Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Janos Timar and Zoltan Elekes, Balraj Singh	NDS 121, 143 (2014)	31-May-2014

Q(β^-)=−2436 *11*; S(n)=9639 *7*; S(p)=4928 *5*; Q(α)=−1087 *5* 2012Wa38
S(2n)=17402 *7*, S(2p)=13093 *6* (2012Wa38).
1950Fi16: ^{129}Cs produced and identified in bombardment of ^{127}I by ^{3}He beam followed by chemical separation and half-life measurement.
Later decay studies: 1955Ni21, 1960Jh02, 1963Fr13, 1965Sh08, 1966Re10, 1967Gr05, 1967Wa11, 1971Ob03, 1972Ge20, 1974Ma24, 1976Me16, 1979Be54.
Precise mass measurement by Penning trap method: 1999Am05, 1990St25.
1969Ma04: measured isotope shift, atomic beam magnetic resonance.

^{129}Cs Levels

Cross Reference (XREF) Flags

A	^{129}Ba ε decay (2.23 h)	D	^{116}Cd(^{18}O,4npγ)
B	^{129}Ba ε decay (2.135 h)	E	^{122}Sn(^{11}B,4nγ),^{124}Sn(^{11}B,6nγ)
C	^{129}Cs IT decay (0.718 μs)	F	^{127}I(α,2nγ)

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	XREF	Comments
0.0	1/2$^+$	32.06 h *6*	ABCDEF	%ε+%β^+=100 μ=+1.491 *8* (1981Th06,2014StZZ) μ: atomic-beam laser spectroscopy (1981Th06). Evaluated rms charge radius=4.7981 fm *50* (2013An02). J$^\pi$: spin from atomic beam (1956Ni16,1958Ni27) and hyperfine structure (1981Th06); parity from log *ft*=5.57 from 1/2$^+$ parent. Charge radius and isotope-shift measurements: 1981Th06, 1978Hu08, 1969Ma04. T$_{1/2}$: from 1965Sh08. Others: 33.3 h *6* (1971Ob03), 32.35 h *10* (1967Wa11), 32.4 h *3* (1963Fr13), 30.7 h *5* (1955Ni21), 31 h *1* (1950Fi16).
6.5450[d] *10*	5/2$^+$	72 ns *6*	ABCDEF	J$^\pi$: E2 γ to 1/2$^+$; 3/2$^+$ is not likely since in that case transition is expected to be dominantly M1; bandhead. T$_{1/2}$: from (ce+x ray)γ(t) in ^{129}Ba ε decay.
135.59 *7*	3/2$^+$		ABC	J$^\pi$: M1+E2 γ to 5/2$^+$; M1(+E2) γ to 1/2$^+$; log *ft*=6.39 from 1/2$^+$.
188.91[c] *6*	7/2$^+$	2.26 ns *6*	BCDEF	T$_{1/2}$: from γce(t) in ^{129}Ba ε decay. J$^\pi$: E2 γ to 3/2$^+$; ΔJ=1, M1+E2 γ to 5/2$^+$; band member.
208.81[b] *6*	(5/2)$^+$		ABCDEF	XREF: C(?). J$^\pi$: ΔJ=(0), M1(+E2) γ to 5/2$^+$.
220.78 *6*	3/2$^+$		ABC	XREF: C(?). J$^\pi$: M1(+E2) gammas to 5/2$^+$ and 1/2$^+$; log *ft*=6.1 from 1/2$^+$.
426.47[d] *8*	(9/2)$^+$		BCDEF	J$^\pi$: ΔJ=1, M1 γ to 7/2$^+$; (E2) γ to 5/2$^+$; band member.
551.59 *15*	(5/2$^+$)		B	J$^\pi$: gammas to 1/2$^+$ and 3/2$^+$; possible ε feeding from 7/2$^+$.
554.05 *13*	(1/2,3/2)$^+$		A	J$^\pi$: log *ft*=6.59 from 1/2$^+$; M1,E2 γ to 3/2$^+$.
555.10 *9*	(5/2,7/2)$^+$		B	J$^\pi$: M1,E2 γ to 7/2$^+$ and 3/2$^+$; possible ε feeding from 7/2$^+$.
575.40[e] *14*	(11/2$^-$)	0.718 μs *21*	BCDEF	%IT=100 μ=+6.55 *10* (1978De29,2014StZZ) J$^\pi$: ΔJ=1 (E1) γ to (9/2)$^+$; (M2) γ to 7/2$^+$; systematics of h$_{11/2}$ isomers In this mass region and band member. μ: TDPAD method (1978De29). T$_{1/2}$: from $\gamma\gamma$(t) in ^{127}I(α,2nγ); weighted average of 0.734 μs *23* (1978De29), and 0.69 μs *3* (1977Ch23). Other: 0.73 μs *7* (1979Ga01, same group as 1978De29).

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Adopted Levels, Gammas (continued)

^{129}Cs Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
603.36[a] 6	(7/2+)		B DE	Jπ: (M1) γ to (9/2)+; γ to 3/2+.
648.41[c] 8	(11/2+)		B DEF	Jπ: ΔJ=2, (E2) γ to 7/2+; band member.
690.32[b] 8	(9/2+)		B DEF	Jπ: ΔJ=2, (E2) γ to (5/2)+; ΔJ=1, (M1) γ to 7/2+.
755.26 7	(5/2,7/2)+		B	Jπ: M1,E2 γ to (9/2)+; (M1) γ to 3/2+.
879.31 10	(5/2+,7/2+)		B	Jπ: (M1,E2) γ to 5/2+; γ from (9/2)+; γ to 3/2+.
969.23 7	(5/2+,7/2+)		B	Jπ: (M1,E2) γ to (9/2)+; γ to 3/2+.
991.97 9	(7/2+,9/2+,11/2+)		B	Jπ: (M1,E2) γ to 7/2+; γ to (11/2+).
1023.3[e] 4	(15/2−)		DEF	Jπ: ΔJ=2, E2 γ to (11/2−) in band.
1032.9[d] 4	(13/2+)		DEF	Jπ: ΔJ=2 γ to 9/2+; ΔJ=1,(M1+E2) γ to (11/2+).
1150.4[f] 6	(13/2−)		DEF	Jπ: ΔJ=1 γ to (11/2−); band member.
1156.23 12	(5/2+,7/2+)		B	Jπ: γ to 3/2+; weak γ to (9/2)+.
1164.68 17	(1/2,3/2)+		A	Jπ: log *ft*=6.65 from 1/2+; (M1,E2) γ to 1/2+.
1231.7[a] 5	(11/2+)		DE	Jπ: gammas to (9/2)+ and (7/2+); band member.
1255.68 7	(5/2+,7/2+)		B	Jπ: (M1,E2) γ to 3/2+; γ to (9/2)+.
1279.3[c] 3	(15/2+)	0.53 ps +*12*−*11*	DEF	Jπ: ΔJ=2, E2 γ to (11/2+); band member. Q(transition)=6.0 +*8*−*6*.
1339.8[b] 4	(13/2+)		DEF	Jπ: ΔJ=2 γ to 9/2+; ΔJ=1 γ to (11/2+).
1609.64 22	(1/2,3/2)		A	Jπ: log *ft*=6.95 from 1/2+; γ to 3/2+.
1627.6[e] 5	(19/2−)	1.64 ps +*53*−*35*	DEF	Q(transition)=3.6 +*5*−*4*. Jπ: ΔJ=2, E2 γ to (15/2−); band member.
1648.01 6	(9/2)+		B	Jπ: (M1) γ to (5/2,7/2)+; gammas to 5/2+, (11/2−) and (11/2+); ε feeding from 7/2+ is most likely allowed.
1648.56 22	(1/2+,3/2)		A	Jπ: log *ft*=7.6 from 1/2+; gammas to 3/2+ and (5/2)+.
1681.60 9	(5/2+,7/2+,9/2+)		B	Jπ: gammas to 5/2+ and 9/2+; (M1) γ to (5/2+,7/2+).
1691.6[f] 5	(17/2−)		DEF	Jπ: ΔJ=1 γ to (15/2−); band member.
1694.18 23	(1/2,3/2)		A	Jπ: log *ft*=7.58 from 1/2+; γ to 3/2+.
1700.93 22	(1/2+,3/2)		A	Jπ: log *ft*=7.0 from 1/2+; gammas to 1/2+ and 5/2+.
1718.0[h] 5	(15/2−)		E	Jπ: γ to (11/2−); band member.
1793.0[d] 4	(17/2+)		DEF	Jπ: ΔJ=2 γ to (13/2+); γ to (15/2+).
1812.56 8	(9/2)+		B	Jπ: gammas to 5/2+, (11/2−) and (11/2+); ε feeding from 7/2+ is most likely allowed.
1830.49 16	(1/2,3/2)		A	Jπ: log *ft*=5.99 from 1/2+; γ to 1/2+.
1890.8[a] 5	(15/2+)		DE	Jπ: ΔJ=2, E2 γ to (11/2+); band member.
1922.83 16	(1/2+,3/2)		A	Jπ: log *ft*=6.7 from 1/2+; γ to 1/2+ and 5/2+.
1941.02 14	(7/2+,9/2,11/2+)		B	Jπ: gammas to 7/2+ and (11/2+).
1954.03 14	(1/2+,3/2+)		A	Jπ: log *ft*=5.8 from 1/2+; gammas to 1/2+ and 5/2+.
2019.12 19	(9/2,11/2+)		B	Jπ: gammas to 7/2+, (11/2−) and (11/2+).
2047.4[c] 4	(19/2+)	0.30 ps +*12*−*8*	DEF	Q(transition)=4.7 +*8*−*7*. Jπ: ΔJ=2, E2 γ to (15/2+); band member.
2077.66 22	(1/2+,3/2)		A	Jπ: gammas to 3/2+ and 5/2+; log *ft*=8.23 from 1/2+.
2123.2[b] 4	(17/2+)		DEF	Jπ: ΔJ=2 γ to (13/2+); band member.
2214.4[h] 6	(19/2−)		EF	Jπ: ΔJ=2 γ to (15/2−); ΔJ=1 γ to (17/2−).
2254.8? 3			A	Jπ: γ to 3/2+ suggests 1/2 to 7/2+; possible ε feeding from 1/2+ gives 1/2,3/2.
2319.5[f] 5	(21/2−)		DEF	Jπ: ΔJ=2 γ to (17/2−); ΔJ=1 γ to (19/2−).
2396.0[e] 6	(23/2−)	0.49 ps +*15*−*14*	DE	Q(transition)=3.6 +*7*−*5*. Jπ: ΔJ=2, E2 γ to (19/2−); band member.
2500.6 6	(19/2+)		E	Jπ: ΔJ=2 γ to (15/2+).
2633.1[d] 5	(21/2+)	0.15 ps +*4*−*6*	DE	Q(transition)=5.2 +*13*−*6*. Jπ: ΔJ=2, E2 γ to (17/2+); γ to (19/2+).
2667.1[a] 5	(19/2+)		DE	Jπ: ΔJ=2 gammas to (15/2+); γ to (19/2+).
2676.5[@] 4	(19/2+)		DE	Jπ: ΔJ=2 γ to (15/2+); γ to (19/2+).

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Adopted Levels, Gammas (continued)

^{129}Cs Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
2812.7[&] *5*	(21/2$^+$)		DE	Jπ: ΔJ=2 γ to (17/2$^+$); ΔJ=1, (M1+E2) γ to (19/2$^+$).
2842.1[h] *6*	(23/2$^-$)		E	Jπ: ΔJ=2 γ to (19/2$^-$); γ to (21/2$^-$).
2908.3[c] *5*	(23/2$^+$)	0.15 ps *+10−7*	DE	Q(transition)=5.0 *+14−13*. Jπ: ΔJ=2, E2 γ to (19/2$^+$).
2942.5[i] *6*	(21/2$^+$)		E	Jπ: ΔJ=1 γ to (19/2$^+$); band member.
2952.6[b] *6*	(21/2$^+$)		DE	Jπ: ΔJ=2 γ to (17/2$^+$); γ to (19/2$^+$).
2981.2 *7*	(19/2$^+$,21/2$^+$)		E	Jπ: γ to (17/2$^+$); γ from (23/2$^+$).
3042.8[@] *6*	(23/2$^+$)		DE	Jπ: ΔJ=1,(M1+E2) γ to (21/2$^+$); γ to (19/2$^+$).
3095.9[f] *6*	(25/2$^-$)		DE	Jπ: ΔJ=2 γ to (21/2$^-$); ΔJ=1 γ to(23/2$^-$).
3157.3[i] *6*	(23/2$^+$)		E	Jπ: ΔJ=2 γ to (19/2$^+$); ΔJ=1,(M1+E2) γ to (21/2$^+$).
3235.9[e] *6*	(27/2$^-$)	0.33 ps *10*	DE	Q(transition)=3.5 *+7−5*. Jπ: ΔJ=2, E2 γ to (23/2$^+$); band member.
3291.4 *9*	(25/2$^+$)		E	Jπ: ΔJ=2 γ to (21/2$^+$).
3296.8[d] *9*	(25/2$^+$)	<0.18 ps	DE	Q(transition)>8.6. Jπ: ΔJ=2, E2 γ to (21/2$^+$); band member.
3406.4[&] *6*	(25/2$^+$)		DE	Jπ: ΔJ=1,(M1+E2) γ to (23/2$^+$); γ to (21/2$^+$).
3419.0[i] *6*	25/2$^+$		E	Jπ: ΔJ=1,(M1+E2) γ to (23/2$^+$); band member.
3518.2[g] *7*	(25/2$^-$)		E	Jπ: ΔJ=1 γ to (23/2$^-$); γ to (25/2$^-$).
3590.7[h] *6*	(27/2$^-$)		E	Jπ: gammas to (23/2$^-$) and (27/2$^-$); band member.
3682.1[i] *6*	(27/2$^+$)		E	Jπ: gammas to (23/2$^+$) and (25/2$^+$); band member.
3685.3[g] *7*	(27/2$^-$)		E	Jπ: ΔJ=2 γ to (23/2$^-$); ΔJ=1,(M1+E2) γ to (25/2$^-$).
3730.0[c] *7*	(27/2$^+$)	<0.11 ps	DE	Q(transition)>6.4. Jπ: ΔJ=2, E2 γ to (23/2$^+$); band member.
3733.3 *9*	(23/2 to 27/2$^+$)		E	Jπ: γ to (23/2$^+$).
3734.2[@] *6*	(27/2$^+$)		DE	Jπ: ΔJ=1,(M1+E2) γ to (25/2$^+$); γ to (23/2$^+$); band member.
3810.3[b] *7*	(25/2$^+$)		E	Jπ: ΔJ=2 γ to (21/2$^+$); γ to (2/2$^+$).
3919.9 *9*	(25/2)		E	Jπ: ΔJ=1 γ to (23/2$^+$).
3924.5[f] *7*	(29/2$^-$)		DE	Jπ: ΔJ=2 γ to (25/2$^-$); ΔJ=1 γ to (27/2$^-$).
3949.4[d] *11*	(29/2$^+$)		DE	Jπ: ΔJ=2 γ to (25/2$^+$); band member.
3993.6[i] *8*	(29/2$^+$)		E	Jπ: gammas to (25/2$^+$) and (27/2$^+$).
4026.9[g] *9*	(29/2$^-$)		E	Jπ: ΔJ=1,(M1+E2) γ to (27/2$^-$); band member.
4114.7[e] *7*	(31/2$^-$)	0.139 ps *+49−20*	DE	Q(transition)=4.7 *+6−7*. Jπ: ΔJ=2, E2 γ to (27/2$^-$); band member.
4130.0[&] *7*	(29/2$^+$)		DE	Jπ: ΔJ=1,(M1+E2) γ to (27/2$^+$); γ to (25/2$^+$).
4199.4 *10*	(29/2)		E	Jπ: ΔJ=1 γ to (27/2$^+$).
4366.9[i] *8*	(31/2$^+$)		E	Jπ: ΔJ=2 to (27/2$^+$); γ to (29/2$^+$).
4420.6[g] *8*	(31/2$^-$)		E	Jπ: ΔJ=1,(M1+E2) γ to (29/2$^-$); γ to (31/2$^-$).
4437.1[c] *10*	(31/2$^+$)		DE	Jπ: ΔJ=2 γ to (27/2$^+$).
4445.3[h] *7*	(31/2$^-$)		E	Jπ: γ to (27/2$^-$); band member.
4599.0[@] *7*	(31/2$^+$)		E	Jπ: ΔJ=1 γ to (29/2$^+$); γ to (27/2$^+$).
4764.4[f] *8*	(33/2$^-$)		E	Jπ: ΔJ=1 γ to (31/2$^-$).
4900.0[g] *11*	(33/2$^-$)		E	Jπ: ΔJ=1 γ to (31/2$^-$).
5024.4 *8*	(33/2$^+$)		E	Jπ: gammas to (29/2$^+$) and (31/2$^+$).
5032.6[e] *8*	(35/2$^-$)	<0.40 ps	DE	Q(transition)>2.5. Jπ: ΔJ=2, E2 γ to (31/2$^-$) in band.
5067.2[&] *8*	(33/2$^+$)		E	Jπ: gammas to (29/2$^+$) and (31/2$^+$); band member.
5212.5[i] *11*	(35/2$^+$)		E	Jπ: γ to (31/2$^+$); band member.
5282.4[c] *12*	(35/2$^+$)		E	Jπ: ΔJ=2 γ to (31/2$^+$); band member.
5402.1[g] *13*	(35/2$^-$)		E	Jπ: ΔJ=1 γ to (33/2$^-$); band member.

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Adopted Levels, Gammas (continued)

^{129}Cs Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
5547.2[@] *9*	(35/2$^+$)	E	Jπ: gammas to (31/2$^+$) and (33/2$^+$); band member.
5566.7 *8*	(31/2,33/2,35/2$^+$)	E	Jπ: gammas to (31/2$^+$) and (33/2$^+$).
5692.3[f] *9*	(37/2$^-$)	E	Jπ: gammas to (33/2$^-$) and (35/2$^-$); band member.
5989.6[e] *9*	(39/2$^-$)	DE	Jπ: ΔJ=2 γ to (35/2$^-$); band member.
6050.7 *10*	(35/2 to 39/2$^+$)	E	Jπ: γ to (35/2$^+$).
6200.4[i] *13*	(39/2$^+$)	E	Jπ: γ to (35/2$^+$); band member.
6271.4[c] *13*	(39/2$^+$)	E	Jπ: γ to (35/2$^+$); band member.
7000.8[e] *12*	(43/2$^-$)	DE	Jπ: ΔJ=2 γ to (39/2$^-$); band member.
7380.4[c] *14*	(43/2$^+$)	E	Jπ: γ to (39/2$^+$); band member.
8099.5[e] *14*	(47/2$^-$)	E	Jπ: γ to (43/2$^-$); band member.

[†] From least-squares fit to the adopted Eγ values, assuming 0.5 keV uncertainty when not given. Reduced χ^2=1.5 somewhat greater than critical χ^2=1.3.

[‡] From in-beam γ-ray studies, unless otherwise noted, based on M1+E2 and stretched quadrupole cascade-crossover relations observed. Band structures are based on the cranked-shell model calculation and systematics of neighboring nuclei. Most band assignments have been proposed by 2009Si08 and 2009Zh20 in ^{122}Sn(^{11}B,4nγ),^{124}Sn(^{11}B,6nγ). For levels populated in high-spin studies, ascending order of spins with excitation energy is assumed based on yrast pattern of population.

[#] From DSAM (2010Wa01) in (^{11}B,xnγ), unless otherwise noted.

[@] Band(A): Possible 3-qp band,α=−1/2. Possible configuration=$\pi h_{11/2}\otimes\nu h_{11/2}\otimes\ \nu(g_{7/2}/s_{1/2}/d_{3/2})$.

[&] Band(a): Possible 3-qp band,α=+1/2. Possible configuration=$\pi h_{11/2}\otimes\nu h_{11/2}\otimes\ \nu(g_{7/2}/s_{1/2}/d_{3/2})$.

[a] Band(B): $\pi g_{7/2}+\gamma$ vibration.

[b] Band(C): $\pi g_{7/2}$,α=+1/2. Favored signature partner, band crossing due to $h_{11/2}$ proton pair at $\hbar\omega$=0.41 MeV.

[c] Band(c): $\pi g_{7/2}$,α=−1/2. Unfavored signature partner, band crossing due to $h_{11/2}$ proton pair at $\hbar\omega$=0.37 MeV.

[d] Band(D): $\pi d_{5/2}$,α=+1/2. Favored signature partner, band crossing due to $h_{11/2}$ proton pair at $\hbar\omega$=0.37 MeV.

[e] Band(E): $\pi h_{11/2}$,α=−1/2. Favored signature partner, band crossing due to $h_{11/2}$ neutron pair at $\hbar\omega$=0.43 MeV.

[f] Band(e): $\pi h_{11/2}$,α=+1/2. Unfavored signature partner, band crossing due to $h_{11/2}$ neutron pair at $\hbar\omega$=0.41 MeV.

[g] Band(F): Possible magnetic-rotational band. Possible configuration=$\pi h_{11/2}\otimes\nu h^2_{11/2}$.

[h] Band(G): $\pi h_{11/2}+\gamma$ vibration. The γ vibration refers to that of a triaxial core.

[i] Band(H): Possible 3-qp, ΔJ=1 band. Possible configuration=$\pi h_{11/2}\otimes\nu h_{11/2}\otimes\ \nu(g_{7/2}/s_{1/2}/d_{3/2})$.

Adopted Levels, Gammas (continued)

$\gamma(^{129}Cs)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
6.5450	5/2$^+$	6.545 *1*	100	0.0	1/2$^+$	E2		4.32×10^5	B(E2)(W.u.)=39 *4* Mult.: from L subshell ratio.
135.59	3/2$^+$	129.14 *10*	100 *5*	6.5450	5/2$^+$	M1+E2	0.20 *5*	0.449 *10*	α(K)=0.381 *7*; α(L)=0.054 *3*; α(M)=0.0112 *6* α(N)=0.00236 *12*; α(O)=0.000322 *13*; α(P)=1.477×10^{-5} *21*
		135.61 *20*	13.9 *14*	0.0	1/2$^+$	M1(+E2)	<0.4	0.399 *19*	Mult.: from α(exp) ratio. α(K)=0.336 *11*; α(L)=0.050 *7*; α(M)=0.0103 *15* α(N)=0.0022 *3*; α(O)=0.00029 *4*; α(P)=1.290×10^{-5} *20*
188.91	7/2$^+$	53.2 *3*	0.23 *2*	135.59	3/2$^+$	E2		18.6 *5*	B(E2)(W.u.)=29 *3* α(K)=6.53 *12*; α(L)=9.5 *3*; α(M)=2.08 *7* α(N)=0.419 *13*; α(O)=0.0474 *15*; α(P)=0.000174 *4*
		182.3 *1*	100 *5*	6.5450	5/2$^+$	M1+E2	0.25 *2*	0.1718 *25*	α(K)=0.1463 *21*; α(L)=0.0203 *4*; α(M)=0.00418 *8* α(N)=0.000880 *16*; α(O)=0.0001210 *20*; α(P)=5.65×10^{-6} *8* B(M1)(W.u.)=0.00124 *4*; B(E2)(W.u.)=1.55 *24* Mult.: from α(exp) and $\gamma(\theta)$.
208.81	(5/2)$^+$	73.2 *3*	1.8 *2*	135.59	3/2$^+$	M1(+E2)	<0.3	2.35 *16*	α(K)=1.93 *6*; α(L)=0.33 *8*; α(M)=0.069 *17* α(N)=0.014 *4*; α(O)=0.0019 *4*; α(P)=7.45×10^{-5} *14*
		202.38 *10*	100 *5*	6.5450	5/2$^+$	M1(+E2)	0.2 *2*	0.128 *4*	α(K)=0.1094 *23*; α(L)=0.0148 *14*; α(M)=0.0030 *3* α(N)=0.00064 *6*; α(O)=8.8×10^{-5} *7*; α(P)=4.25×10^{-6} *7*
220.78	3/2$^+$	85.1 *3*	1.7 *3*	135.59	3/2$^+$	[M1,E2]		2.4 *10*	Mult.: from α(exp) and $\gamma(\theta)$. α(K)=1.6 *4*; α(L)=0.6 *5*; α(M)=0.13 *10* α(N)=0.027 *20*; α(O)=0.0032 *23*; α(P)=5.1×10^{-5} *3* I_γ: From ε decay of 2.135-h activity. Other: 0.40 *4* in 2.23-h activity.
		214.30 *10*	100 *5*	6.5450	5/2$^+$	M1(+E2)	0.5 *5*	0.113 *8*	α(K)=0.095 *4*; α(L)=0.014 *3*; α(M)=0.0029 *7* α(N)=0.00061 *13*; α(O)=8.3×10^{-5} *14*; α(P)=3.59×10^{-6} *11*
		220.83 *10*	65 *3*	0.0	1/2$^+$	M1(+E2)	<0.9	0.104 *5*	α(K)=0.0879 *23*; α(L)=0.0131 *19*; α(M)=0.0027 *4* α(N)=0.00057 *8*; α(O)=7.7×10^{-5} *9*; α(P)=3.30×10^{-6} *9*
426.47	(9/2)$^+$	238.0 *2*	12.9 *13*	188.91	7/2$^+$	M1		0.0819	α(K)=0.0704 *10*; α(L)=0.00919 *13*; α(M)=0.00188 *3* α(N)=0.000398 *6*; α(O)=5.54×10^{-5} *8*; α(P)=2.75×10^{-6} *4* I_γ: from 1991Hi12 in in-beam γ-ray work. Others: 5.3 *6* (2009Si08), 28 (1977Ch23) in in-beam γ-ray work seems discrepant. Values from the ε decay cannot be used since 420γ is doubly placed.
		420.0[a] *2*	100[a] *6*	6.5450	5/2$^+$	(E2)		0.01548	α(K)=0.01295 *19*; α(L)=0.00201 *3*; α(M)=0.000417 *6* α(N)=8.70×10^{-5} *13*; α(O)=1.157×10^{-5} *17*; α(P)=4.58×10^{-7} *7*
551.59	(5/2$^+$)	416.1 *2* 551.5 *2*	61 *7* 100 *11*	135.59 0.0	3/2$^+$ 1/2$^+$				

$^{129}_{55}Cs_{74}$-5

Adopted Levels, Gammas (continued)

γ(^{129}Cs) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. ‡	α #	Comments
554.05	(1/2,3/2)$^+$	333.9 *3*	15.0 *14*	220.78	3/2$^+$	M1,E2	0.0323 *14*	α(K)=0.0273 *18*; α(L)=0.0040 *3*; α(M)=0.00083 *7* α(N)=0.000174 *13*; α(O)=2.35×10^{-5} *10*; α(P)=1.00×10^{-6} *13*
		554.0 *2*	100 *10*	0.0	1/2$^+$	(M1,E2)	0.0083 *12*	α(K)=0.0071 *11*; α(L)=0.00095 *9*; α(M)=0.000194 *16* α(N)=4.1×10^{-5} *4*; α(O)=5.6×10^{-6} *6*; α(P)=2.7×10^{-7} *5*
555.10	(5/2,7/2)$^+$	334.0 *3*	23.0 *24*	220.78	3/2$^+$	M1,E2	0.0323 *14*	α(K)=0.0273 *18*; α(L)=0.0040 *3*; α(M)=0.00083 *7* α(N)=0.000174 *13*; α(O)=2.35×10^{-5} *10*; α(P)=1.00×10^{-6} *13*
		345.3 *3*	4.8 *5*	208.81	(5/2)$^+$			E_γ: poor fit, level-energy difference=346.3.
		366.1@ *2*	47 *5*	188.91	7/2$^+$	M1,E2	0.0250 *17*	α(K)=0.0211 *18*; α(L)=0.00305 *12*; α(M)=0.00063 *3* α(N)=0.000132 *5*; α(O)=1.79×10^{-5} *3*; α(P)=7.8×10^{-7} *11*
		420.0[a] *2*	91[a] *10*	135.59	3/2$^+$			
		549.0 *2*	100 *11*	6.5450	5/2$^+$			
575.40	(11/2$^-$)	149.1 *3*	100 *10*	426.47	(9/2)$^+$	(E1)	0.0722	α(K)=0.0620 *10*; α(L)=0.00810 *13*; α(M)=0.001647 *25* α(N)=0.000344 *6*; α(O)=4.65×10^{-5} *7*; α(P)=2.03×10^{-6} *3* B(E1)(W.u.)=5.8×10^{-8} *5* I_γ: branching ratios are from in-beam γ-ray data where this level is populated more intensely than in ε decay. Values from ε decay are in general agreement.
		354.8[b]		220.78	3/2$^+$	[M4]	1.369	α(K)=1.045 *15*; α(L)=0.255 *4*; α(M)=0.0558 *8* α(N)=0.01173 *17*; α(O)=0.001542 *22*; α(P)=5.80×10^{-5} *9* E_γ: γ reported only by 1983TaZI in ε decay with an upper limit of intensity. It is neither seen in any other decay study (1972Ta02, 1973Is04) nor in in-beam γ-ray data; thus it is considered as questionable by the evaluators.
		366.1@[b] *2*		208.81	(5/2)$^+$	[E3]	0.0787	α(K)=0.0592 *9*; α(L)=0.01542 *22*; α(M)=0.00331 *5* α(N)=0.000681 *10*; α(O)=8.49×10^{-5} *12*; α(P)=2.09×10^{-6} *3* E_γ: γ not reported in in-beam γ-ray data; B(E3)(W.u.)=400 *50* is a factor of 4 larger than RUL, thus this transition is considered suspect.
		386.6 *3*	67 *7*	188.91	7/2$^+$	(M2)	0.0863	α(K)=0.0728 *11*; α(L)=0.01074 *16*; α(M)=0.00223 *4* α(N)=0.000471 *7*; α(O)=6.52×10^{-5} *10*; α(P)=3.12×10^{-6} *5* B(M2)(W.u.)=0.067 *7* I_γ: 82 *9* in ε decay.
		569.2 *3*	12.7 *13*	6.5450	5/2$^+$	[E3]	0.01751	α(K)=0.01419 *20*; α(L)=0.00264 *4*; α(M)=0.000554 *8* α(N)=0.0001153 *17*; α(O)=1.506×10^{-5} *22*; α(P)=5.29×10^{-7} *8* B(E3)(W.u.)=5.9 *9* I_γ: ≈11 in ε decay.
603.36	(7/2$^+$)	177.02 *10*	100 *5*	426.47	(9/2)$^+$	(M1)	0.182	α(K)=0.1565 *22*; α(L)=0.0206 *3*; α(M)=0.00422 *6* α(N)=0.000892 *13*; α(O)=0.0001242 *18*; α(P)=6.14×10^{-6} *9*
		382.9 *3*	12.9 *13*	220.78	3/2$^+$			
		394.5 *2*	87 *4*	208.81	(5/2)$^+$			
		414.0 *2*	59 *6*	188.91	7/2$^+$			
		467.9 *20*	65 *3*	135.59	3/2$^+$			

$^{129}_{55}Cs_{74}$-6

Adopted Levels, Gammas (continued)

γ(^{129}Cs) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
603.36	(7/2$^+$)	596.78 *8*	70.0 *20*	6.5450	5/2$^+$	(M1,E2)		0.0068 *10*	α(K)=0.0059 *9*; α(L)=0.00078 *8*; α(M)=0.000160 *16* α(N)=3.4×10^{-5} *4*; α(O)=4.6×10^{-6} *6*; α(P)=2.2×10^{-7} *4*
648.41	(11/2$^+$)	459.5 *1*	100	188.91	7/2$^+$	(E2)		0.01193	α(K)=0.01003 *14*; α(L)=0.001517 *22*; α(M)=0.000314 *5* α(N)=6.55×10^{-5} *10*; α(O)=8.77×10^{-6} *13*; α(P)=3.58×10^{-7} *5*
690.32	(9/2$^+$)	263.9[a] *3*	7.8[a] *10*	426.47	(9/2)$^+$	(M1,E2)		0.0641 *21*	α(K)=0.0534 *8*; α(L)=0.0085 *15*; α(M)=0.0018 *4* α(N)=0.00037 *7*; α(O)=4.9×10^{-5} *7*; α(P)=1.93×10^{-6} *16* I_γ: from ^{122}Sn(^{11}B,4nγ),^{124}Sn(^{11}B,6nγ); doublet in ε decay with total intensity=18.9 *10*.
		481.4 *1*	100 *5*	208.81	(5/2)$^+$	(E2)		0.01046	α(K)=0.00881 *13*; α(L)=0.001315 *19*; α(M)=0.000272 *4* α(N)=5.68×10^{-5} *8*; α(O)=7.62×10^{-6} *11*; α(P)=3.16×10^{-7} *5*
		501.4 *1*	72 *3*	188.91	7/2$^+$	(M1)		0.01203	α(K)=0.01037 *15*; α(L)=0.001322 *19*; α(M)=0.000270 *4* α(N)=5.70×10^{-5} *8*; α(O)=7.98×10^{-6} *12*; α(P)=4.01×10^{-7} *6* I_γ: 10.4 *10* in ^{122}Sn(^{11}B,4nγ),^{124}Sn(^{11}B,6nγ) is discrepant.
755.26	(5/2,7/2)$^+$	151.9 *3*	2.7 *3*	603.36	(7/2$^+$)	[M1+E2]		0.35 *8*	α(K)=0.28 *4*; α(L)=0.06 *3*; α(M)=0.012 *6* α(N)=0.0026 *12*; α(O)=0.00033 *14*; α(P)=9.50×10^{-6} *21*
		328.4 *3*	4.7 *5*	426.47	(9/2)$^+$	M1,E2		0.0339 *14*	α(K)=0.0286 *17*; α(L)=0.0042 *4*; α(M)=0.00088 *8* α(N)=0.000183 *15*; α(O)=2.47×10^{-5} *12*; α(P)=1.05×10^{-6} *13*
		534.4 *2*	28.4 *26*	220.78	3/2$^+$	(M1)		0.01028	α(K)=0.00886 *13*; α(L)=0.001127 *16*; α(M)=0.000230 *4* α(N)=4.86×10^{-5} *7*; α(O)=6.80×10^{-6} *10*; α(P)=3.42×10^{-7} *5*
		546.6 *1*	100 *5*	208.81	(5/2)$^+$	(M1)		0.00972	α(K)=0.00839 *12*; α(L)=0.001066 *15*; α(M)=0.000217 *3* α(N)=4.60×10^{-5} *7*; α(O)=6.43×10^{-6} *9*; α(P)=3.24×10^{-7} *5*
		566.21 *10*	66 *3*	188.91	7/2$^+$				
		619.8 *3*	6.5 *7*	135.59	3/2$^+$				
		748.5[&] *2*	<59[&]	6.5450	5/2$^+$	(M1,E2)			
879.31	(5/2$^+$,7/2$^+$)	658.9 *3*	15.5 *16*	220.78	3/2$^+$				
		670.4 *3*	15.7 *16*	208.81	(5/2)$^+$				
		690.3 *2*	79 *8*	188.91	7/2$^+$				
		744.4 *3*	8.5 *10*	135.59	3/2$^+$				
		872.5 *2*	100 *9*	6.5450	5/2$^+$	(M1,E2)			
969.23	(5/2$^+$,7/2$^+$)	542.9 *2*	61 *6*	426.47	(9/2)$^+$	(M1,E2)		0.0087 *12*	α(K)=0.0074 *11*; α(L)=0.00100 *9*; α(M)=0.000205 *16* α(N)=4.3×10^{-5} *4*; α(O)=6.0×10^{-6} *6*; α(P)=2.8×10^{-7} *5*
		748.5[&] *2*	<108[&]	220.78	3/2$^+$				
		759.9 *2*	20.8 *20*	208.81	(5/2)$^+$				
		780.4 *2*	100 *5*	188.91	7/2$^+$				
		833.5 *2*	41 *5*	135.59	3/2$^+$				
		962.6 *2*	44 *5*	6.5450	5/2$^+$				

$^{129}_{55}Cs_{74}$-7

Adopted Levels, Gammas (continued)

γ(^{129}Cs) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
991.97	(7/2$^+$,9/2$^+$,11/2$^+$)	343.4 *3*	3.1 *4*	648.41	(11/2$^+$)			
		437.0 *3*	6.5 *7*	555.10	(5/2,7/2)$^+$			
		803.0 *1*	100 *5*	188.91	7/2$^+$	(M1,E2)		
1023.3	(15/2$^-$)	447.9 *4*	100	575.40	(11/2$^-$)	E2	0.01284	α(K)=0.01078 *16*; α(L)=0.001642 *24*; α(M)=0.000340 *5* α(N)=7.10×10^{-5} *11*; α(O)=9.48×10^{-6} *14*; α(P)=3.84×10^{-7} *6*
1032.9	(13/2$^+$)	384.9 *7*		648.41	(11/2$^+$)	(M1+E2)	0.0217 *17*	α(K)=0.0184 *18*; α(L)=0.00263 *6*; α(M)=0.000541 *16* α(N)=0.000114 *3*; α(O)=1.54×10^{-5} *3*; α(P)=6.8×10^{-7} *10*
		606.1 *4*		426.47	(9/2)$^+$	Q		
1150.4	(13/2$^-$)	575.3 *7*	100	575.40	(11/2$^-$)	D+Q		
1156.23	(5/2$^+$,7/2$^+$)	601.0 *3*	13.3 *13*	555.10	(5/2,7/2)$^+$			
		730.2 *3*		426.47	(9/2)$^+$			I_γ: weak transition.
		935.2 *2*	100 *11*	220.78	3/2$^+$			
		947.6[&] *3*	<21[&]	208.81	(5/2)$^+$			
1164.68	(1/2,3/2)$^+$	944.5 *3*	10.2 *10*	220.78	3/2$^+$			
		1164.4 *2*	100 *10*	0.0	1/2$^+$	(M1,E2)		
1231.7	(11/2$^+$)	628.0 *7*	100 *12*	603.36	(7/2$^+$)			
		805.5 *7*	60 *8*	426.47	(9/2)$^+$			
1255.68	(5/2$^+$,7/2$^+$)	263.9[a] *3*	13.0[a] *19*	991.97	(7/2$^+$,9/2$^+$,11/2$^+$)			
		286.2 *2*	29 *3*	969.23	(5/2$^+$,7/2$^+$)	(M1,E2)	0.0504 *8*	α(K)=0.0423 *12*; α(L)=0.0065 *9*; α(M)=0.00135 *21* α(N)=0.00028 *4*; α(O)=3.8×10^{-5} *4*; α(P)=1.54×10^{-6} *15*
		700.6 *2*	33 *4*	555.10	(5/2,7/2)$^+$			
		828.9 *3*	13.2 *13*	426.47	(9/2)$^+$			
		1034.8 *1*	100 *5*	220.78	3/2$^+$	(M1,E2)		
		1047.1 *1*	96 *5*	208.81	(5/2)$^+$			
1279.3	(15/2$^+$)	631.3 *4*	100	648.41	(11/2$^+$)	E2	0.00506	B(E2)(W.u.)=2.8×10^2 *+6−7* α(K)=0.00430 *6*; α(L)=0.000602 *9*; α(M)=0.0001236 *18* α(N)=2.60×10^{-5} *4*; α(O)=3.53×10^{-6} *5*; α(P)=1.571×10^{-7} *23*
1339.8	(13/2$^+$)	648.9 *4*	100	690.32	(9/2$^+$)	Q		
		692.5[a] *7*	15.6[a]	648.41	(11/2$^+$)	D+Q		
1609.64	(1/2,3/2)	1389.3 *3*	25.8 *26*	220.78	3/2$^+$			
		1473.6 *3*	100 *10*	135.59	3/2$^+$			
1627.6	(19/2$^-$)	604.3 *4*	100	1023.3	(15/2$^-$)	E2	0.00566	B(E2)(W.u.)=111 *+24−36* α(K)=0.00481 *7*; α(L)=0.000679 *10*; α(M)=0.0001396 *20* α(N)=2.93×10^{-5} *5*; α(O)=3.98×10^{-6} *6*; α(P)=1.751×10^{-7} *25*

$^{129}_{55}Cs_{74}$-8

Adopted Levels, Gammas (continued)

γ(^{129}Cs) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
1648.01	$(9/2)^+$	392.33 *10*	44.0 *22*	1255.68	$(5/2^+,7/2^+)$	(M1)	0.0223	α(K)=0.0192 *3*; α(L)=0.00246 *4*; α(M)=0.000503 *7* α(N)=0.0001064 *15*; α(O)=1.487×10^{-5} *21*; α(P)=7.44×10^{-7} *11*
		491.8 *3*	1.80 *18*	1156.23	$(5/2^+,7/2^+)$			
		656.2 *2*	7.6 *8*	991.97	$(7/2^+,9/2^+,11/2^+)$			
		678.8 *1*	27.6 *14*	969.23	$(5/2^+,7/2^+)$	(M1)	0.00574	α(K)=0.00496 *7*; α(L)=0.000626 *9*; α(M)=0.0001275 *18* α(N)=2.70×10^{-5} *4*; α(O)=3.78×10^{-6} *6*; α(P)=1.91×10^{-7} *3*
		768.8 *2*	5.9 *6*	879.31	$(5/2^+,7/2^+)$	(M1)		
		892.6 *1*	42.4 *22*	755.26	$(5/2,7/2)^+$	(M1)		
		957.5 *2*	8.2 *8*	690.32	$(9/2^+)$			
		999.5 *1*	15.6 *8*	648.41	$(11/2^+)$			
		1044.7 *1*	27.6 *14*	603.36	$(7/2^+)$			
		1072.8 *3*	1.50 *16*	575.40	$(11/2^-)$			
		1221.7 *2*	12.8 *6*	426.47	$(9/2)^+$			
		1459.2 *1*	100 *5*	188.91	$7/2^+$			
		1641.1 *3*	2.10 *20*	6.5450	$5/2^+$			
1648.56	$(1/2^+,3/2)$	1439.8 *3*	100 *11*	208.81	$(5/2)^+$			
		1512.9 *3*		135.59	$3/2^+$			
1681.60	$(5/2^+,7/2^+,9/2^+)$	426.2 *2*	37 *4*	1255.68	$(5/2^+,7/2^+)$	(M1)	0.0181	α(K)=0.01556 *22*; α(L)=0.00199 *3*; α(M)=0.000407 *6* α(N)=8.61×10^{-5} *12*; α(O)=1.203×10^{-5} *17*; α(P)=6.03×10^{-7} *9*
		525.3 *3*	24.5 *25*	1156.23	$(5/2^+,7/2^+)$			
		689.2 *2*	100 *10*	991.97	$(7/2^+,9/2^+,11/2^+)$			
		712.1 *2*	69 *7*	969.23	$(5/2^+,7/2^+)$			
		927.0 *3*	30 *3*	755.26	$(5/2,7/2)^+$			
		991.3 *2*	39 *4*	690.32	$(9/2^+)$			
		1077.7 *3*	33 *3*	603.36	$(7/2^+)$			
		1126.7 *2*	62 *7*	555.10	$(5/2,7/2)^+$			
		1473.3 *3*	17.3 *17*	208.81	$(5/2)^+$			
		1492.4 *3*	11.7 *12*	188.91	$7/2^+$			
		1675.1 *3*	6.9 *7*	6.5450	$5/2^+$			
1691.6	$(17/2^-)$	541.5 *7*		1150.4	$(13/2^-)$			
		668.0 *4*	100 *6*	1023.3	$(15/2^-)$	D+Q		
1694.18	$(1/2,3/2)$	1140.3 *3*	63 *6*	554.05	$(1/2,3/2)^+$			
		1558.4 *3*	100 *11*	135.59	$3/2^+$			
1700.93	$(1/2^+,3/2)$	1693.8 *3*	93 *9*	6.5450	$5/2^+$			
		1701.5 *3*	100 *10*	0.0	$1/2^+$			
1718.0	$(15/2^-)$	1142.5	100	575.40	$(11/2^-)$			
1793.0	$(17/2^+)$	514.0 *7*	2.1 *4*	1279.3	$(15/2^+)$			
		759.8 *4*	100 *8*	1032.9	$(13/2^+)$	Q		
1812.56	$(9/2)^+$	164.6 *3*	6.6 *7*	1648.01	$(9/2)^+$			

Adopted Levels, Gammas (continued)

γ(^{129}Cs) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. ‡	Comments
1812.56	$(9/2)^+$	556.9 *2*	30 *3*	1255.68	$(5/2^+,7/2^+)$		
		820.5 *2*	26 *3*	991.97	$(7/2^+,9/2^+,11/2^+)$		
		933.2 *2*	41 *5*	879.31	$(5/2^+,7/2^+)$		
		1122.3 *2*	47 *3*	690.32	$(9/2^+)$		
		1164.4 *3*	9.0 *10*	648.41	$(11/2^+)$		
		1209.1 *2*	61 *3*	603.36	$(7/2^+)$		
		1237.3 *3*	7.2 *7*	575.40	$(11/2^-)$		
		1385.7 *3*	5.3 *5*	426.47	$(9/2)^+$		
		1604.0 *3*	2.8 *3*	208.81	$(5/2)^+$		
		1623.7 *1*	100 *6*	188.91	$7/2^+$		
		1805.5 *3*	5.5 *6*	6.5450	$5/2^+$		
1830.49	(1/2,3/2)	1276.6 *3*	18.2 *18*	554.05	$(1/2,3/2)^+$		
		1610.3 *3*	51 *5*	220.78	$3/2^+$		
		1694.3 *3*	12.3 *12*	135.59	$3/2^+$		
		1830.3 *3*	100 *11*	0.0	$1/2^+$		
1890.8	$(15/2^+)$	659.0 *7*	100 *13*	1231.7	$(11/2^+)$	E2	
		1242.9 *7*	61 *9*	648.41	$(11/2^+)$	E2	
1922.83	$(1/2^+,3/2)$	1368.6 *3*	83 *9*	554.05	$(1/2,3/2)^+$		
		1787.5 *3*	33 *13*	135.59	$3/2^+$		
		1916.4 *3*	20 *2*	6.5450	$5/2^+$		
		1922.6 *3*	100 *11*	0.0	$1/2^+$		
1941.02	$(7/2^+,9/2,11/2^+)$	947.6[&] *3*	<58[&]	991.97	$(7/2^+,9/2^+,11/2^+)$		E_γ: poor fit, level-energy difference=948.7.
		1250.5 *2*	77 *8*	690.32	$(9/2^+)$		
		1292.8 *2*	100 *10*	648.41	$(11/2^+)$		
		1752.1 *3*	45 *4*	188.91	$7/2^+$		
1954.03	$(1/2^+,3/2^+)$	1400.3 *3*	1.9 *2*	554.05	$(1/2,3/2)^+$		
		1744.7 *3*	13.4 *14*	208.81	$(5/2)^+$		
		1818.8 *3*	12.5 *13*	135.59	$3/2^+$		
		1947.5 *3*	45 *5*	6.5450	$5/2^+$		
		1953.8 *3*	100 *9*	0.0	$1/2^+$		
2019.12	$(9/2,11/2^+)$	1026.1[b] *3*	36 *4*	991.97	$(7/2^+,9/2^+,11/2^+)$		
		1370.4 *3*	100 *10*	648.41	$(11/2^+)$		
		1444.0 *3*	83 *9*	575.40	$(11/2^-)$		
		1830.2 *3*	4.3 *15*	188.91	$7/2^+$		
2047.4	$(19/2^+)$	768.3 *4*	100	1279.3	$(15/2^+)$	E2	B(E2)(W.u.)=1.8×10^2 *+5−8*
2077.66	$(1/2^+,3/2)$	1856.7 *3*	100 *9*	220.78	$3/2^+$		
		1869.0 *3*	100 *9*	208.81	$(5/2)^+$		
2123.2	$(17/2^+)$	783.1 *4*	100 *6*	1339.8	$(13/2^+)$	Q	
		844.6 *7*		1279.3	$(15/2^+)$		
2214.4	$(19/2^-)$	496 *1*		1718.0	$(15/2^-)$		
		522.8[a] *7*	100[a] *8*	1691.6	$(17/2^-)$	D+Q	
		587 *1*		1627.6	$(19/2^-)$		
		1191.5 *7*	66 *5*	1023.3	$(15/2^-)$	Q	

$^{129}_{55}Cs_{74}$-10

Adopted Levels, Gammas (continued)

γ(^{129}Cs) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
2254.8?		2034.0[b] *3*		220.78	3/2$^+$			
2319.5	(21/2$^-$)	627.8 *4*	93 *5*	1691.6	(17/2$^-$)	Q		I_γ: from ^{122}Sn(^{11}B,4nγ). Other: 16 *2* in ^{116}Cd(^{18}O,4npγ) is in severe disagreement.
		692.1 *4*	100 *6*	1627.6	(19/2$^-$)	D+Q		
2396.0	(23/2$^-$)	768.2 *4*	100	1627.6	(19/2$^-$)	E2		B(E2)(W.u.)=1.1×10^2 *4*
2500.6	(19/2$^+$)	1222.3 *7*	100	1279.3	(15/2$^+$)	Q		
2633.1	(21/2$^+$)	586.8 *7*	2.2 *3*	2047.4	(19/2$^+$)			
		839.7 *4*	100 *8*	1793.0	(17/2$^+$)	E2		B(E2)(W.u.)=2.3×10^2 *+10−7*
2667.1	(19/2$^+$)	166.0 *7*	10.0 *17*	2500.6	(19/2$^+$)			
		775.9 *7*	100 *13*	1890.8	(15/2$^+$)	Q		
		1388.4 *7*	61 *9*	1279.3	(15/2$^+$)	Q		
2676.5	(19/2$^+$)	177.5 *7*	12.4 *22*	2500.6	(19/2$^+$)			
		786.5 *7*	100 *19*	1890.8	(15/2$^+$)	Q		
		1396.0		1279.3	(15/2$^+$)			
2812.7	(21/2$^+$)	136.5 *7*	12.5 *12*	2676.5	(19/2$^+$)	(M1+E2)	0.50 *13*	α(K)=0.39 *7*; α(L)=0.09 *5*; α(M)=0.019 *11* α(N)=0.0039 *21*; α(O)=0.00049 *23*; α(P)=1.30×10^{-5} *5* I_γ: from ^{122}Sn(^{11}B,4nγ). Other: 24 *3* in ^{116}Cd(^{18}O,4npγ) is in severe disagreement.
		145.3 *7*	49 *6*	2667.1	(19/2$^+$)	(M1+E2)	0.41 *10*	α(K)=0.32 *5*; α(L)=0.07 *4*; α(M)=0.015 *8* α(N)=0.0030 *15*; α(O)=0.00038 *17*; α(P)=1.08×10^{-5} *4*
		1020.5 *7*	100 *9*	1793.0	(17/2$^+$)	Q		
2842.1	(23/2$^-$)	446		2396.0	(23/2$^-$)			
		522.8[a] *7*	75[a] *7*	2319.5	(21/2$^-$)			
		628.0 *7*	39 *5*	2214.4	(19/2$^-$)			
		1214.3 *7*	100 *7*	1627.6	(19/2$^-$)	Q		
2908.3	(23/2$^+$)	860.6 *4*	100	2047.4	(19/2$^+$)	E2		B(E2)(W.u.)=2.1×10^2 *+10−14*
2942.5	(21/2$^+$)	265.5 *7*	84 *16*	2676.5	(19/2$^+$)			
		895.3 *7*	100 *19*	2047.4	(19/2$^+$)	D+Q		
2952.6	(21/2$^+$)	829.3 *7*	100 *10*	2123.2	(17/2$^+$)	Q		
		905.5 *7*	11.8 *20*	2047.4	(19/2$^+$)			
2981.2	(19/2$^+$,21/2$^+$)	858		2123.2	(17/2$^+$)			
3042.8	(23/2$^+$)	230.3 *7*	100	2812.7	(21/2$^+$)	(M1+E2)	0.096 *8*	
		366.5 *7*	7.8 *13*	2676.5	(19/2$^+$)			
3095.9	(25/2$^-$)	699.9 *7*	75 *7*	2396.0	(23/2$^-$)	D+Q		I_γ: from ^{122}Sn(^{11}B,4nγ). Other: 44 *4* in ^{116}Cd(^{18}O,4npγ) is in disagreement.
		776.5 *4*	100 *8*	2319.5	(21/2$^-$)	Q		
3157.3	(23/2$^+$)	205.5 *7*	33 *4*	2952.6	(21/2$^+$)	(M1+E2)	0.137 *16*	α(K)=0.112 *8*; α(L)=0.020 *6*; α(M)=0.0041 *14* α(N)=0.0009 *3*; α(O)=0.00011 *3*; α(P)=3.95×10^{-6} *16*
		214.5 *7*	18.2 *21*	2942.5	(21/2$^+$)	(M1+E2)	0.120 *12*	α(K)=0.098 *6*; α(L)=0.017 *5*; α(M)=0.0035 *11* α(N)=0.00074 *21*; α(O)=9.6×10^{-5} *23*; α(P)=3.49×10^{-6} *16*
		1109.4 *7*	100 *12*	2047.4	(19/2$^+$)	Q		
3235.9	(27/2$^-$)	840.1 *4*	100	2396.0	(23/2$^-$)	E2		B(E2)(W.u.)=1.1×10^2 *4*
3291.4	(25/2$^+$)	658.3 *7*	100	2633.1	(21/2$^+$)	Q		

$^{129}_{55}Cs_{74}$-11

Adopted Levels, Gammas (continued)

γ(^{129}Cs) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
3296.8	(25/2$^+$)	663.7 *7*	100	2633.1	(21/2$^+$)	E2		B(E2)(W.u.)>6.3×10^2; factor of ≈2 higher than RUL.
3406.4	(25/2$^+$)	363.6 *7*	100 *14*	3042.8	(23/2$^+$)	(M1+E2)	0.0254 *17*	α(K)=0.0215 *18*; α(L)=0.00311 *13*; α(M)=0.00064 *3* α(N)=0.000135 *6*; α(O)=1.82×10^{-5} *4*; α(P)=8.0×10^{-7} *11*
		594.5 *7*	4.5 *9*	2812.7	(21/2$^+$)			
3419.0	25/2$^+$	262.1 *7*	100 *27*	3157.3	(23/2$^+$)	(M1+E2)	0.0654 *23*	α(K)=0.0545 *9*; α(L)=0.0087 *16*; α(M)=0.0018 *4* α(N)=0.00038 *7*; α(O)=5.0×10^{-5} *7*; α(P)=1.97×10^{-6} *16*
		375.5 *7*	38 *8*	3042.8	(23/2$^+$)			
3518.2	(25/2$^-$)	422.5		3095.9	(25/2$^-$)			
		1122.0 *7*	100 *9*	2396.0	(23/2$^-$)	D+Q		
3590.7	(27/2$^-$)	354.5		3235.9	(27/2$^-$)			
		748.5		2842.1	(23/2$^-$)			
		1194.5		2396.0	(23/2$^-$)			
3682.1	(27/2$^+$)	262.8 *7*	83 *20*	3419.0	25/2$^+$			
		524.5 *7*	47 *8*	3157.3	(23/2$^+$)			
		774.5 *7*	100 *17*	2908.3	(23/2$^+$)			
3685.3	(27/2$^-$)	167.1 *7*	30 *4*	3518.2	(25/2$^-$)	(M1+E2)	0.26 *5*	α(K)=0.21 *3*; α(L)=0.041 *18*; α(M)=0.009 *4* α(N)=0.0018 *8*; α(O)=0.00023 *9*; α(P)=7.20×10^{-6} *14*
		449.5 *7*	87 *8*	3235.9	(27/2$^-$)	D+Q		
		589.5 *7*	70 *5*	3095.9	(25/2$^-$)	D+Q		
		840.0[b] *7*		2842.1	(23/2$^-$)			
		1289.1 *7*	100 *6*	2396.0	(23/2$^-$)	Q		
3730.0	(27/2$^+$)	821.5 *7*	100	2908.3	(23/2$^+$)	E2		B(E2)(W.u.)>3.5×10^2
3733.3	(23/2 to 27/2$^+$)	690.5 *7*	100	3042.8	(23/2$^+$)			
3734.2	(27/2$^+$)	327.9 *7*	88 *16*	3406.4	(25/2$^+$)	(M1+E2)	0.0341 *14*	α(K)=0.0287 *18*; α(L)=0.0043 *4*; α(M)=0.00088 *8* α(N)=0.000184 *15*; α(O)=2.48×10^{-5} *12*; α(P)=1.06×10^{-6} *13*
		692.5[a] *7*	100[a] *16*	3042.8	(23/2$^+$)			
		825		2908.3	(23/2$^+$)			
3810.3	(25/2$^+$)	857.2 *7*	100 *18*	2952.6	(21/2$^+$)	Q		
		902.5 *7*	22 *4*	2908.3	(23/2$^+$)			
3919.9	(25/2)	1011.6 *7*	100	2908.3	(23/2$^+$)	D		
3924.5	(29/2$^-$)	688.2 *7*	100 *9*	3235.9	(27/2$^-$)	D+Q		
		828.7 *7*	70 *8*	3095.9	(25/2$^-$)	Q		
3949.4	(29/2$^+$)	652.6 *7*	100	3296.8	(25/2$^+$)	Q		
3993.6	(29/2$^+$)	311.7 *7*	100 *18*	3682.1	(27/2$^+$)			
		574.5 *7*	15.0 *25*	3419.0	25/2$^+$			
4026.9	(29/2$^-$)	341.3 *7*	100	3685.3	(27/2$^-$)	(M1+E2)	0.0304 *15*	α(K)=0.0257 *18*; α(L)=0.00377 *24*; α(M)=0.00078 *6* α(N)=0.000163 *11*; α(O)=2.20×10^{-5} *8*; α(P)=9.5×10^{-7} *12*
4114.7	(31/2$^-$)	879.0 *4*	100	3235.9	(27/2$^-$)	E2		B(E2)(W.u.)=2.0×10^2 *+3−7*
4130.0	(29/2$^+$)	395.7 *7*	100 *19*	3734.2	(27/2$^+$)	(M1+E2)	0.0201 *17*	α(K)=0.0171 *17*; α(L)=0.00243 *4*; α(M)=0.000499 *11* α(N)=0.0001048 *17*; α(O)=1.43×10^{-5} *4*; α(P)=6.3×10^{-7} *10*
		400.0		3730.0	(27/2$^+$)			
		724.3 *7*	39 *6*	3406.4	(25/2$^+$)			

$^{129}_{55}Cs_{74}$-12

Adopted Levels, Gammas (continued)

γ(^{129}Cs) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
4199.4	(29/2)	469.4 *7*	100	3730.0	(27/2$^+$)	D		
4366.9	(31/2$^+$)	373.5 *7*	68 *8*	3993.6	(29/2$^+$)			
		684.6 *7*	100 *16*	3682.1	(27/2$^+$)	Q		
4420.6	(31/2$^-$)	306.0		4114.7	(31/2$^-$)			
		393.5 *7*	100 *11*	4026.9	(29/2$^-$)	(M1+E2)	0.0204 *17*	α(K)=0.0173 *18*; α(L)=0.00246 *5*; α(M)=0.000507 *11* α(N)=0.0001065 *19*; α(O)=1.45×10^{-5} *4*; α(P)=6.4×10^{-7} *10*
4437.1	(31/2$^+$)	707.1 *7*	100	3730.0	(27/2$^+$)	Q		
4445.3	(31/2$^-$)	854		3590.7	(27/2$^-$)			
		1210		3235.9	(27/2$^-$)			
4599.0	(31/2$^+$)	468.5[a] *9*	100[a] *21*	4130.0	(29/2$^+$)	D+Q		
		864.5 *7*	53 *11*	3734.2	(27/2$^+$)			
4764.4	(33/2$^-$)	650.6 *7*	100 *12*	4114.7	(31/2$^-$)	D+Q		
		839.6 *7*	56 *7*	3924.5	(29/2$^-$)			
4900.0	(33/2$^-$)	479.4 *7*	100	4420.6	(31/2$^-$)	D+Q		
5024.4	(33/2$^+$)	425		4599.0	(31/2$^+$)			
		895.5 *7*	100 *18*	4130.0	(29/2$^+$)			
5032.6	(35/2$^-$)	917.7 *4*	100	4114.7	(31/2$^-$)	E2		B(E2)(W.u.)>56
5067.2	(33/2$^+$)	468.5[a] *7*	100[a] *30*	4599.0	(31/2$^+$)			
		936.5 *7*	100 *20*	4130.0	(29/2$^+$)			
5212.5	(35/2$^+$)	845.6 *7*	100	4366.9	(31/2$^+$)			
5282.4	(35/2$^+$)	845.3 *7*	100	4437.1	(31/2$^+$)	Q		
5402.1	(35/2$^-$)	502.1 *7*	100	4900.0	(33/2$^-$)	D+Q		
5547.2	(35/2$^+$)	479.7 *7*	100 *18*	5067.2	(33/2$^+$)			
		948.5 *7*	45 *9*	4599.0	(31/2$^+$)			
5566.7	(31/2,33/2,35/2$^+$)	542.5		5024.4	(33/2$^+$)			
		967.5		4599.0	(31/2$^+$)			
5692.3	(37/2$^-$)	659.2 *7*	100	5032.6	(35/2$^-$)			
		928.5 *7*		4764.4	(33/2$^-$)			
5989.6	(39/2$^-$)	957.0 *4*	100	5032.6	(35/2$^-$)	Q		
6050.7	(35/2 to 39/2$^+$)	484		5566.7	(31/2,33/2,35/2$^+$)			
6200.4	(39/2$^+$)	987.9 *7*	100	5212.5	(35/2$^+$)			
6271.4	(39/2$^+$)	989.0		5282.4	(35/2$^+$)			
7000.8	(43/2$^-$)	1011.2 *7*	100	5989.6	(39/2$^-$)	Q		
7380.4	(43/2$^+$)	1109.0		6271.4	(39/2$^+$)			
8099.5	(47/2$^-$)	1098.7 *7*	100	7000.8	(43/2$^-$)			

[†] From (^{11}B,xng) for γ rays from high-spin states, and from ^{129}Ba ε decay for γ rays from low-spin states, unless otherwise noted.
[‡] From (HI,xnγ) based on γ(θ) for γ rays from high-spin states, and from ^{129}Ba ε decay for γ rays from low-spin states, unless otherwise noted.
[#] Value overlaps M1 and E2 for M1+E2 or M1,E2 transitions.

$^{129}_{55}Cs_{74}$-13

Adopted Levels, Gammas (continued)

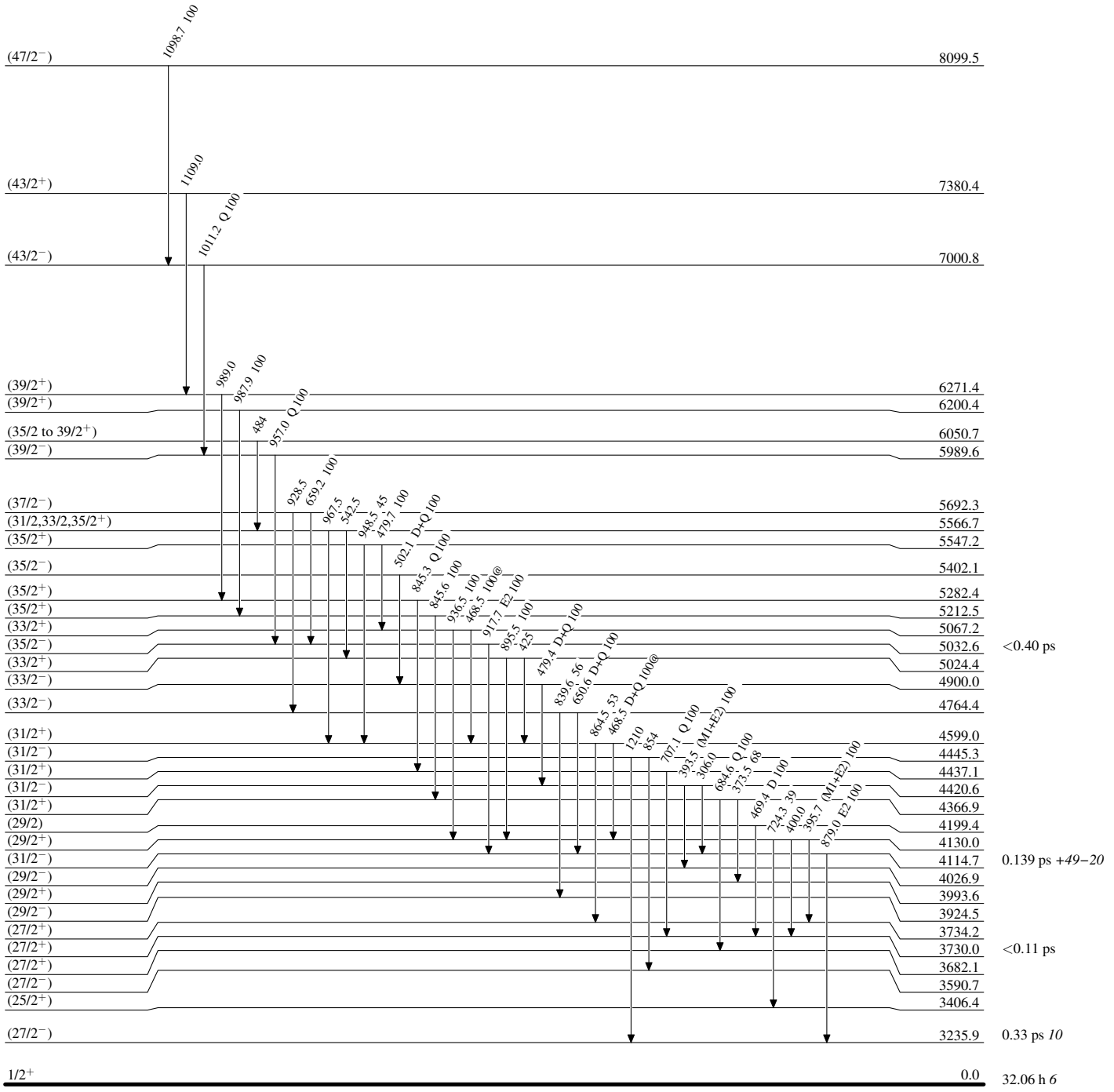
γ(^{129}Cs) (continued)

@ Multiply placed.
& Multiply placed with undivided intensity.
[a] Multiply placed with intensity suitably divided.
[b] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

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



$^{129}_{55}Cs_{74}$

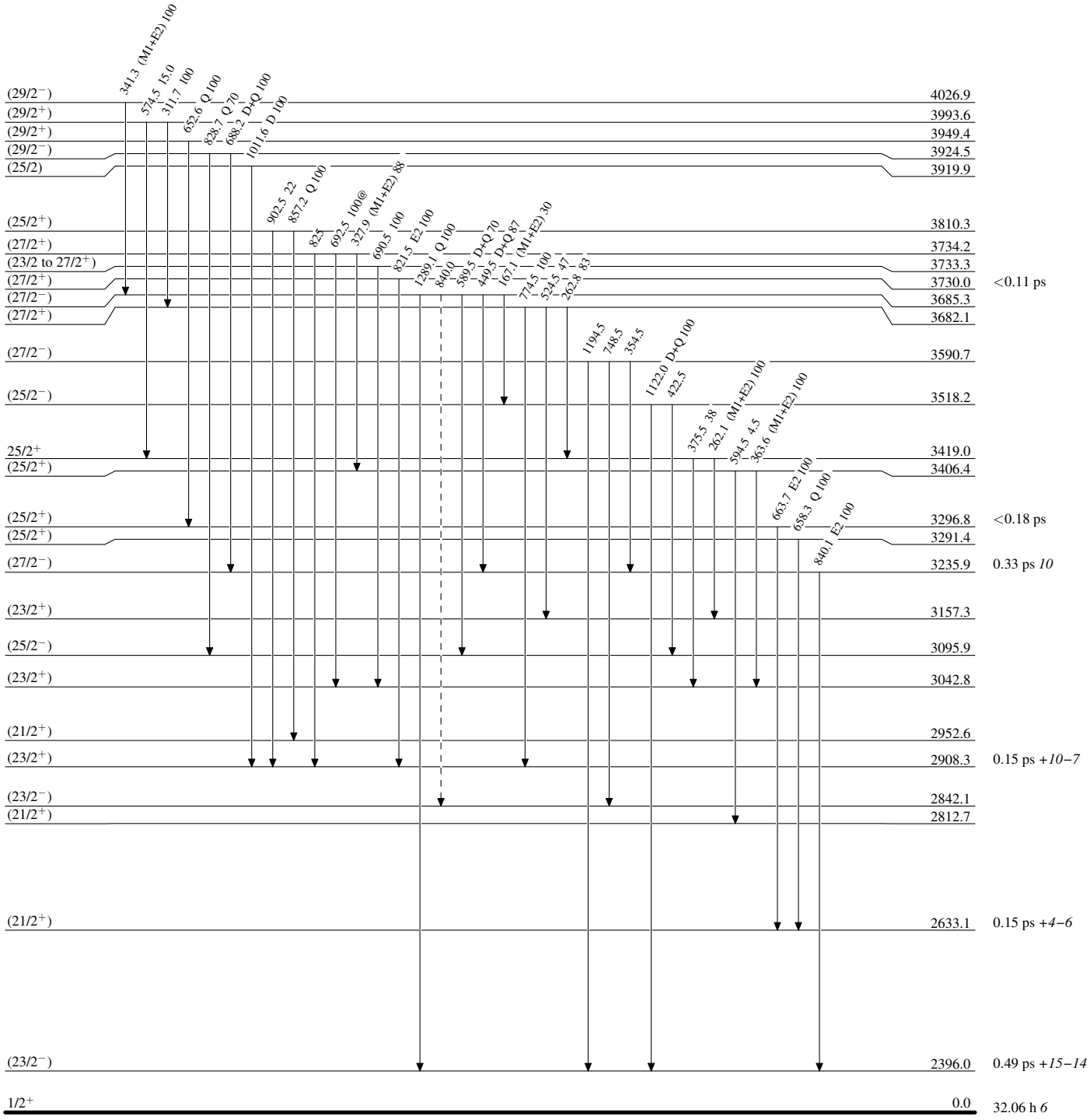
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)



$^{129}_{55}Cs_{74}$

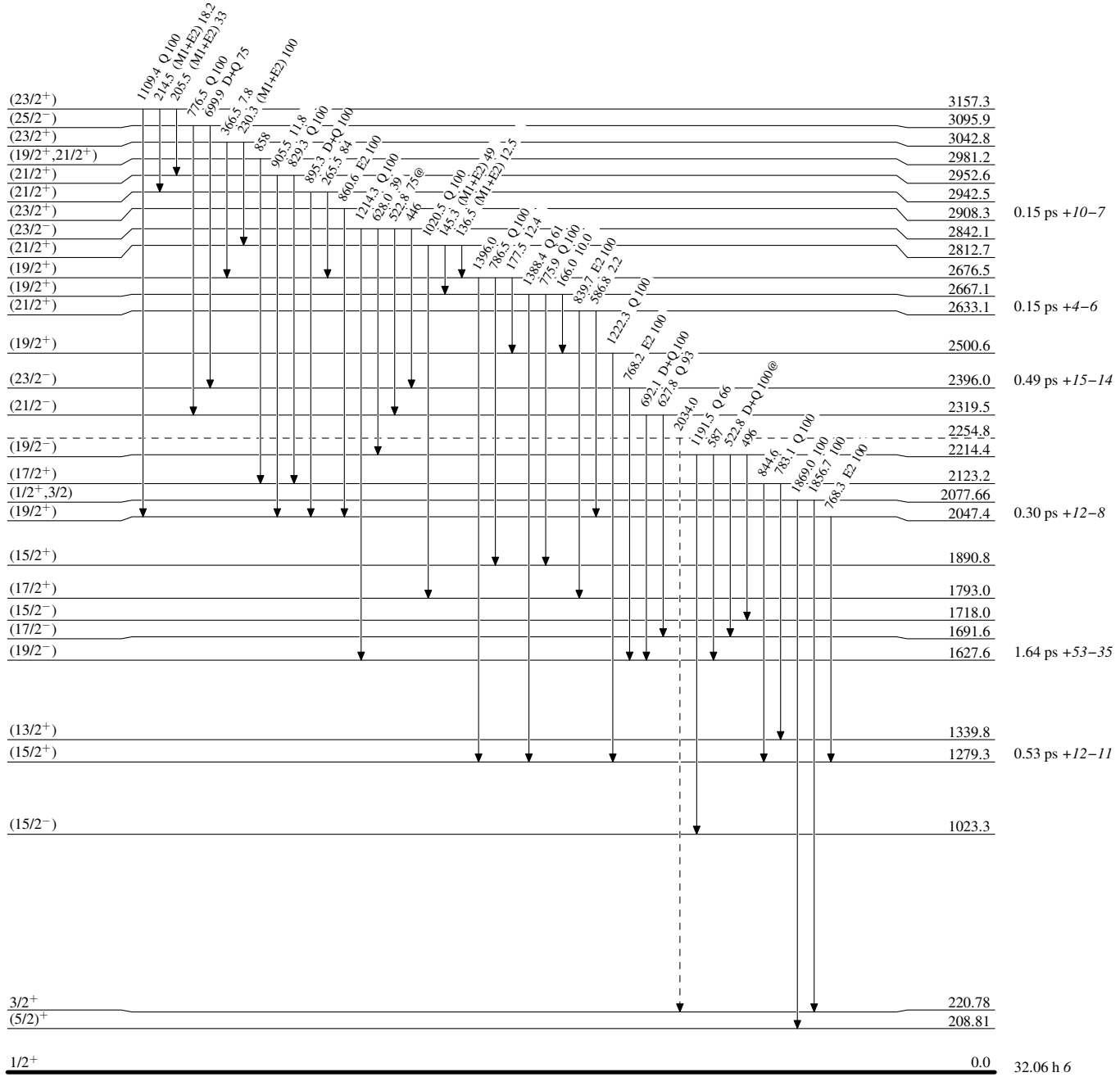
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)



$^{129}_{55}Cs_{74}$

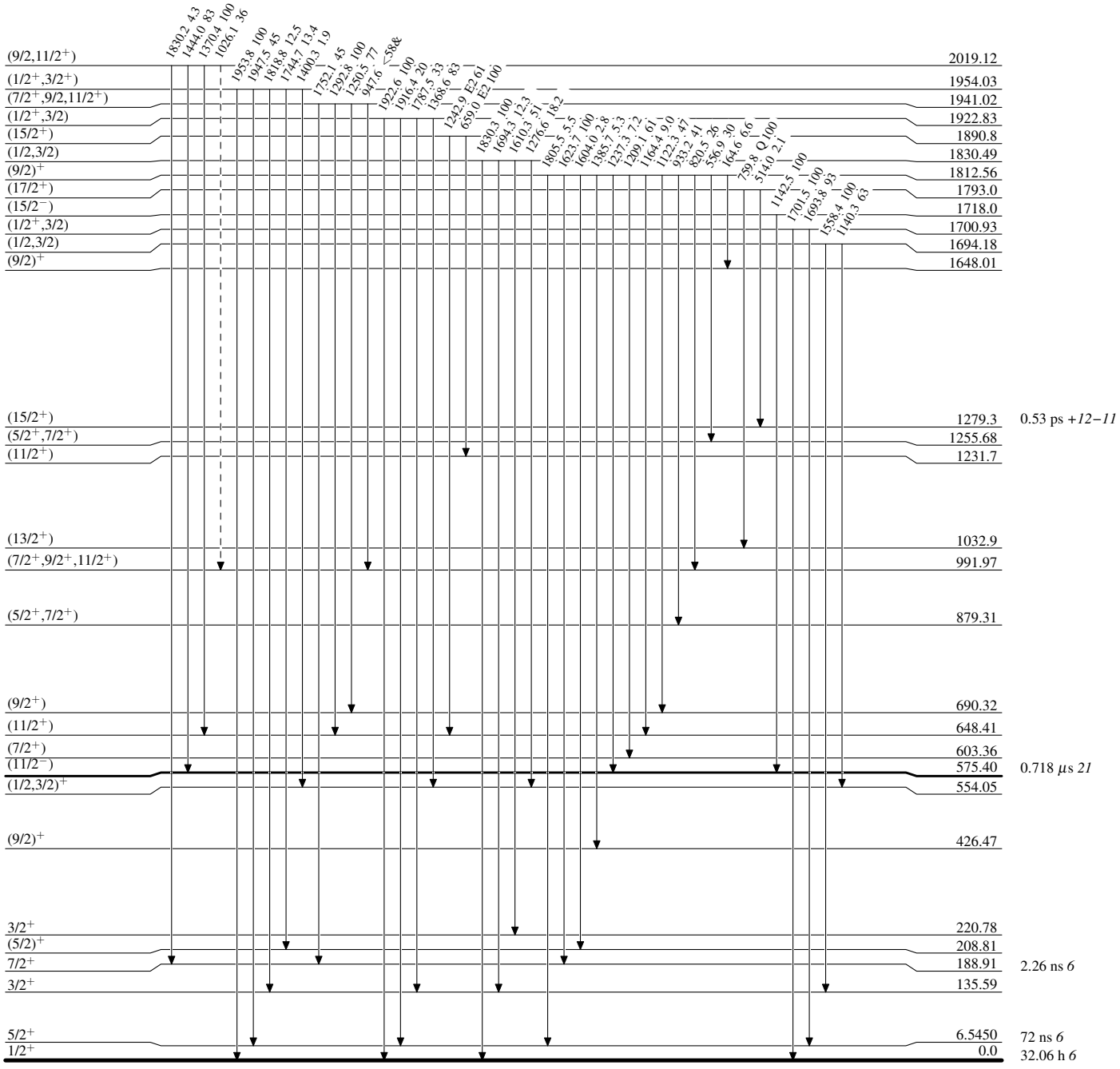
Adopted Levels, Gammas

Level Scheme (continued)

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

Legend

- - - - - - ► γ Decay (Uncertain)

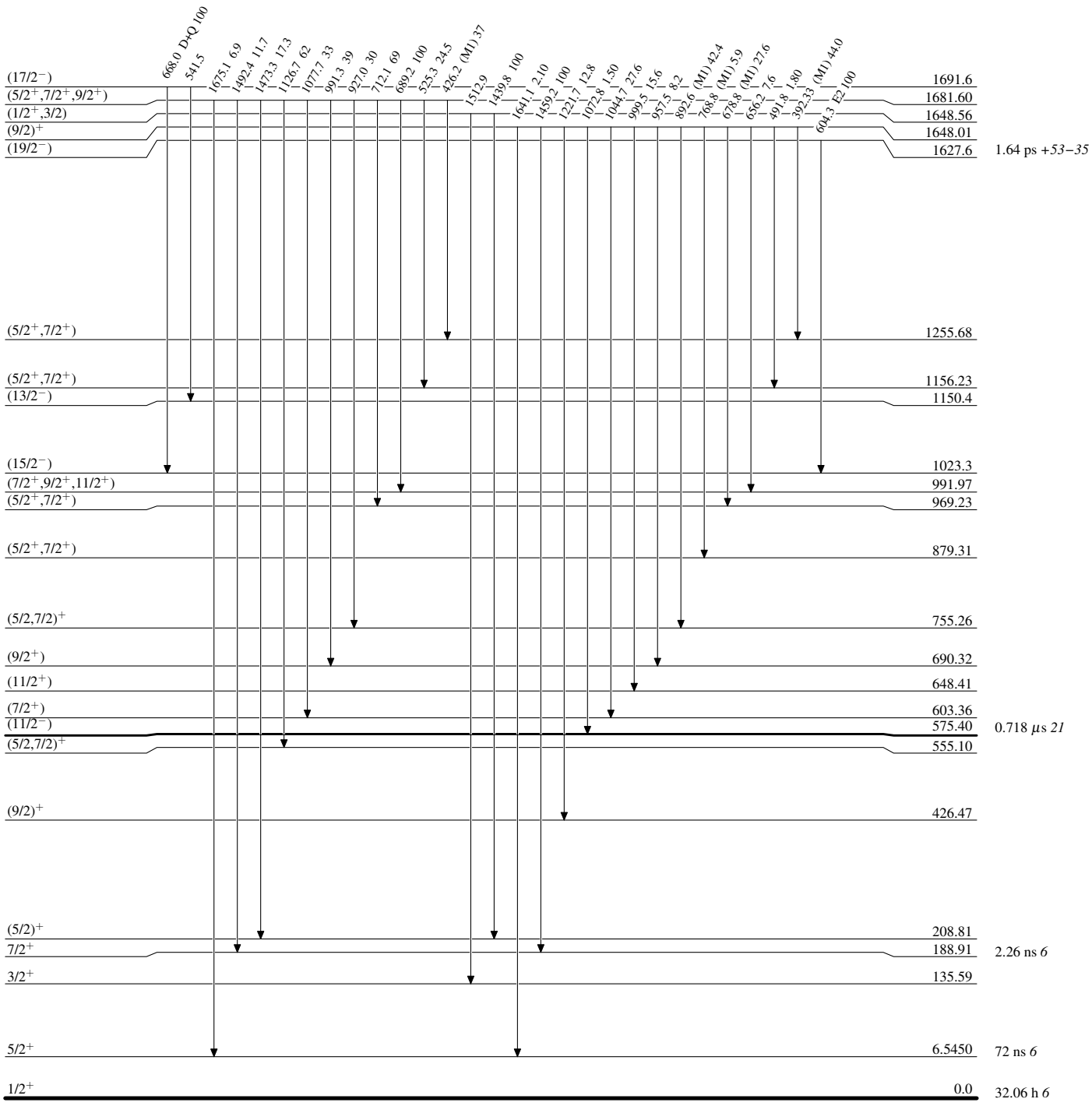


$^{129}_{55}Cs_{74}$

Adopted Levels, Gammas

Level Scheme (continued)

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

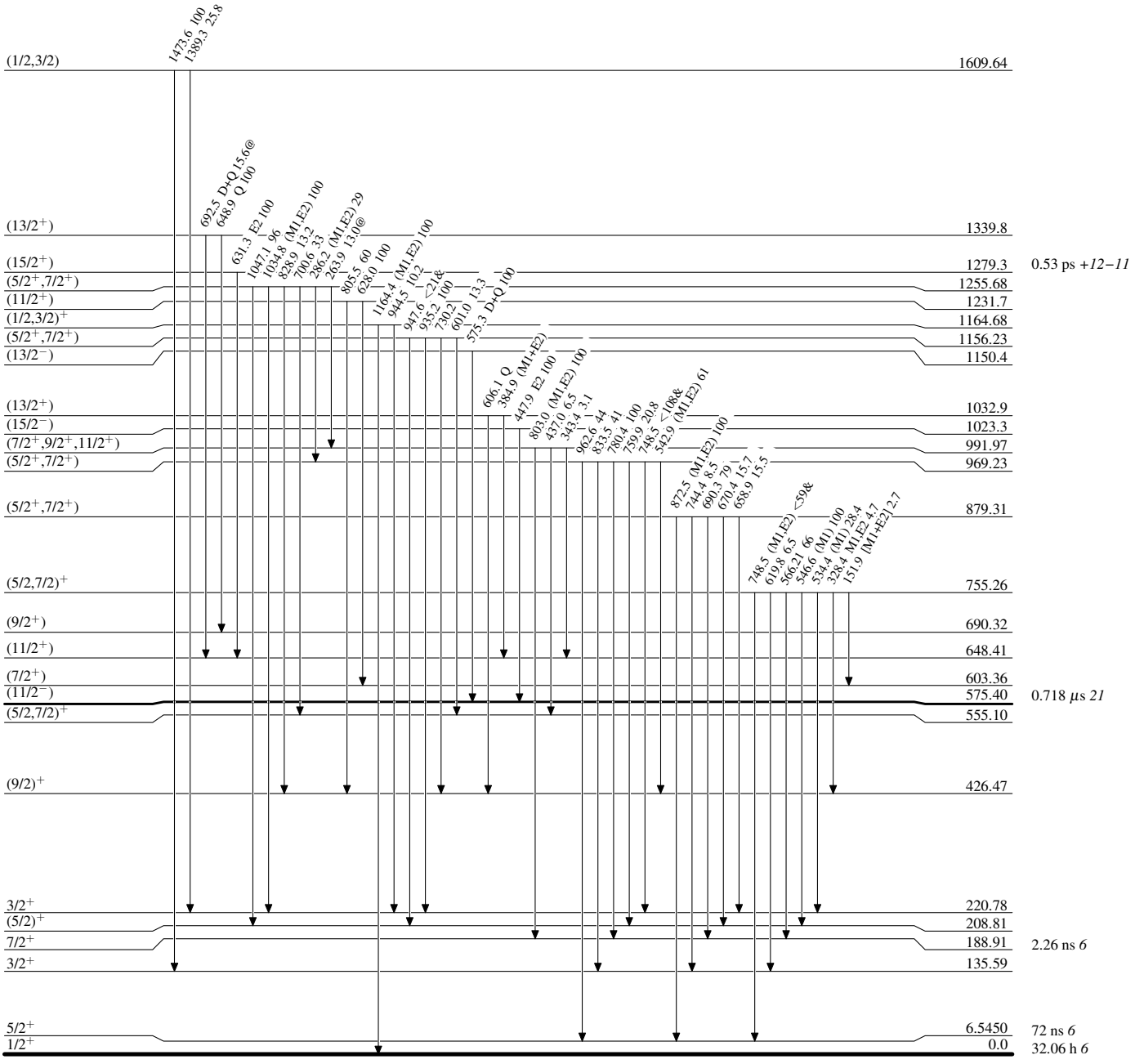


$^{129}_{55}Cs_{74}$

Adopted Levels, Gammas

Level Scheme (continued)

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



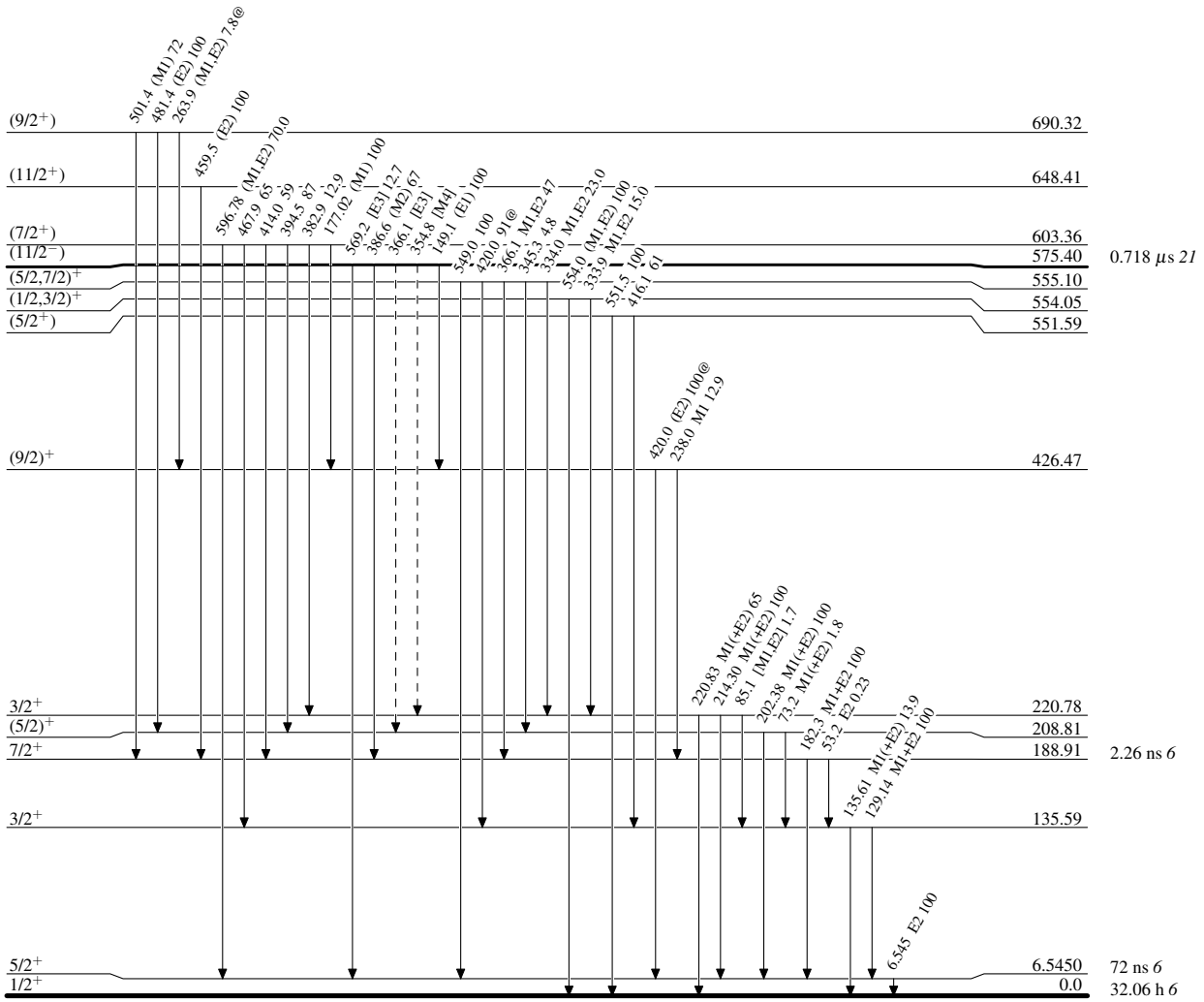
$^{129}_{55}Cs_{74}$

Adopted Levels, Gammas

Level Scheme (continued)

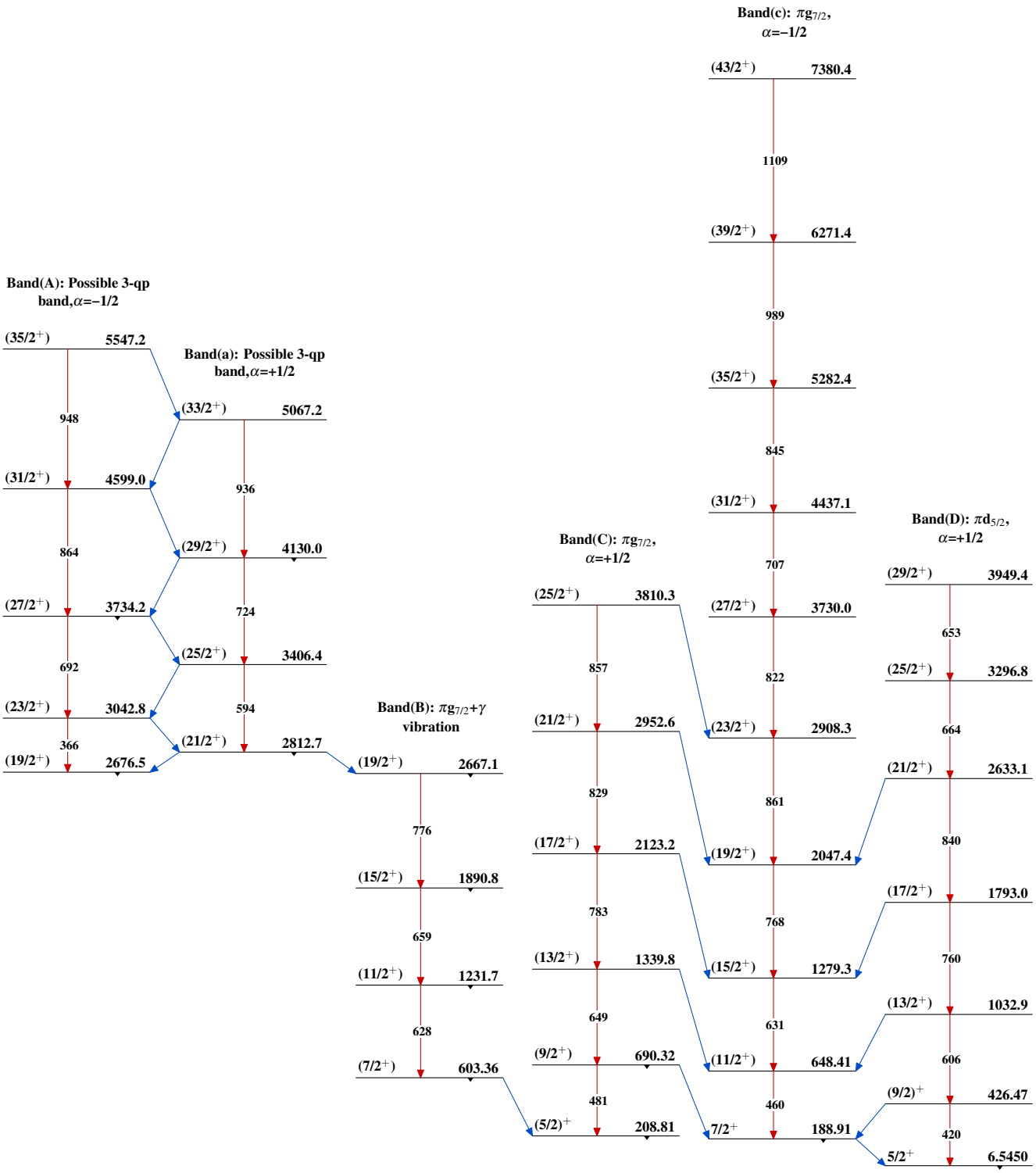
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend
- - - - - - ► γ Decay (Uncertain)



$^{129}_{55}Cs_{74}$

Adopted Levels, Gammas



$^{129}_{55}Cs_{74}$

Adopted Levels, Gammas (continued)