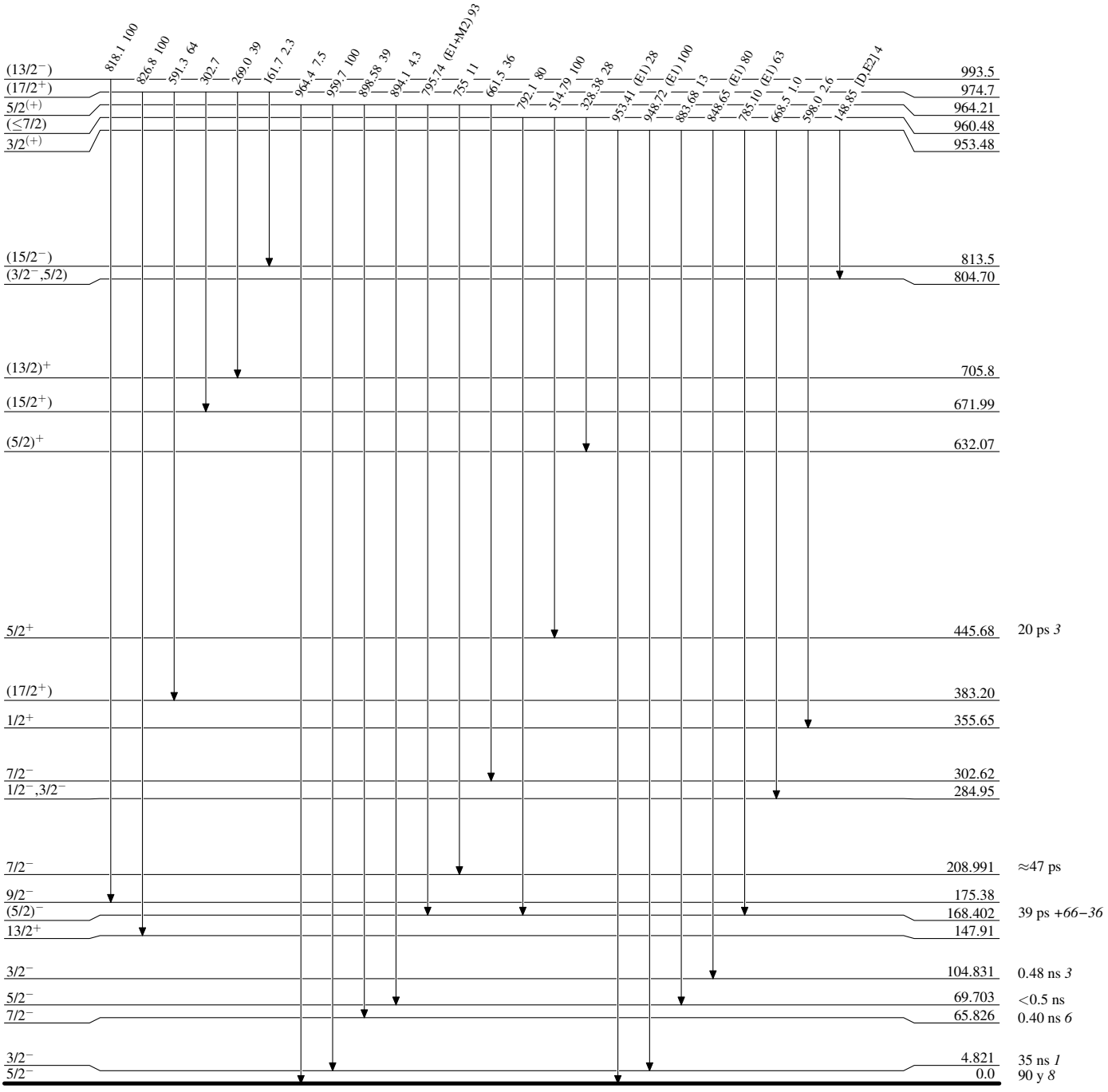


$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{151}_{62}Sm_{89}$

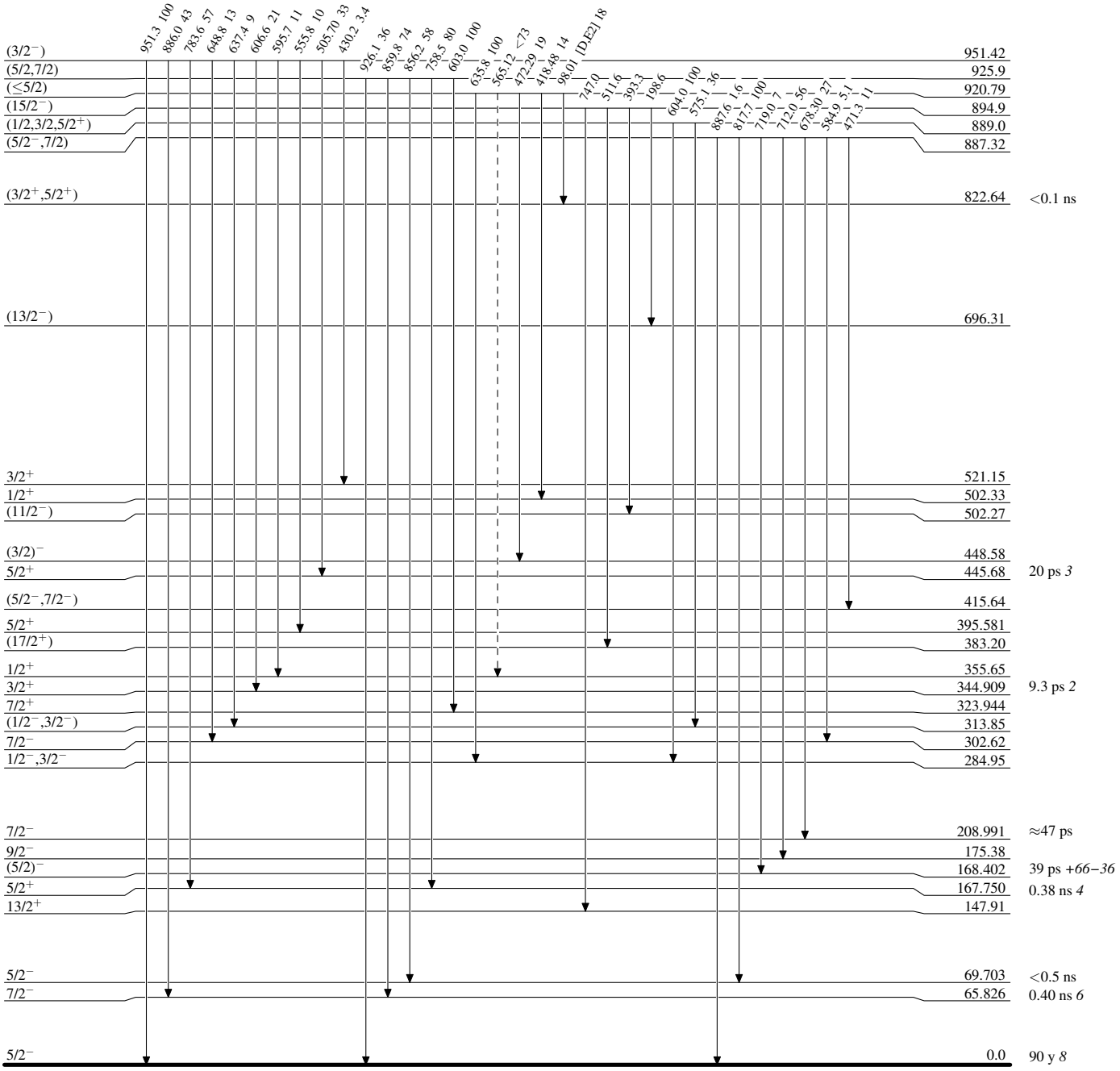
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)

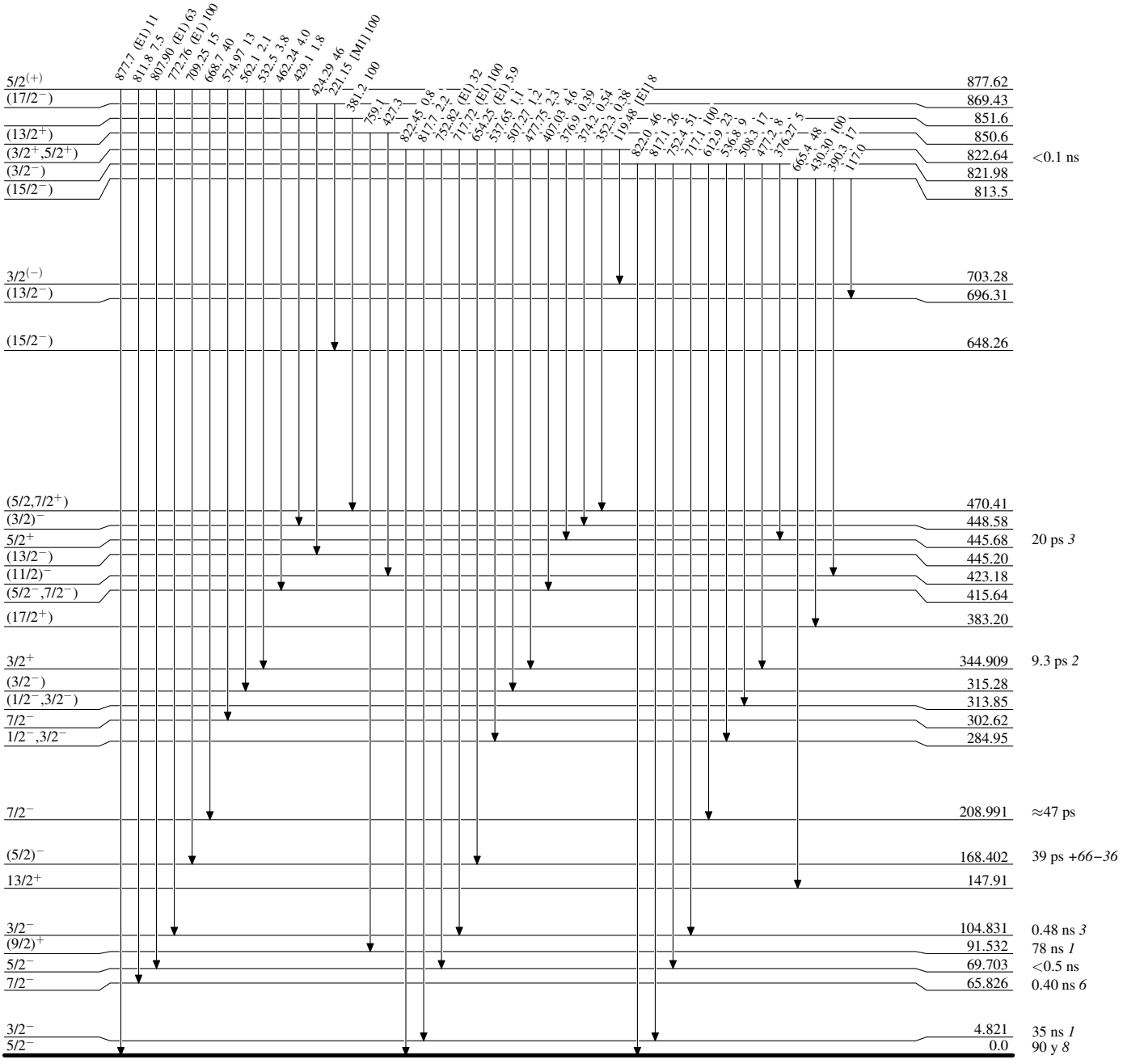


$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{151}_{62}Sm_{89}$

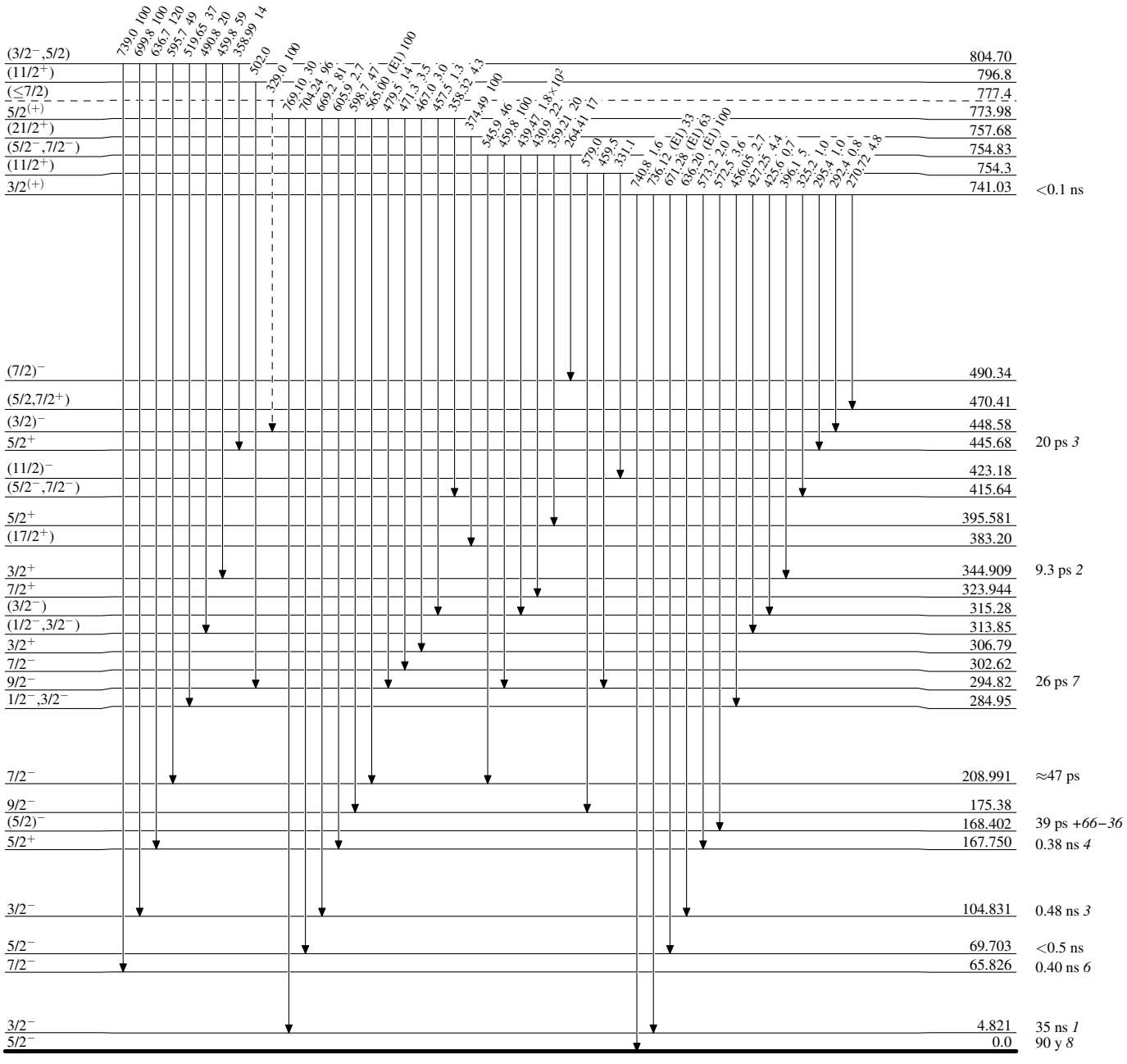
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

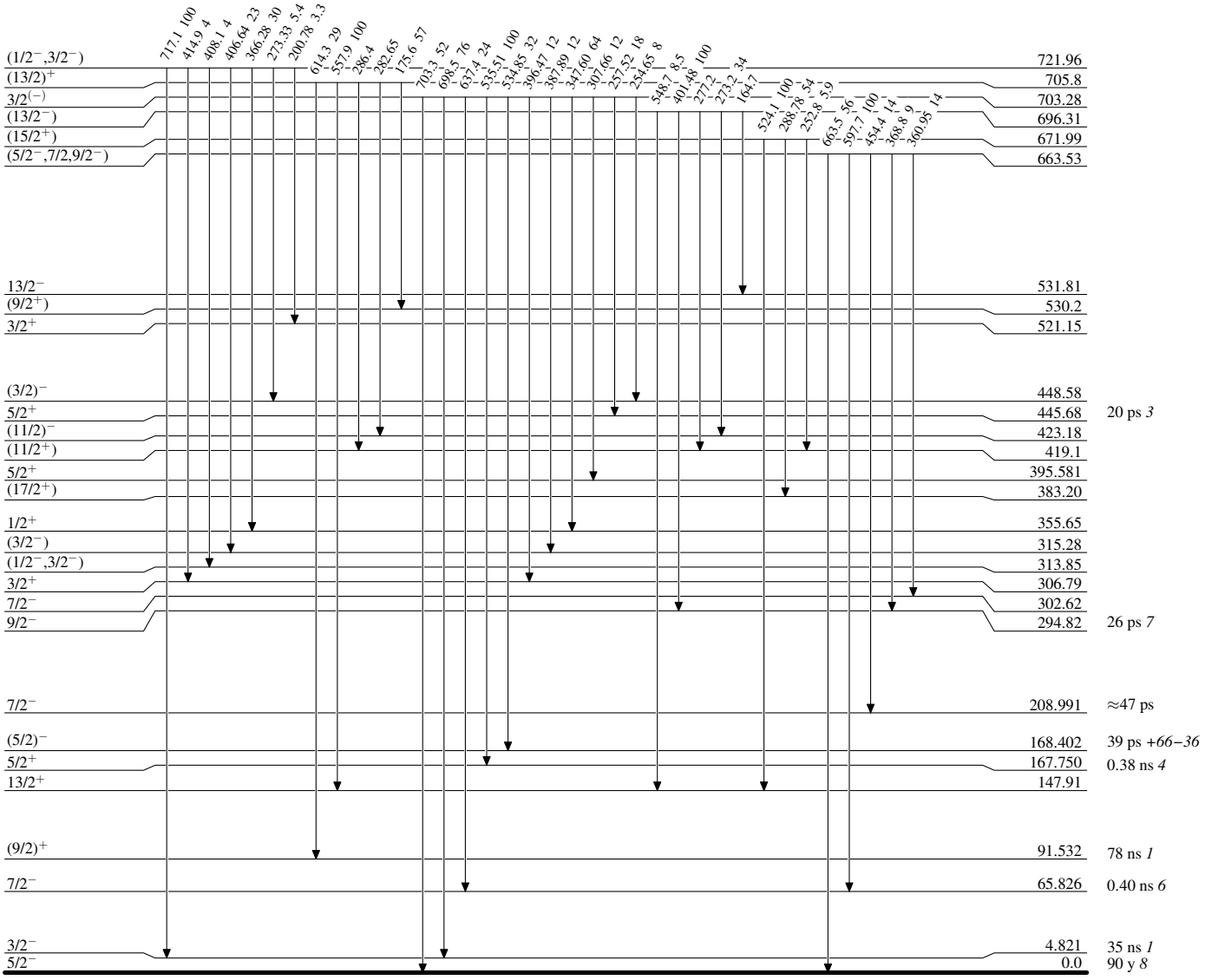


$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

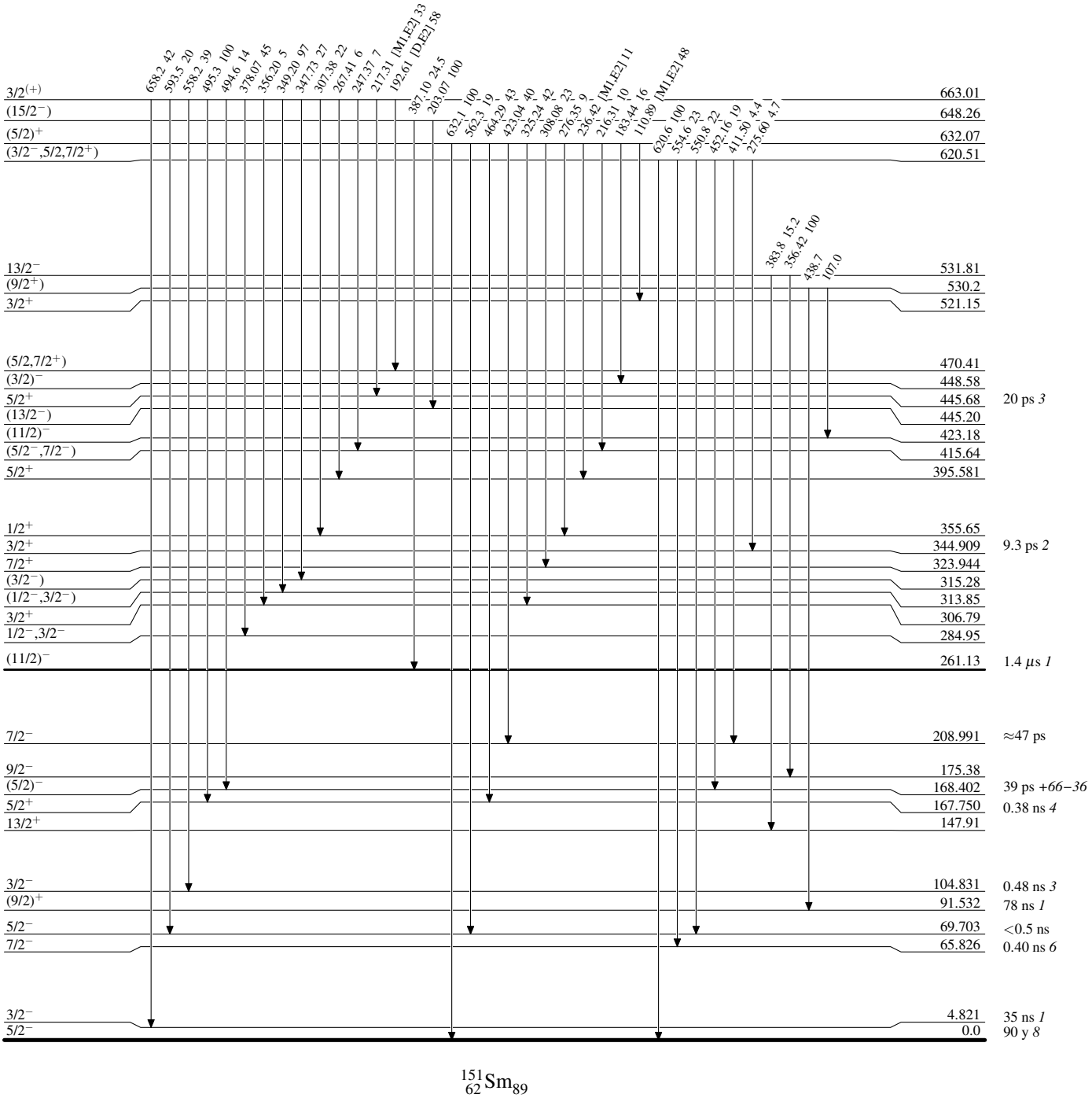


$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas

Level Scheme (continued)

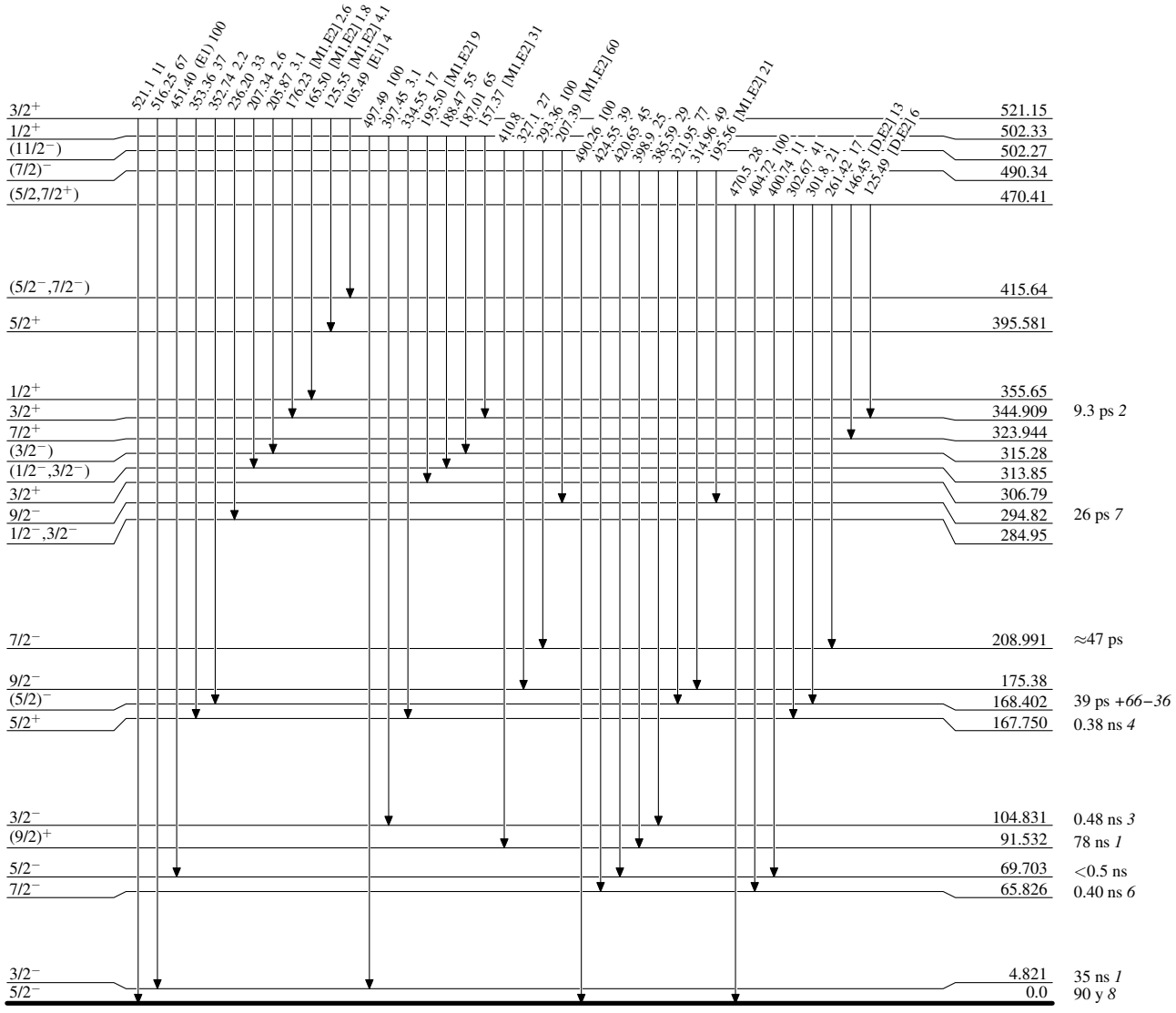
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

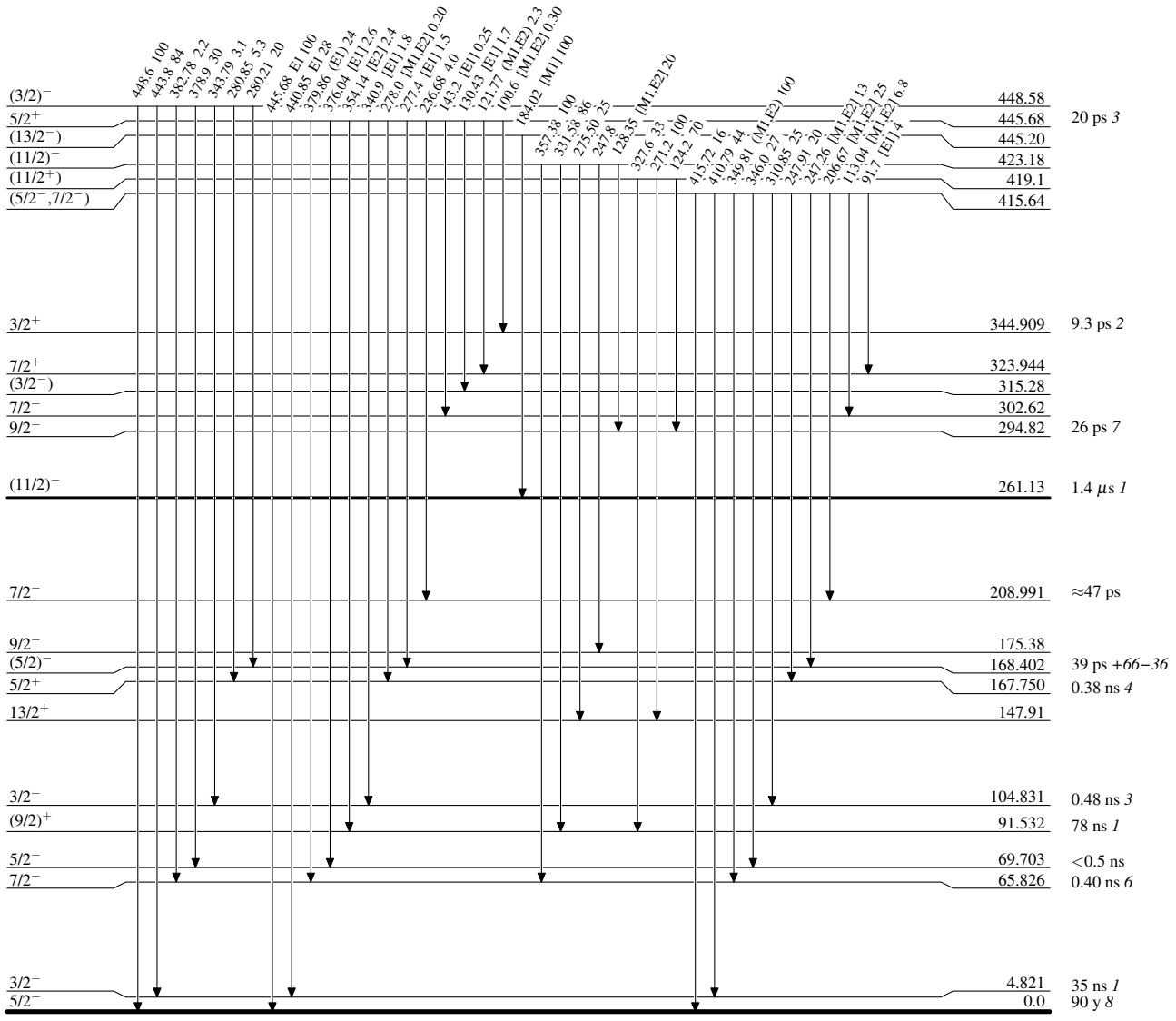


$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

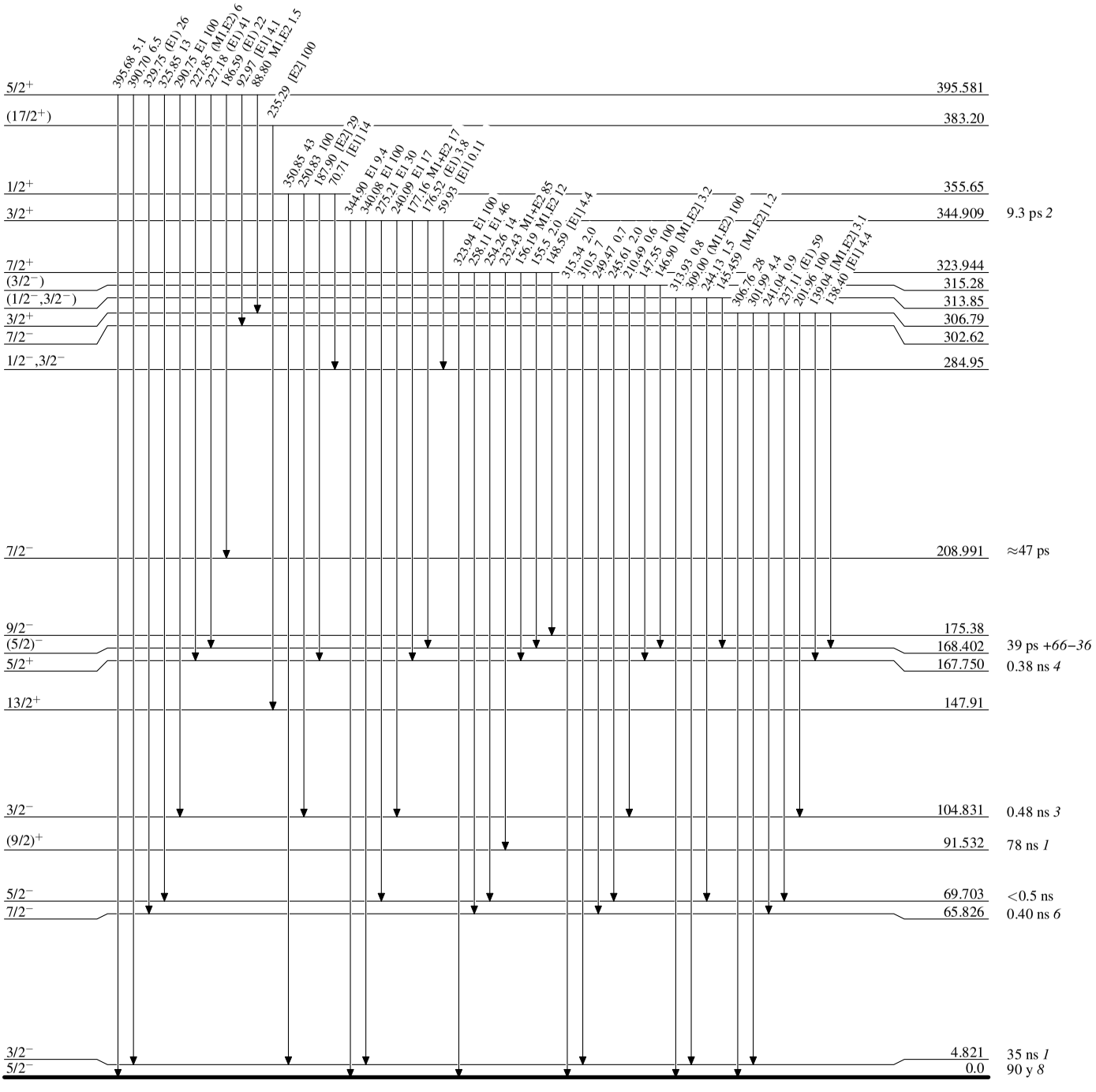


$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

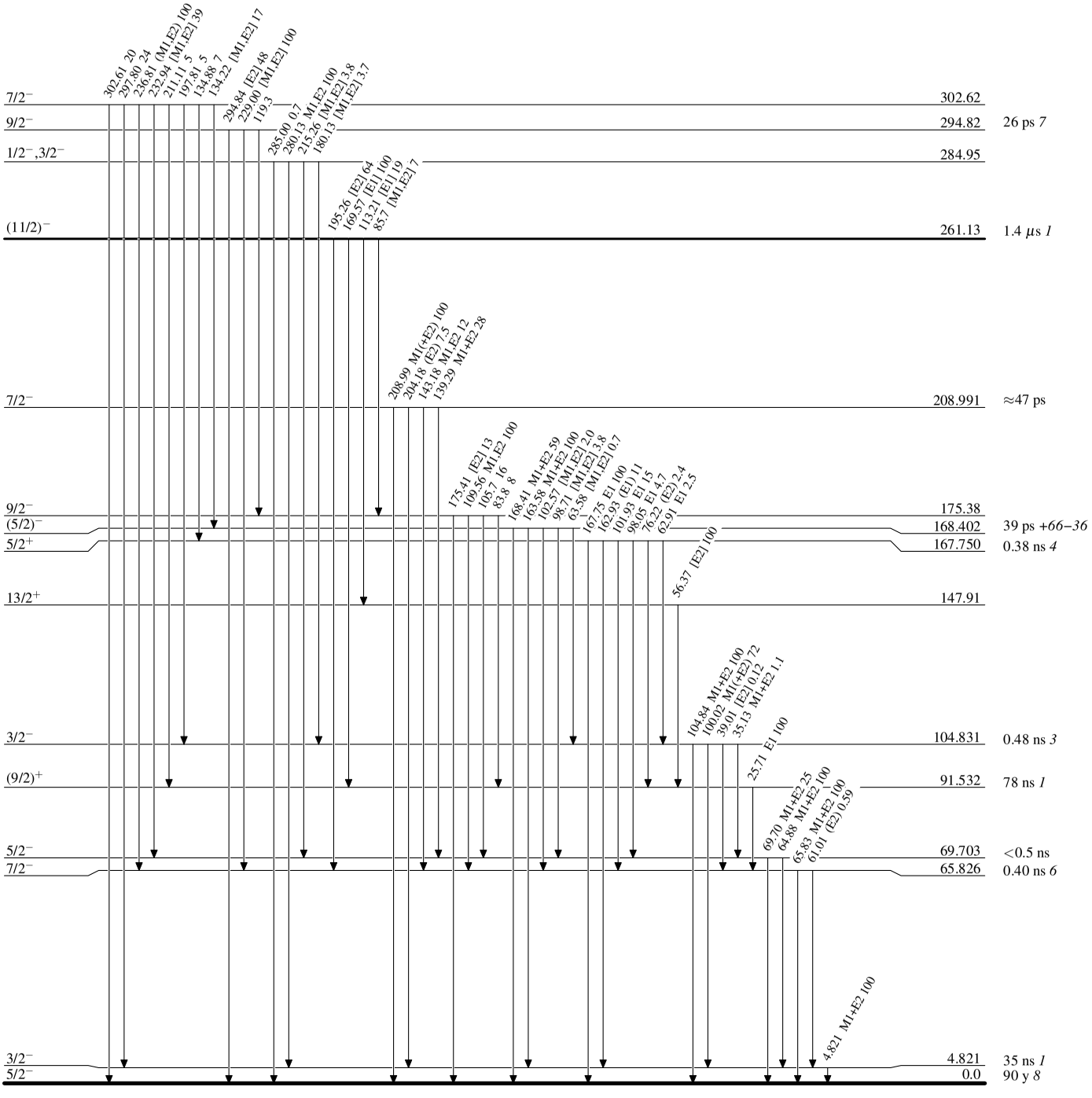


$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas

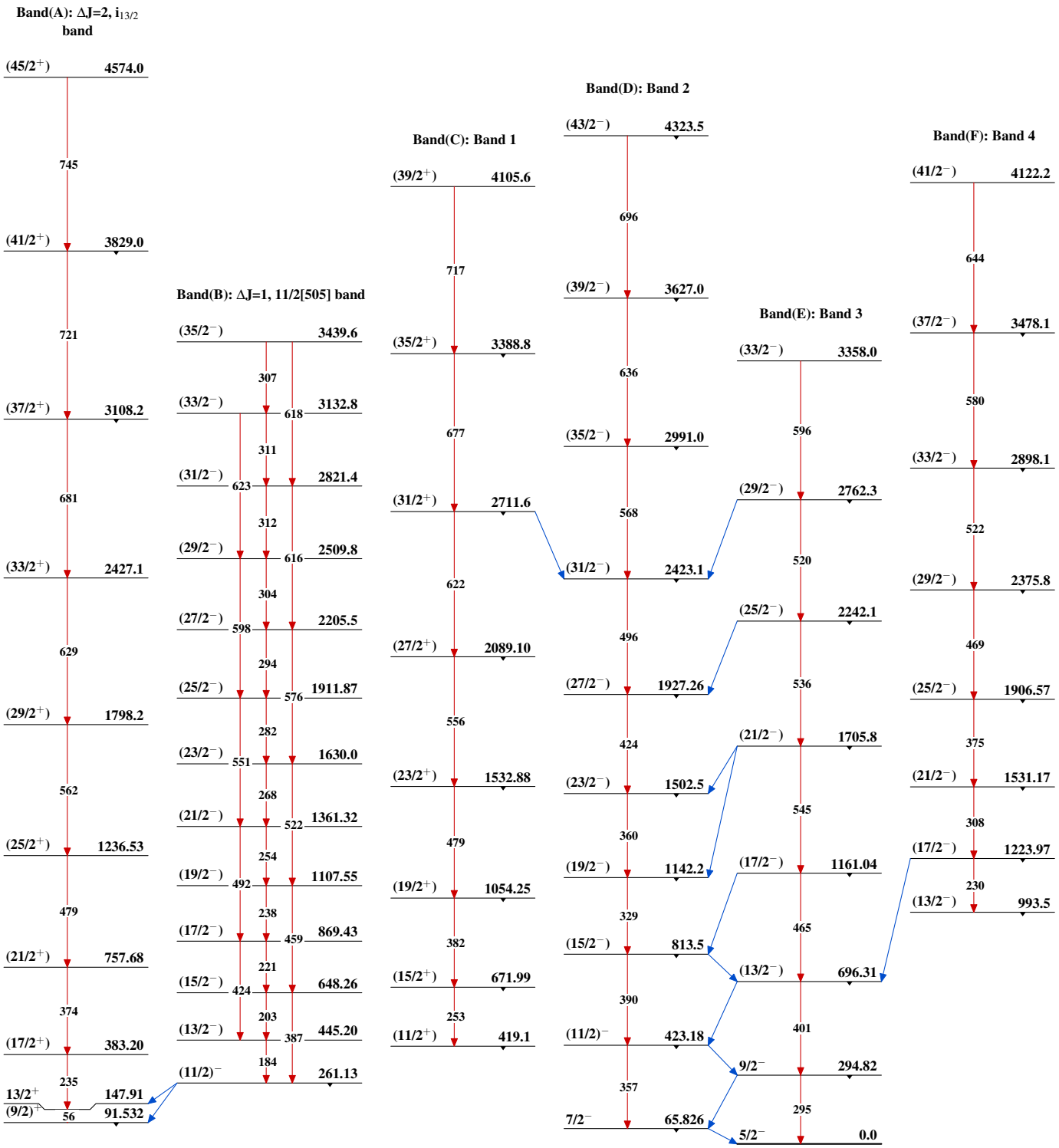
Level Scheme (continued)

Intensities: Relative photon branching from each level



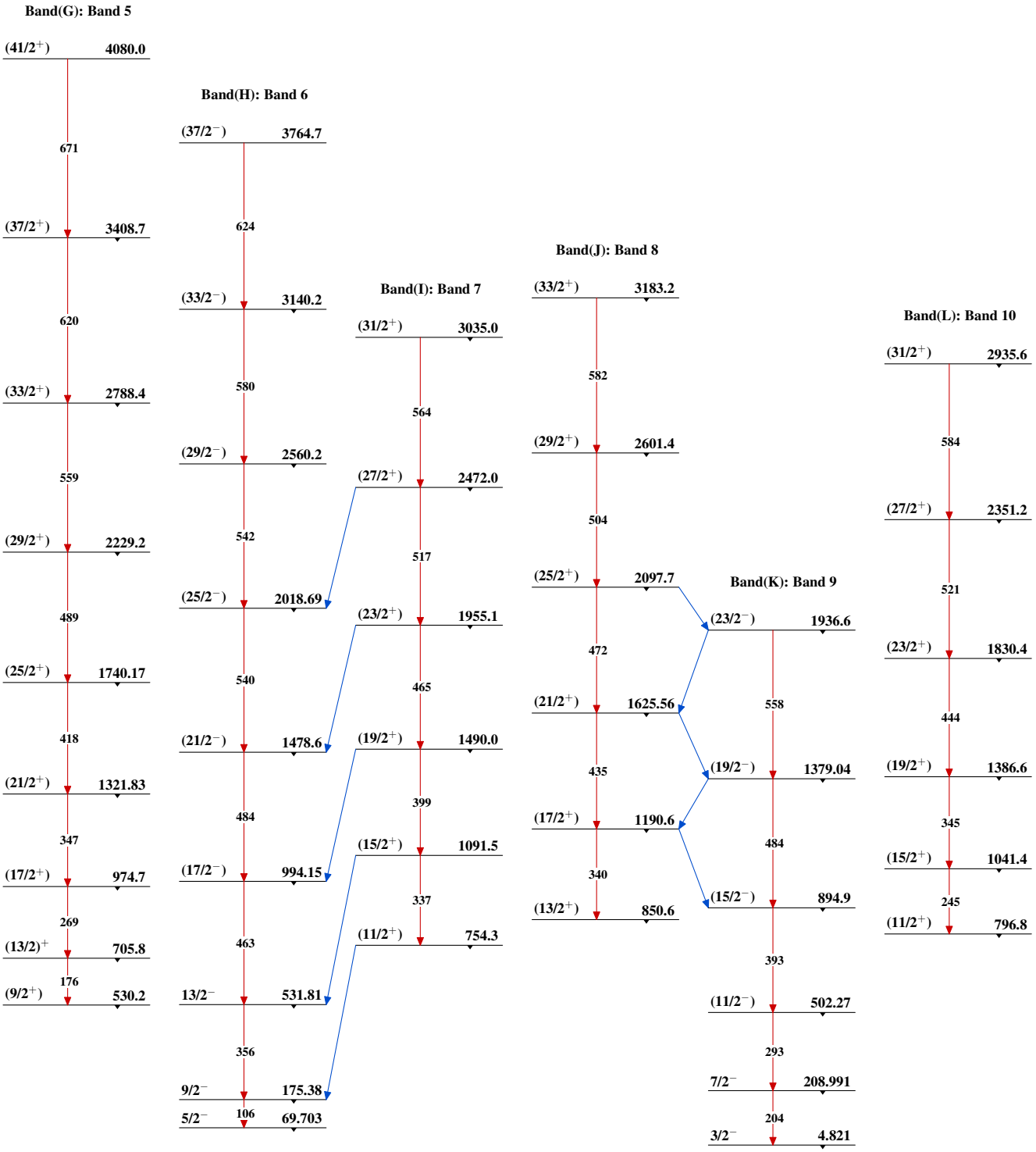
$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas



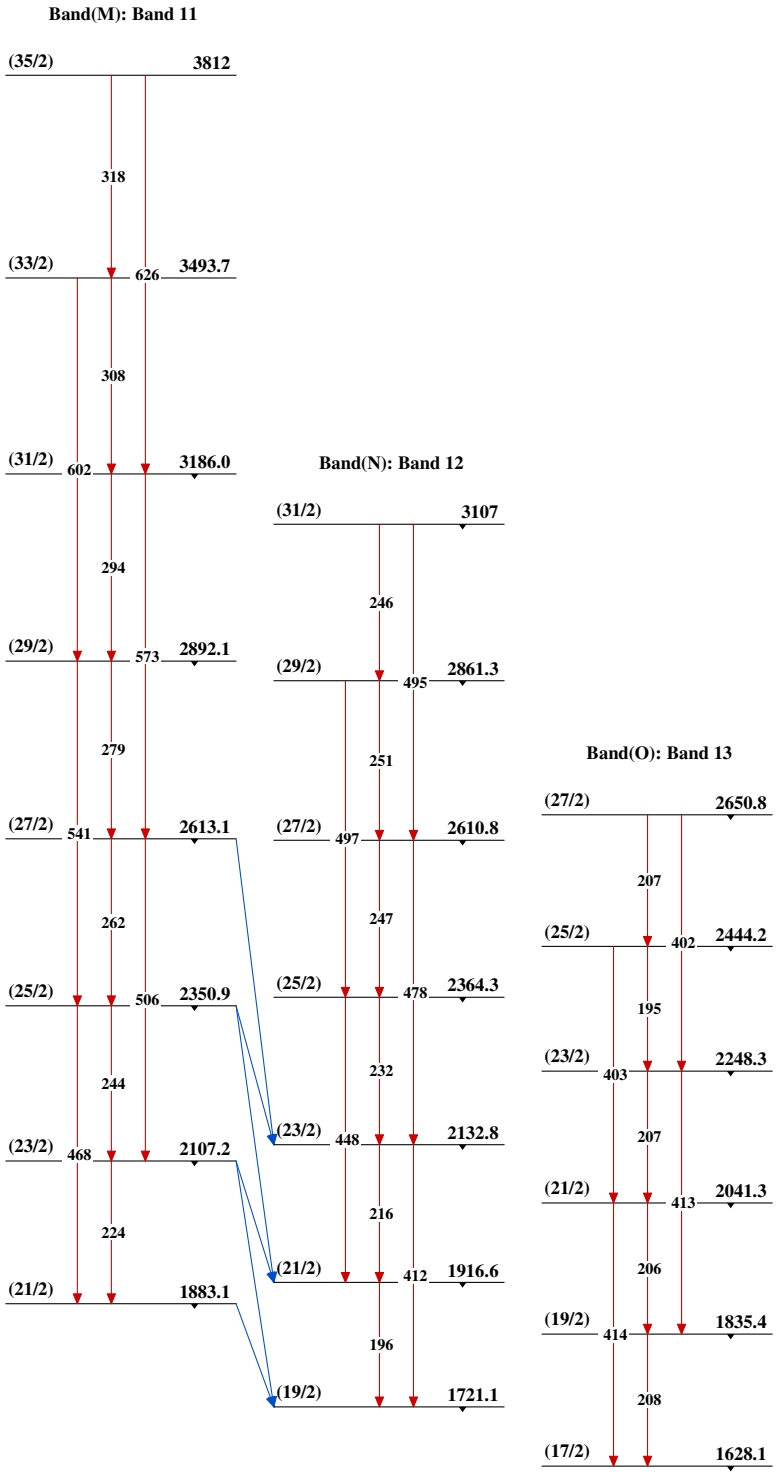
$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas (continued)



$^{151}_{62}Sm_{89}$

Adopted Levels, Gammas (continued)



$^{151}_{62}Sm_{89}$