Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	07-Jan-2022

Q(β^-)=−6210 *SY*; S(n)=9990 *60*; S(p)=1513 *16*; Q(α)=1805 *24* 2021Wa16
Estimated uncertainties (2021Wa16): 200 for Q(β^-),
Q(ε)=9670 *16*, Q(εp)=4740 *29*, S(2n)=22510 *100* (syst), S(2p)=5570 *80* (2021Wa16).
Mass measurements of g.s. of ^{118}Cs: 1999Am05, 1990St25, 1986Au02, 1979Ep01.
1969Ch18: ^{118}Cs produced and first identified in Ta,Th(p,X),E=24 GeV at CERN, followed by mass separation. Statistically significant peak for ^{118}Cs is present in the mass spectrum Fig. 1 of 1969Ch18. No half-life was measured in this experiment.
1972Ra16 (also 1975Ra03): ^{118}Cs produced and in ^{139}La(p,X), E=600 MeV at ISOLDE-CERN, followed by on-line mass separation using surface-ionization ion-source. Measured half-life.
1973JoZL: analyzed β^+-delayed proton probability, $T_{1/2}$.
1975Ho09: measured %$\varepsilon\alpha$, %εp/%$\varepsilon\alpha$ ratio at CERN-ISOLDE.
1977Ge03: two activities, one low-spin and the other high-spin in ^{118}Cs were proposed from β^+ decay studies by measuring γ-ray intensities from ^{118}Cs decay, and determining ratio of delayed and prompt counts for different γ-line intensities. sets of intensity ratios. Separate half-lives of the two activities were extracted from $\Delta(T_{1/2})$=5 s *3*.
1977Bo28: measured %εp/: $\varepsilon\alpha$ ratio for ^{118}Cs decay at JINR, Dubna.
1978Da07: measured β^+-delayed protons, β^+-delayed α, β^+, $T_{1/2}$ of decay of ^{118}Cs. Deduced %εp, %$\varepsilon\alpha$, %εp/%$\varepsilon\alpha$ ratio.

Theoretical nuclear structure calculations: ten primary references according to the NSR database at www.nndc.bnl.gov/nsr/. These are listed in 'document' records in this dataset.
Additional information 1.

^{118}Cs Levels

Cross Reference (XREF) Flags

A ^{58}Ni(^{64}Zn,3pnγ)

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	XREF	Comments
0.0[m]	2$^{(-)}$	14 s *2*	A	%ε+%β^+=100; %εp=4.2×10^{-2} *6* (1973JoZL); %$\varepsilon\alpha$=2.4×10^{-3} *4* (1975Ho09) μ=+3.870 *5* (1987Co19,2019StZV) Q=+1.31 *17* (1987Co19,2021StZZ) I(delayed p)/I($\varepsilon+\beta^+$)=4.2×10^{-4} *6* (1973JoZL). I(delayed α)/I($\varepsilon+\beta^+$)=2.4×10^{-5} *4*. Value deduced from intensity of annihilation radiation from the ^{118}Sb β^+ decay (3.5 min): I(β^+)/I($\varepsilon+\beta^+$)=0.755 (1975Ho09). I(delayed p)/I(β^+)=0.021 *5* from p($\gamma^\pm$)-coin (1978Da07). I(delayed p)/I(delayed α)=17.2 *3* (1978Da07), 17.3 *4* (1977Bo28), 16 *1* (1975Ho09). %εp and %$\varepsilon\alpha$ are for combined (g.s. and 0+x) activities. μ,Q: laser induced optical pumping of atomic beam (1987Co19). J$^\pi$: hyperfine structure shape (1981Th06). Parity from 2021Zh57. $T_{1/2}$: from 1977Ge03. Others: 16.4 s *12* (1972Ra16, from β^+ decay), 15 s *2* (1972Ra16, from β^+-delayed proton decay); 17 s *2* (1978Da07, from β^+-delayed proton decay). Half-lives from 1972Ra16 and 1978Da07, most likely, are for the two combined activities.
0.0+x[c]	(7$^-$)	17 s *3*	A	%ε+%β^+=100; %εp=4.2×10^{-2} *6*; %$\varepsilon\alpha$=2.4×10^{-3} *4* μ=+3.870 *5* (1987Sh12,2019StZV) %εp and %$\varepsilon\alpha$ are for combined (g.s. and 0+x) activities. $T_{1/2}$: from 1977Ge03. Values available from 1972Ra16 and 1978Da07 are from the two combined activities. μ: from static low-temperature nuclear orientation (1987Sh12). J$^\pi$: from 2021Zh57. Other: (6$^-$) in 2019StZV, based on probable spin of 6 suggested in 1987Sh12.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{118}Cs Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
0.0+y[e]	(6+)		A	
42.7[n] 3	(3−)		A	
64.6+x? 4	(5,6)		A	E(level): since ordering of the 64.7γ → 61.4γ cascade is not established (2021Zh57), level energy is either 61.4+x or 64.7+x. In this dataset, ordering is as shown in Figs. 1 and 3 of 2021Zh57, while it is listed as reversed in authors' Table I.
65.9[i] 5	(3−)		A	
79.3+x? 4	(5,6)		A	E(level): since ordering of the 46.3γ → 79.0γ cascade is not established (2021Zh57), level energy is either 79.0+x or 46.3+x.
79.6[m] 4	(4−)		A	
117.1[o] 4	(4−)		A	
125.9+x 4	(7+)	0.55 μs 6	A	%IT=100 $T_{1/2}$: from (79.0γ+126.0γ)(200.1γ)(t) (2021Zh57).
128.5[j] 6	(4−)		A	
144.9[k] 6	(4−)		A	
167.8[n] 4	(5−)		A	
182.94+x[d] 25	(8−)		A	
192.92+y[f] 25	(7+)		A	
195.2+x[#] 5	(8+)		A	E(level): expected to be an isomer of few ns, as missing intensity from this state could not be accounted (2021Zh57).
217.6[i] 7	(5−)		A	
248.8[p] 4	(5−)		A	
263.7[l] 7	(5−)		A	
312.9[m] 4	(6−)		A	
313.9[o] 4	(6−)		A	
333.7[j] 7	(6−)		A	
395.3+x[#] 6	(10+)		A	
415.9[k] 7	(6−)		A	
429.68+y[e] 25	(8+)		A	
448.56+x[c] 25	(9−)		A	
475.7[i] 7	(7−)		A	
505.7[n] 4	(7−)		A	
551.9[p] 5	(7−)		A	
596.5[l] 7	(7−)		A	
647.0[j] 8	(8−)		A	
687.7[o] 5	(8−)		A	
700.7+x[@] 6	(11+)		A	
701.7[m] 8	(8−)		A	
704.5+y[f] 4	(9+)		A	
737.0+x[d] 4	(10−)		A	
750.7[q] 5	(8−)		A	
810.1[k] 8	(8−)		A	
833.2+x[#] 6	(12+)		A	Jπ: (11+) in Fig. 3 of 2021Zh57 seems a misprint.
846.6[i] 8	(9−)		A	
959.6[n] 5	(9−)		A	
1011.5+y[e] 5	(10+)		A	
1047.6+x[c] 5	(11−)		A	
1048.5[l] 8	(9−)		A	
1048.6[p] 5	(9−)		A	
1063.0+x[a] 9	(11+)		A	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{118}Cs Levels (continued)

E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF
1074.5[j] 9	(10⁻)	A	2044.6+x[b] 9	(14⁺)	A	3909.9[p] 18	(17⁻)	A
1094.5 11		A	2070.0+x[r] 12		A	3913.6+y[g] 14	(17⁺)	A
1167.5+x[@] 7	(13⁺)	A	2080.1+y[f] 6	(13⁺)	A	4046.7+x[a] 17	(19⁺)	A
1205.1[o] 5	(10⁻)	A	2089.2+x[d] 6	(14⁻)	A	4088.1+y[e] 10	(18⁺)	A
1206.2[m] 13	(10⁻)	A	2180.8[n] 9	(13⁻)	A	4089.9+x[c] 13	(19⁻)	A
1254.4+x[r] 9		A	2226.9[l] 12	(13⁻)	A	4137.4[o] 15	(18⁻)	A
1312.5[k] 9	(10⁻)	A	2245.3+x[#] 9	(16⁺)	A	4142.6+x[#] 14	(20⁺)	A
1336.1[q] 9	(10⁻)	A	2290.9[j] 17	(14⁻)	A	4437.6+x[@] 13	(21⁺)	A
1336.7[i] 11	(11⁻)	A	2309.2+x[a] 10	(15⁺)	A	4500.4+x[b] 12	(20⁺)	A
1346.6+y[f] 5	(11⁺)	A	2356.4+y[g] 7	(13⁺)	A	4518.5+y[f] 10	(19⁺)	A
1348.6 9		A	2391.0[p] 13	(13⁻)	A	4520.8+x[d] 15	(20⁻)	A
1360.9+y[g] 8	(9)	A	2459.3+x[c] 7	(15⁻)	A	4613.9[n] 15	(19⁻)	A
1378.6+x[d] 5	(12⁻)	A	2468.1+y[e] 6	(14⁺)	A	4737.9[p] 21	(19⁻)	A
1465.0+x[#] 8	(14⁺)	A	2520.4[o] 11	(14⁻)	A	4989.6+x[c] 17	(21⁻)	A
1520.3[n] 6	(11⁻)	A	2529.1[m] 19	(14⁻)	A	5073.3[o] 17	(20⁻)	A
1557.3+y[h] 7	(10⁺)	A	2561.1[k] 13	(14⁻)	A	5241.0+x[#] 18	(22⁺)	A
1568.6+x[r] 10		A	2565.6+x[@] 9	(17⁺)	A	5480.2+x[d] 18	(22⁻)	A
1595.3[l] 11	(11⁻)	A	2661.4+y[h] 13	(14⁺)	A	5514.0+x[@] 16	(23⁺)	A
1614.4+x[a] 8	(13⁺)	A	2664.9[i] 20	(15⁻)	A	5567.7[n] 18	(21⁻)	A
1640.1[j] 14	(12⁻)	A	2737.7+x[b] 9	(16⁺)	A	6001.5+x[c] 19	(23⁻)	A
1671.7+y[g] 7	(11⁺)	A	2751.4[q] 15	(14⁻)	A	6086.4[o] 20	(22⁻)	A
1679.9[p] 11	(11⁻)	A	2853.3+x[d] 8	(16⁻)	A	6418.1+x[#] 20	(24⁺)	A
1681.0+x[r] 12		A	2863.2+y[f] 7	(15⁺)	A	6608.8[n] 21	(23⁻)	A
1705.1+y[e] 6	(12⁺)	A	2903.2[l] 14	(15⁻)	A	6645.1+x[@] 19	(25⁺)	A
1706.0+x[r] 10		A	2924.2[n] 12	(15⁻)	A	6795.1+x[&] 19	(25⁺)	A
1726.6+x[c] 6	(13⁻)	A	3099.6+y[g] 10	(15⁺)	A	7184.3[o] 22	(24⁻)	A
1798.1+x[@] 8	(15⁺)	A	3130.6[p] 10	(15⁻)	A	7675.3+x[#] 23	(26⁺)	A
1808.7+x[r] 12		A	3133.1+x[a] 14	(17⁺)	A	7742.1[n] 23	(25⁻)	A
1826.8[o] 9	(12⁻)	A	3141.4+x[#] 11	(18⁺)	A	7840.4+x[@] 22	(27⁺)	A
1849.4+x[r] 12		A	3245.6+x[c] 8	(17⁻)	A	8015.8+x[&] 22	(27⁺)	A
1860.1[m] 17	(12⁻)	A	3264.7+y[e] 8	(16⁺)	A	8382.1[o] 24	(26⁻)	A
1875.1+x[r] 9		A	3284.3[o] 13	(16⁻)	A	8983.4[n] 25	(27⁻)	A
1905.5[k] 11	(12⁻)	A	3449.8+x[@] 10	(19⁺)	A	9014.2+x[#] 25	(28⁺)	A
1951.9[i] 14	(13⁻)	A	3562.6+x[b] 10	(18⁺)	A	9123.4+x[@] 24	(29⁺)	A
1963.7+x[r] 10		A	3650.9+x[d] 11	(18⁻)	A	9311.8+x[&] 24	(29⁺)	A
2020.5+y[h] 7	(12⁺)	A	3669.8+y[f] 9	(17⁺)	A	9676.7[o] 26	(28⁻)	A
2024.6[q] 11	(12⁻)	A	3737.5[n] 14	(17⁻)	A			

† Values are from ^{58}Ni(^{64}Zn,3pnγ), where these were deduced least-squares fit to Eγ data in 2021Zh57.

‡ As proposed by 2021Zh57 for excited states, based on multipolarity and ΔJ assignments from γγ(θ)(DCO), γγ(angular asymmetry, and γγ(linear polarization) measurements, the last only for selected transitions, combined with intraband and interband transitions in rotational band structures, and interpretaion of band structures and alignments by particle number conserving cranked shell-model (pnc-csm) calculations. Exceptions are noted.

Band(A): Band #1, $\pi h_{11/2}\otimes\nu h_{11/2}$,α=0. Proposed configuration=π3/2[541]⊗ν5/2[532] from alignment of ≈7ħ (2021Zh57), as also in 1997Sm04. The alignment increases to ħω≈0.5 MeV with gains of ≈2ħ and ≈ħ in the α=1 and α=0 signature partners, respectively, and attributed to pair of $h_{11/2}$ protons. This band was reported by 1997Sm04 from 10^+ to 35^+, with both signature partners, and two cascades of 11 transitions in each. The γ-ray cascades in 2021Zh57 and 1997Sm04 are in good agreement,

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{118}Cs Levels (continued)

except that J^{π} values of the bandheads are two units lower in 2021Zh57, and 1997Sm04 have one additional γ transition of 1408 keV at the top for α=0 signature, and two additional transitions of 1167 keV and a tentative 1346 keV in α=1 signature above (25^+).

[@] Band(a): Band #1, $\pi h_{11/2}\otimes\nu h_{11/2}$,$\alpha$=1. Proposed configuration=π3/2[541]$\otimes\nu$5/2[532] (2021Zh57). See also comment for α=0 signature partner.

[&] Band(B): Side band (or forking) of band #1. This band was reported by 1997Sm04, with $1296\gamma \rightarrow 1219\gamma \rightarrow 1221\gamma$ cascade, whereas the cascade is $1296\gamma \rightarrow 1221\gamma \rightarrow 1281\gamma$ in 2021Zh57.

[a] Band(c): Band #2, α=1. Proposed configuration=π3/2[541]$\otimes\nu$5/2[532] (2021Zh57). See also comment for α=0 signature partner.

[b] Band(C): Band #2, α=0. Proposed configuration=π3/2[541]$\otimes\nu$5/2[532] with similar alignments as for Band #1 (2021Zh57). The α=1 signature partner o this band was reported by 1997Sm04 from 15^+ to 23^+, with a cascade of four γ transitions.

[c] Band(d): Band #3, α=1. Proposed configuration=$\pi g_{9/2}$9/2[404]$\otimes\nu h_{11/2}$5/2[532] (2021Zh57). See also comment for α=0 signature partner.

[d] Band(D): Band #3, α=0. Proposed configuration=$\pi g_{9/2}$9/2[404]$\otimes\nu h_{11/2}$5/2[532] from alignment of $\approx 2.5\hbar$ at low frequency, with alignment gain of $\approx 8\hbar$ at $\hbar\omega\approx$0.35 MeV (2021Zh57) due to pair of $h_{11/2}$ protons.

[e] Band(E): Band #4, α=0. Proposed configurations=$\pi g_{9/2}$9/2[404]$\otimes\nu g_{7/2}$3/2[411] from alignment of $\hbar\omega\approx$0.35 MeV, and from PNC-CSM calculations (2021Zh57).

[f] Band(e): Band #4, α=1. Proposed configurations=$\pi g_{9/2}$9/2[404]$\otimes\nu g_{7/2}$3/2[411] or $\pi g_{9/2}$3/2[422]$\otimes\nu d_{5/2}$5/2[413] (2021Zh57). See also comment for α=0 signature partner.

[g] Band(f): Band #5, α=1.

[h] Band(F): Band #5, α=0.

[i] Band(g): Band #6, α=1. Proposed configurations=π3/2[541]$\otimes\nu$3/2[411] (2021Zh57).

[j] Band(G): Band #6, α=0. Proposed configurations=π3/2[541]$\otimes\nu$3/2[411] (2021Zh57).

[k] Band(H): Band #7, α=0. Proposed configurations=π3/2[422]$\otimes\nu$5/2[532] (2021Zh57); bands #7 and #10 can be G-M partners with $K^{\pi}=4^-$ and $K^{\pi}=1^-$.

[l] Band(h): Band #7, α=1. Proposed configurations=π3/2[422]$\otimes\nu$5/2[532] (2021Zh57). See also comment for α=0 signature partner.

[m] Band(I): Band #8, α=0. Proposed configurations=π1/2[420]$\otimes\nu$5/2[532] (2021Zh57); bands #8 and #9 can be G-M partners with $K^{\pi}=3^-$ and $K^{\pi}=2^-$.

[n] Band(j): Band #9, α=1. Proposed configurations=π1/2[420]$\otimes\nu$5/2[532] (2021Zh57). See also comment for α=0 signature partner.

[o] Band(J): Band #9, α=0. Proposed configurations=π1/2[420]$\otimes\nu$5/2[532] (2021Zh57);; bands #8 and #9 can be G-M partners with $K^{\pi}=3^-$ and $K^{\pi}=2^-$.

[p] Band(k): Band #10, α=1. Proposed configurations=π3/2[422]$\otimes\nu$5/2[532] (2021Zh57). See also comment for α=0 signature partner.

[q] Band(K): Band #10, α=0. Proposed configurations=π3/2[422]$\otimes\nu$5/2[532] (2021Zh57); bands #7 and #10 can be G-M partners with $K^{\pi}=4^-$ and $K^{\pi}=1^-$.

[r] Members of γ band, with transitions to band #1 (2021Zh57).

Adopted Levels, Gammas (continued)

γ(^{118}Cs)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	α[&]	Comments
42.7	(3⁻)	42.7 *3*	100	0.0	2(−)	[M1+E2]		27 *17*	
64.6+x?	(5,6)	64.7[@] *5*		0.0+x	(7⁻)				
65.9	(3⁻)	65.9 *5*		0.0	2(−)	[M1]		2.99 *8*	
79.3+x?	(5,6)	79.0[@] *5*		0.0+x	(7⁻)				
79.6	(4⁻)	36.7 *3*	100	42.7	(3⁻)	[M1+E2]		50 *30*	α(total) for 37.2 *1* keV, as 36.7 keV is within 1 keV of L-shell binding energy.
117.1	(4⁻)	37.3 *3*	21 *13*	79.6	(4⁻)	[M1+E2]		46 *30*	
		74.8 *3*	100 *50*	42.7	(3⁻)	(M1+E2)		3.7 *16*	
125.9+x	(7⁺)	46.3[@] *5*		79.3+x?	(5,6)				
		61.4[@] *5*		64.6+x?	(5,6)				
		126.0 *5*		0.0+x	(7⁻)				
128.5	(4⁻)	62.6 *3*	100	65.9	(3⁻)	(M1+E2)		6.8 *34*	
144.9	(4⁻)	79.0 *3*	100	65.9	(3⁻)	(M1+E2)		3.1 *13*	
167.8	(5⁻)	88.2 *3*	100 *46*	79.6	(4⁻)	(M1+E2)		2.10 *82*	
		125.0 *3*	15 *8*	42.7	(3⁻)	[E2]		0.849 *14*	
182.94+x	(8⁻)	182.9 *3*	100	0.0+x	(7⁻)	M1(+E2)	+0.10 *35*	0.167 *10*	
192.92+y	(7⁺)	192.6 *3*	100	0.0+y	(6⁺)	(M1(+E2))	0.00 *20*	0.145 *3*	
195.2+x	(8⁺)	69.3 *3*	100	125.9+x	(7⁺)	[M1+E2]		4.8 *22*	Mult.: (M1+E2), but to be dominant M1 from Weisskopf estimates (2021Zh57).
217.6	(5⁻)	89.1 *3*	100	128.5	(4⁻)	(M1+E2)		2.03 *79*	δ(E2/M1)=−1.6 *3* or −0.4 *3*.
248.8	(5⁻)	131.5 *3*	100	117.1	(4⁻)	(M1+E2)		0.56 *15*	
263.7	(5⁻)	118.8 *3*	100	144.9	(4⁻)	(M1+E2)		0.78 *24*	
312.9	(6⁻)	145.0 *3*	100 *33*	167.8	(5⁻)	(M1+E2)		0.41 *10*	
		233.3 *3*	33 *11*	79.6	(4⁻)				
313.9	(6⁻)	64.9 *3*	40 *27*	248.8	(5⁻)	(M1+E2)		6.0 *29*	
		145.7 *3*	53 *13*	167.8	(5⁻)	(M1+E2)		0.40 *10*	
		197.0 *3*	100 *27*	117.1	(4⁻)	(E2)		0.175	
333.7	(6⁻)	115.9 *3*	100	217.6	(5⁻)	(M1+E2)		0.85 *26*	δ(E2/M1)=−3.6 *13* or −0.1 *5*.
395.3+x	(10⁺)	200.1 *3*	100.0	195.2+x	(8⁺)	E2		0.1661	
415.9	(6⁻)	152.0 *3*	100	263.7	(5⁻)	(M1+E2)		0.35 *8*	
429.68+y	(8⁺)	236.4 *3*	100 *19*	192.92+y	(7⁺)	M1(+E2)	0.00 *15*	0.0834 *13*	
		430.0 *3*	11 *4*	0.0+y	(6⁺)	(E2)		0.01445	
448.56+x	(9⁻)	265.5 *3*	100 *18*	182.94+x	(8⁻)	M1(+E2)	0.00 *20*	0.0613	
		448.6 *3*	5.7 *18*	0.0+x	(7⁻)				
475.7	(7⁻)	141.8 *3*	100 *25*	333.7	(6⁻)	(M1+E2)		0.44 *11*	δ(E2/M1)=−4.0 *16* or −0.1 *4*.
		258.3 *3*	13 *6*	217.6	(5⁻)				
505.7	(7⁻)	191.7 *3*	63 *31*	313.9	(6⁻)				
		192.8 *3*	63 *31*	312.9	(6⁻)				
		338.1 *3*	100 *38*	167.8	(5⁻)	(E2)		0.0298	
551.9	(7⁻)	237.8 *3*	100 *43*	313.9	(6⁻)	(M1+E2)		0.088 *6*	
		303.3 *3*	23 *12*	248.8	(5⁻)				
		384.0 *10*	10 *6*	167.8	(5⁻)				

From ENSDF

$^{118}_{55}Cs_{63}$-5

Adopted Levels, Gammas (continued)

γ(^{118}Cs) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Mult.#	δ#	α&	Comments
596.5	(7⁻)	180.4 *3*	100 *31*	415.9	(6⁻)	(M1+E2)		0.20 *4*	
		333.0 *3*	22 *13*	263.7	(5⁻)				
647.0	(8⁻)	171.4 *3*	100 *40*	475.7	(7⁻)	(M1+E2)		0.24 *5*	
		312.8 *10*	8 *6*	333.7	(6⁻)				
687.7	(8⁻)	135.8 *10*	5.6 *25*	551.9	(7⁻)				
		182.3 *3*	15 *5*	505.7	(7⁻)				
		373.8 *3*	100 *44*	313.9	(6⁻)	(E2)		0.0219	
700.7+x	(11⁺)	305.2 *3*	100	395.3+x	(10⁺)	M1+E2		0.0418 *9*	
701.7	(8⁻)	195.8 *10*	83 *67*	505.7	(7⁻)				
		388.9 *10*	100 *50*	312.9	(6⁻)				
704.5+y	(9⁺)	274.6 *3*	100 *17*	429.68+y	(8⁺)	M1(+E2)	+0.10 *10*	0.0561	
		511.7 *7*	20 *3*	192.92+y	(7⁺)	E2		0.00883	
737.0+x	(10⁻)	288.3 *3*	100 *17*	448.56+x	(9⁻)	M1(+E2)	0.10 *20*	0.0493	
		554.5 *7*	18 *5*	182.94+x	(8⁻)	(E2)		0.00710	
750.7	(8⁻)	198.1 *10*	13 *10*	551.9	(7⁻)				
		436.9 *3*	100 *50*	313.9	(6⁻)	(E2)		0.01379	
810.1	(8⁻)	213.5 *3*	100 *33*	596.5	(7⁻)	(M1+E2)		0.122 *12*	
		394.9 *10*	10 *7*	415.9	(6⁻)				
833.2+x	(12⁺)	132.3 *3*	4.5 *10*	700.7+x	(11⁺)	(M1+E2)		0.55 *15*	
		438.2 *3*	100 *3*	395.3+x	(10⁺)	E2		0.01368	
846.6	(9⁻)	199.5 *3*	100 *33*	647.0	(8⁻)	(M1+E2)		0.150 *19*	
		370.8 *10*	13 *9*	475.7	(7⁻)				
959.6	(9⁻)	272.1 *3*	32 *15*	687.7	(8⁻)				
		407.5 *3*	18 *9*	551.9	(7⁻)				
		453.6 *3*	100 *40*	505.7	(7⁻)	(E2)		0.01238	
1011.5+y	(10⁺)	307.0 *3*	100 *20*	704.5+y	(9⁺)	M1(+E2)	+0.10 *25*	0.0418 *7*	
		582.7 *7*	44 *8*	429.68+y	(8⁺)	(E2)		0.00622	
1047.6+x	(11⁻)	310.5 *3*	100 *20*	737.0+x	(10⁻)	(M1+E2)		0.0398 *10*	
		599.2 *7*	51 *10*	448.56+x	(9⁻)	(E2)		0.00579	
1048.5	(9⁻)	238.3 *3*	100 *36*	810.1	(8⁻)	(M1+E2)		0.087 *6*	
		452.3 *10*	20 *12*	596.5	(7⁻)				
1048.6	(9⁻)	298.1 *10*	21 *16*	750.7	(8⁻)				
		360.3 *10*	32 *21*	687.7	(8⁻)				
		496.6 *3*	100 *53*	551.9	(7⁻)	(E2)		0.00959	
1063.0+x	(11⁺)	229.5 *10*	86 *29*	833.2+x	(12⁺)				
		667.6 *10*	100 *43*	395.3+x	(10⁺)				
1074.5	(10⁻)	227.8 *3*	100 *33*	846.6	(9⁻)	(M1+E2)		0.100 *8*	
		427.8 *10*	10 *7*	647.0	(8⁻)				
1094.5		248.3 *10*	100	846.6	(9⁻)				
1167.5+x	(13⁺)	334.2 *3*	100 *27*	833.2+x	(12⁺)	(M1+E2)		0.0323 *14*	
		467.0 *3*	42 *6*	700.7+x	(11⁺)	(E2)		0.01140	
1205.1	(10⁻)	245.4 *3*	10.0 *18*	959.6	(9⁻)				I_γ: uncertainty of 2.0 in 2021Zh57 seems a misprint.
		518.0 *7*	100 *37*	687.7	(8⁻)	(E2)		0.00854	

From ENSDF

$\gamma(^{118}Cs)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ‡	E_f	J^π_f	Mult.#	δ#	α&
1206.2	(10⁻)	504.5 *10*	100	701.7	(8⁻)			
1254.4+x		553.3 *7*	100	700.7+x	(11⁺)			
1312.5	(10⁻)	263.9 *3*	100 *41*	1048.5	(9⁻)	(M1+E2)		0.0641 *21*
		502.8 *10*	35 *18*	810.1	(8⁻)			
1336.1	(10⁻)	585.4 *7*	100	750.7	(8⁻)	(E2)		0.00615
1336.7	(11⁻)	261.7 *10*	100 *38*	1074.5	(10⁻)			
		490.7 *10*	38 *25*	846.6	(9⁻)			
1346.6+y	(11⁺)	335.3 *3*	100 *20*	1011.5+y	(10⁺)	(M1(+E2))	−0.10 *15*	0.0333
		641.8 *7*	56 *11*	704.5+y	(9⁺)	E2		0.00485
1348.6		254.5 *10*	21 *14*	1094.5				
		274.0 *3*	100 *43*	1074.5	(10⁻)			
		502.5 *10*	64 *36*	846.6	(9⁻)			
1360.9+y	(9)	931.2 *7*	100	429.68+y	(8⁺)			
1378.6+x	(12⁻)	330.8 *3*	100 *21*	1047.6+x	(11⁻)	(M1+E2)		0.0332 *14*
		642.4 *7*	66 *13*	737.0+x	(10⁻)	(E2)		0.00484
1465.0+x	(14⁺)	298.3 *10*	1.6 *11*	1167.5+x	(13⁺)			
		632.1 *7*	100 *12*	833.2+x	(12⁺)	E2		0.00504
1520.3	(11⁻)	315.2 *3*	24 *11*	1205.1	(10⁻)			
		561.0 *7*	100 *38*	959.6	(9⁻)	(E2)		0.00688
1557.3+y	(10⁺)	852.3 *7*	100	704.5+y	(9⁺)			
1568.6+x		735.4 *7*	100	833.2+x	(12⁺)			
1595.3	(11⁻)	282.7 *10*	100 *33*	1312.5	(10⁻)			
		547.3 *10*	22 *11*	1048.5	(9⁻)			
1614.4+x	(13⁺)	550.8 *10*	25 *17*	1063.0+x	(11⁺)			
		781.5 *7*	100 *33*	833.2+x	(12⁺)			
1640.1	(12⁻)	303.2 *10*	100	1336.7	(11⁻)			
1671.7+y	(11⁺)	113.5 *10*	15 *9*	1557.3+y	(10⁺)			
		660.4 *7*	100 *38*	1011.5+y	(10⁺)	(M1+E2)		0.0053 *9*
1679.9	(11⁻)	631.4 *7*	100	1048.5	(9⁻)			
1681.0+x		980.3 *10*	100	700.7+x	(11⁺)			
1705.1+y	(12⁺)	358.5 *3*	64 *13*	1346.6+y	(11⁺)	(M1+E2)		0.0265 *17*
		693.3 *7*	100 *27*	1011.5+y	(10⁺)	E2		0.00400
1706.0+x		872.8 *7*	100	833.2+x	(12⁺)			
1726.6+x	(13⁻)	347.9 *3*	90 *18*	1378.6+x	(12⁻)	(M1+E2)		0.0288 *16*
		679.1 *7*	100 *20*	1047.6+x	(11⁻)	(E2)		0.00421
1798.1+x	(15⁺)	333.3 *3*	88 *21*	1465.0+x	(14⁺)	M1+E2		0.0325 *14*
		629.5 *7*	100 *27*	1167.5+x	(13⁺)	(E2)		0.00510
1808.7+x		1108.0 *10*	100	700.7+x	(11⁺)			
1826.8	(12⁻)	621.7 *7*	100	1205.1	(10⁻)	(E2)		0.00526
1849.4+x		1016.2 *10*	100	833.2+x	(12⁺)			
1860.1	(12⁻)	653.9 *10*	100	1206.2	(10⁻)			
1875.1+x		620.2 *7*	91 *46*	1254.4+x				
		708.0 *7*	100 *55*	1167.5+x	(13⁺)			

Adopted Levels, Gammas (continued)

$\gamma(^{118}Cs)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ‡	E_f	J^π_f	Mult.#	α&
1905.5	(12⁻)	310.2 *10*	100 *50*	1595.3	(11⁻)		
		592.8 *10*	50 *25*	1312.5	(10⁻)		
1951.9	(13⁻)	311.6 *10*	100 *60*	1640.1	(12⁻)		
		615.3 *10*	40 *20*	1336.7	(11⁻)		
1963.7+x		796.2 *7*	100	1167.5+x	(13⁺)		
2020.5+y	(12⁺)	348.8 *10*	56 *25*	1671.7+y	(11⁺)		
		674.0 *7*	100 *44*	1346.6+y	(11⁺)		
2024.6	(12⁻)	688.5 *7*	100	1336.1	(10⁻)	(E2)	0.00407
2044.6+x	(14⁺)	877.3 *7*	100	1167.5+x	(13⁺)		
2070.0+x		902.5 *10*	100	1167.5+x	(13⁺)		
2080.1+y	(13⁺)	374.9 *3*	39 *11*	1705.1+y	(12⁺)	(M1+E2)	0.0234 *17*
		733.8 *7*	100 *21*	1346.6+y	(11⁺)	(E2)	0.00348
2089.2+x	(14⁻)	362.6 *3*	75 *17*	1726.6+x	(13⁻)	(M1+E2)	0.0256 *17*
		710.6 *7*	100 *20*	1378.6+x	(12⁻)	(E2)	0.00376
2180.8	(13⁻)	660.5 *7*	100	1520.3	(11⁻)	(E2)	0.00451
2226.9	(13⁻)	320.8 *10*	100 *50*	1905.5	(12⁻)		
		631.8 *10*	100 *50*	1595.3	(11⁻)		
2245.3+x	(16⁺)	780.0 *7*	100	1465.0+x	(14⁺)	(E2)	0.00301
2290.9	(14⁻)	339.0 *10*	100	1951.9	(13⁻)		
2309.2+x	(15⁺)	695.0 *10*	33 *17*	1614.4+x	(13⁺)		
		844.1 *7*	100 *75*	1465.0+x	(14⁺)		
2356.4+y	(13⁺)	336.0 *10*	19 *12*	2020.5+y	(12⁺)		
		651.6 *7*	46 *19*	1705.1+y	(12⁺)		
		684.3 *7*	100 *39*	1671.7+y	(11⁺)	(E2)	0.00413
2391.0	(13⁻)	711.1 *7*	100	1679.9	(11⁻)		
2459.3+x	(15⁻)	370.0 *3*	44 *12*	2089.2+x	(14⁻)	(M1+E2)	0.0242 *17*
		732.8 *7*	100 *20*	1726.6+x	(13⁻)	(E2)	0.00349
2468.1+y	(14⁺)	387.9 *3*	24 *7*	2080.1+y	(13⁺)	(M1+E2)	0.0213 *17*
		763.1 *7*	100 *22*	1705.1+y	(12⁺)	(E2)	0.00317
2520.4	(14⁻)	693.6 *7*	100	1826.8	(12⁻)	(E2)	0.00399
2529.1	(14⁻)	669.0 *10*	100	1860.1	(12⁻)		
2561.1	(14⁻)	334.1 *10*	10×10^1 *10*	2226.9	(13⁻)		
		655.9 *10*	10×10^1 *10*	1905.5	(12⁻)		
2565.6+x	(17⁺)	320.3 *3*	22 *4*	2245.3+x	(16⁺)	(M1+E2)	0.0364 *12*
		767.9 *7*	100 *15*	1798.1+x	(15⁺)	(E2)	0.00312
2661.4+y	(14⁺)	640.9 *10*	100	2020.5+y	(12⁺)		
2664.9	(15⁻)	374.0 *10*	100	2290.9	(14⁻)		
2737.7+x	(16⁺)	693.3 *7*	45 *14*	2044.6+x	(14⁺)		
		939.3 *7*	100 *68*	1798.1+x	(15⁺)		
2751.4	(14⁻)	726.8 *10*	100	2024.6	(12⁻)		
2853.3+x	(16⁻)	394.2 *10*	37 *11*	2459.3+x	(15⁻)		
		764.6 *7*	100 *47*	2089.2+x	(14⁻)	(E2)	0.00315
2863.2+y	(15⁺)	395.1 *3*	38 *9*	2468.1+y	(14⁺)	(M1+E2)	0.0202 *17*

From ENSDF

$\gamma(^{118}Cs)$ (continued)

E_i(level)	J_i^π	E_γ†	I_γ‡	E_f	J_f^π	Mult.#	α&
2863.2+y	(15+)	783.6 *7*	100 *20*	2080.1+y	(13+)	(E2)	0.00298
2903.2	(15−)	342.5 *10*	10×10^1 *10*	2561.1	(14−)		
		676.0 *10*	10×10^1 *10*	2226.9	(13−)		
2924.2	(15−)	743.4 *7*	100	2180.8	(13−)	(E2)	0.00337
3099.6+y	(15+)	743.2 *7*	100	2356.4+y	(13+)		
3130.6	(15−)	739.5 *7*	100	2391.0	(13−)		
3133.1+x	(17+)	824.0 *10*	100	2309.2+x	(15+)		
3141.4+x	(18+)	896.0 *7*	100	2245.3+x	(16+)	(E2)	0.00218
3245.6+x	(17−)	392.4 *3*	100 *30*	2853.3+x	(16−)		
		785.3 *10*	50 *40*	2459.3+x	(15−)		
3264.7+y	(16+)	401.8 *10*	15 *4*	2863.2+y	(15+)	(M1+E2)	0.0193 *17*
		796.3 *7*	100 *23*	2468.1+y	(14+)	(E2)	0.00287
3284.3	(16−)	763.9 *7*	100	2520.4	(14−)	(E2)	0.00316
3449.8+x	(19+)	308.2 *3*	16 *5*	3141.4+x	(18+)		
		884.5 *7*	100 *20*	2565.6+x	(17+)	(E2)	0.00225
3562.6+x	(18+)	824.8 *7*	100 *37*	2737.7+x	(16+)		
		997.0 *7*	68 *21*	2565.6+x	(17+)		
3650.9+x	(18−)	405.1 *10*	43 *29*	3245.6+x	(17−)		
		797.7 *10*	100 *29*	2853.3+x	(16−)		
3669.8+y	(17+)	405.3 *10*	14 *5*	3264.7+y	(16+)		
		806.7 *7*	100 *24*	2863.2+y	(15+)	(E2)	0.00278
3737.5	(17−)	813.2 *7*	100	2924.2	(15−)	(E2)	0.00273
3909.9	(17−)	779.4 *10*	100	3130.6	(15−)		
3913.6+y	(17+)	814.0 *10*	100	3099.6+y	(15+)		
4046.7+x	(19+)	913.5 *10*	100	3133.1+x	(17+)		
4088.1+y	(18+)	418.4 *10*	13 *7*	3669.8+y	(17+)		
		823.2 *7*	100 *27*	3264.7+y	(16+)	(E2)	0.00265
4089.9+x	(19−)	844.3 *10*	100	3245.6+x	(17−)		
4137.4	(18−)	853.1 *7*	100	3284.3	(16−)		
4142.6+x	(20+)	1001.0 *10*	100	3141.4+x	(18+)	(E2)	1.71×10^{-3}
4437.6+x	(21+)	987.8 *7*	100	3449.8+x	(19+)	(E2)	1.76×10^{-3}
4500.4+x	(20+)	937.8 *7*	100	3562.6+x	(18+)		
4518.5+y	(19+)	430.0 *10*	18 *11*	4088.1+y	(18+)		
		848.9 *7*	100 *25*	3669.8+y	(17+)	(E2)	0.00247
4520.8+x	(20−)	869.9 *10*	100	3650.9+x	(18−)		
4613.9	(19−)	876.4 *7*	100	3737.5	(17−)		
4737.9	(19−)	828.0 *10*	100	3909.9	(17−)		
4989.6+x	(21−)	899.6 *10*	100	4089.9+x	(19−)		
5073.3	(20−)	935.9 *7*	100	4137.4	(18−)		
5241.0+x	(22+)	1098.4 *10*	100	4142.6+x	(20+)	(E2)	1.40×10^{-3}
5480.2+x	(22−)	959.4 *10*	100	4520.8+x	(20−)		
5514.0+x	(23+)	1076.4 *10*	100	4437.6+x	(21+)	(E2)	1.46×10^{-3}
5567.7	(21−)	953.8 *10*	100	4613.9	(19−)		

Adopted Levels, Gammas (continued)

γ(^{118}Cs) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[&]
6001.5+x	(23$^-$)	1011.9 *10*	100	4989.6+x	(21$^-$)		
6086.4	(22$^-$)	1013.1 *10*	100	5073.3	(20$^-$)		
6418.1+x	(24$^+$)	1177.1 *10*	100	5241.0+x	(22$^+$)		
6608.8	(23$^-$)	1041.1 *10*	100	5567.7	(21$^-$)		
6645.1+x	(25$^+$)	1131.0 *10*	100	5514.0+x	(23$^+$)	(E2)	1.32×10^{-3}
6795.1+x	(25$^+$)	1281.0 *10*	100	5514.0+x	(23$^+$)		
7184.3	(24$^-$)	1097.9 *10*	100	6086.4	(22$^-$)		
7675.3+x	(26$^+$)	1257.2 *10*	100	6418.1+x	(24$^+$)		
7742.1	(25$^-$)	1133.3 *10*	100	6608.8	(23$^-$)		
7840.4+x	(27$^+$)	1195.3 *10*	100	6645.1+x	(25$^+$)		
8015.8+x	(27$^+$)	1220.7 *10*	100	6795.1+x	(25$^+$)		
8382.1	(26$^-$)	1197.8 *10*	100	7184.3	(24$^-$)		
8983.4	(27$^-$)	1241.2 *10*	100	7742.1	(25$^-$)		
9014.2+x	(28$^+$)	1338.9 *10*	100	7675.3+x	(26$^+$)		
9123.4+x	(29$^+$)	1283.0 *10*	100	7840.4+x	(27$^+$)		
9311.8+x	(29$^+$)	1296.0 *10*	100	8015.8+x	(27$^+$)		
9676.7	(28$^-$)	1294.4 *10*	100	8382.1	(26$^-$)		

[†] From 2021Zh57, with uncertainties assigned by evaluator as 0.3 keV for Eγ<500 keV, 0.7 keV for Eγ=500-1000 keV, 1.0 keV for Eγ>1000 keV and for Iγ<1.0 relative units, based on authors′ general statement in Table I, that uncertainties are <0.3 keV for Eγ<500 keV, 0.7 keV for Eγ=500 to 1000 keV, 1.0 keV for Eγ>1000 keV and for Iγ<1.0 relative units. Uncertainties of 0.5 keV for a few of the low-energy transitions below 200 keV or so from low-lying levels are assigned by the evaluator for the purpose of least-squares fitting of the level scheme.

[‡] From 2021Zh57, normalized to the intensity of the 200.1-keV, $(10^+) \rightarrow (8^+)$ transition in Band #1 in authors′ Fig. 1.

[#] From 2021Zh57, from γγ(θ) and γγ(linear pol) data.

[@] Ordering of the 64.7γ → 61.4γ and 46.3γ → 79.0γ cascades is not established (2021Zh57). Authors assign firm assignments from any one value or multiple values are available from γγ(θ)(DCO), γγ(angular anisotropy) and γγ(linear polarization is available, and consistent with the assigned mutipolarity. When none of these values are available, authors assign multipolarity in brackets. Evaluator assigns definite multipolarity only when γγ(linear polarization data are available. In other cases, multipolarities M1+E2 or E2 are assigned in brackets when DCO and/or γγ(angular anisotropy) data are available, and reasonably consistent with those assigned by 2021Zh57. When no supporting data are available, evaluator has not assigned any multipolarity, with the exception of low-energy transitions of <100 or keV or so with large conversion coefficients are large, where [M1+E2] is assumed, based on ΔJ^π. Although, DCO and angular asymmetry data are parity insensitive, evaluator assigns (M1+E2) and (E2), based on interconnected band structures, and lack of evidence for any long level lifetimes, making (E1+M2) and (M2) transitions highly unlikely, except a (7^+) isomer at 125.9+x discovered by 2021Zh57 with $T_{1/2}$=0.55 μs *6*.

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

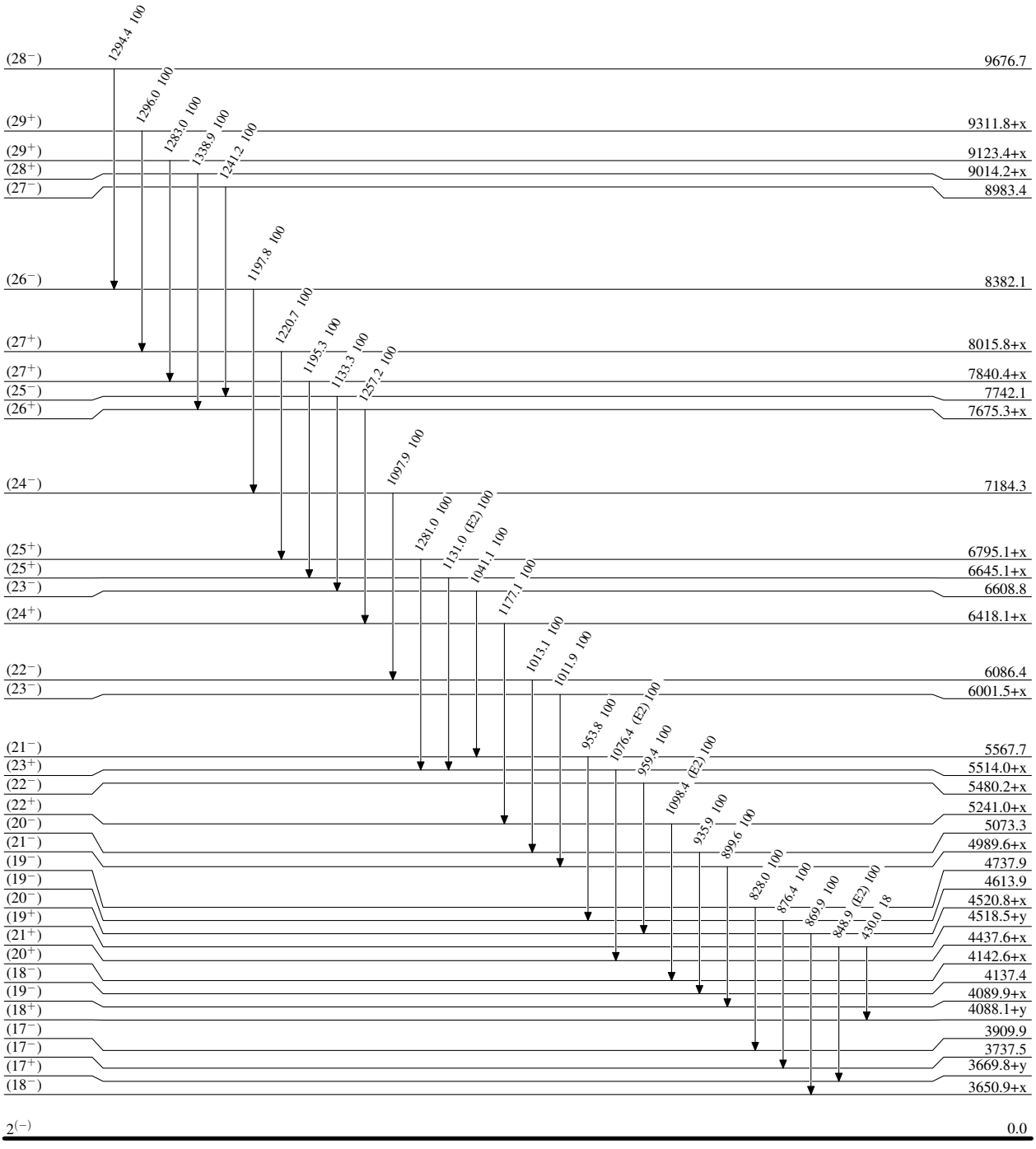
From ENSDF

$^{118}_{55}Cs_{63}$-10

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

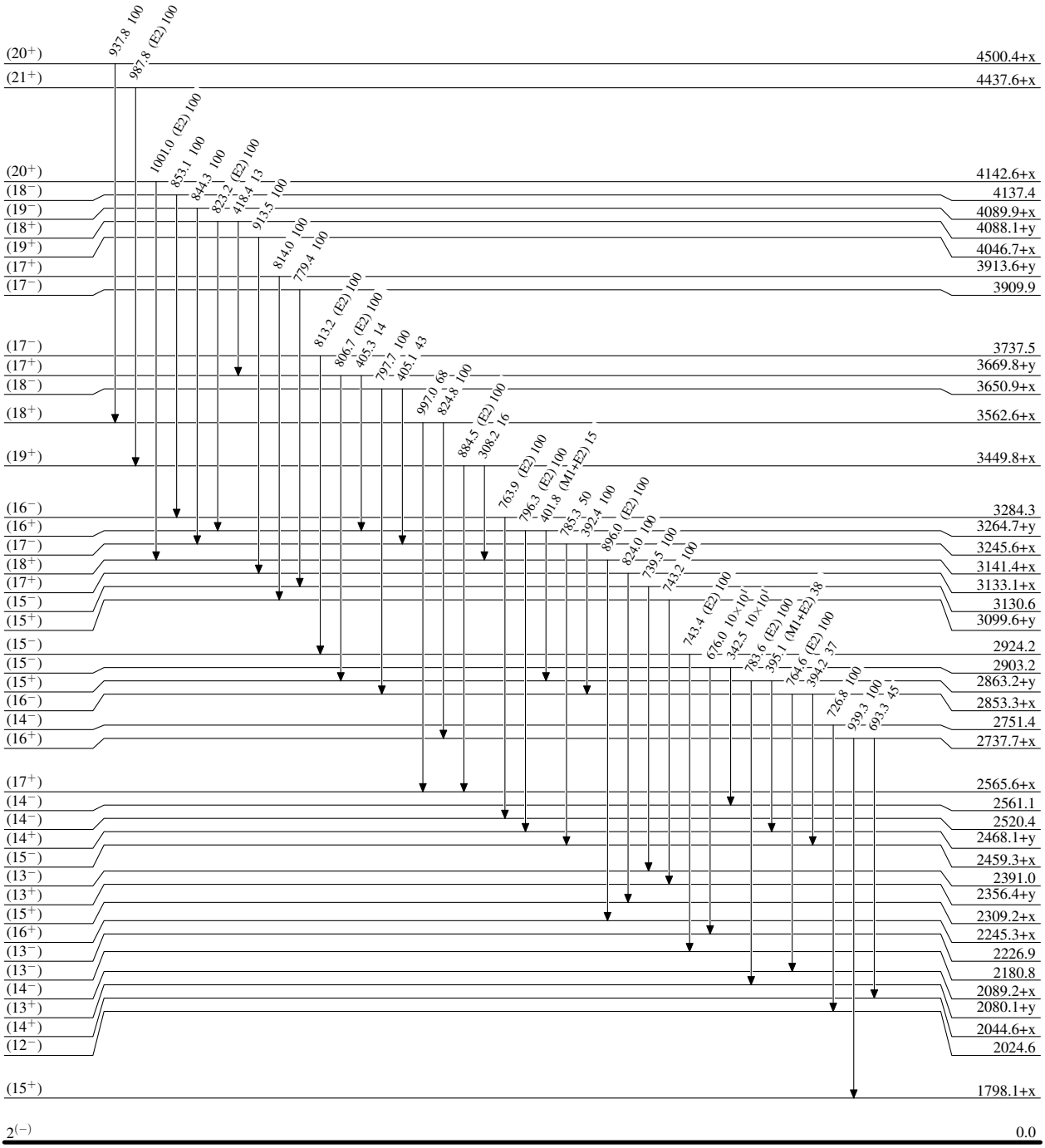


$^{118}_{55}Cs_{63}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

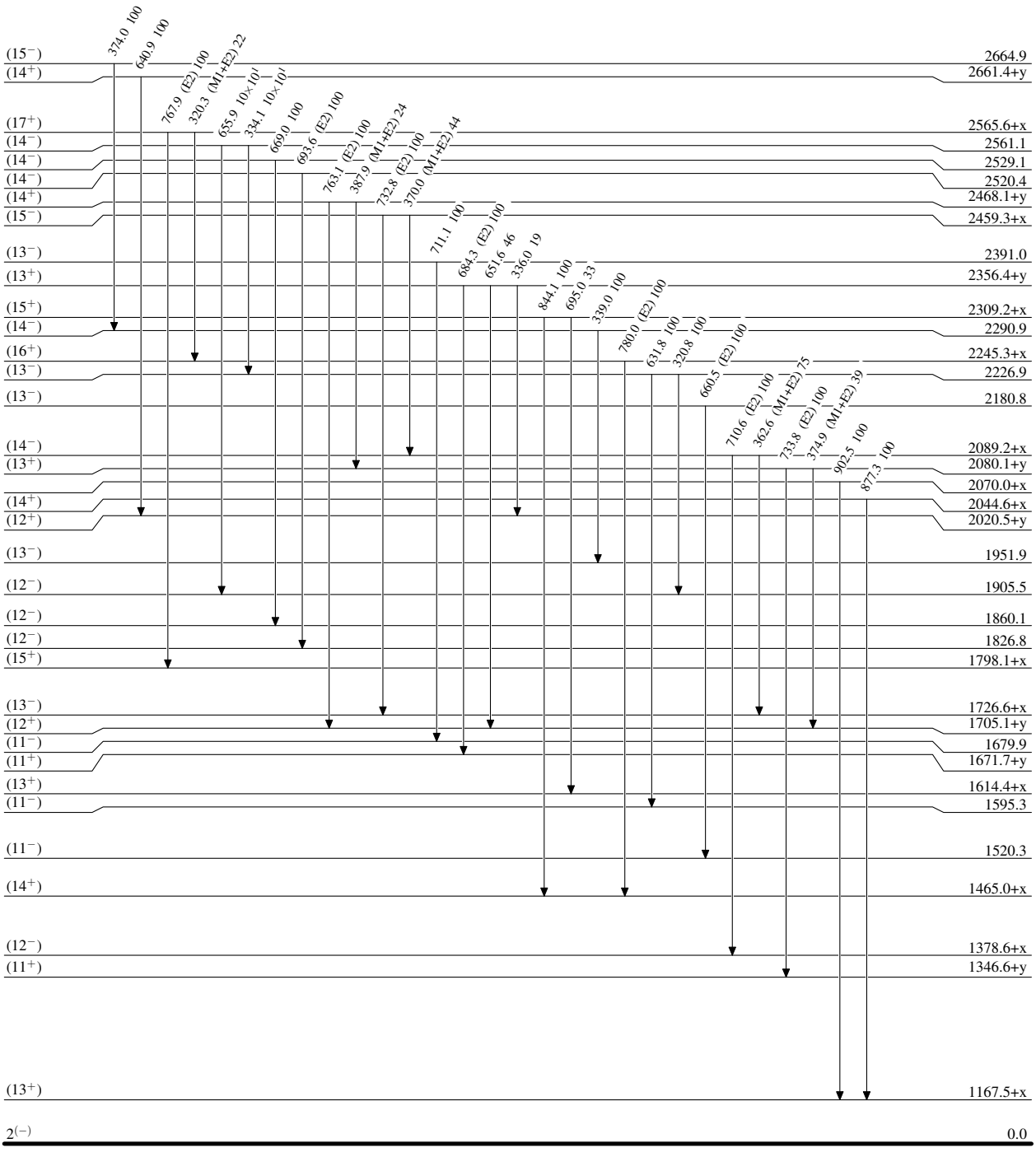


$^{118}_{55}Cs_{63}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

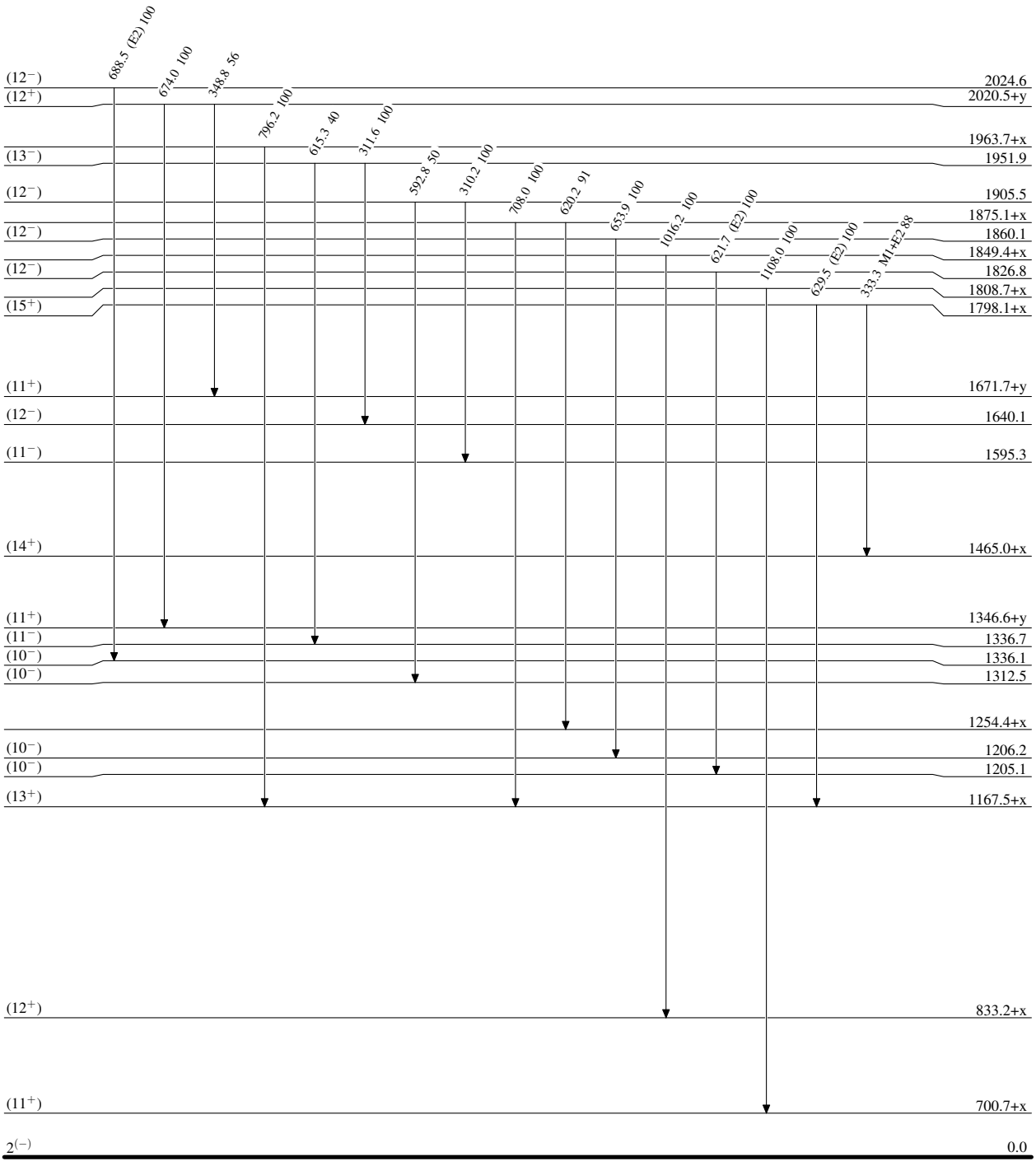


$^{118}_{55}Cs_{63}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

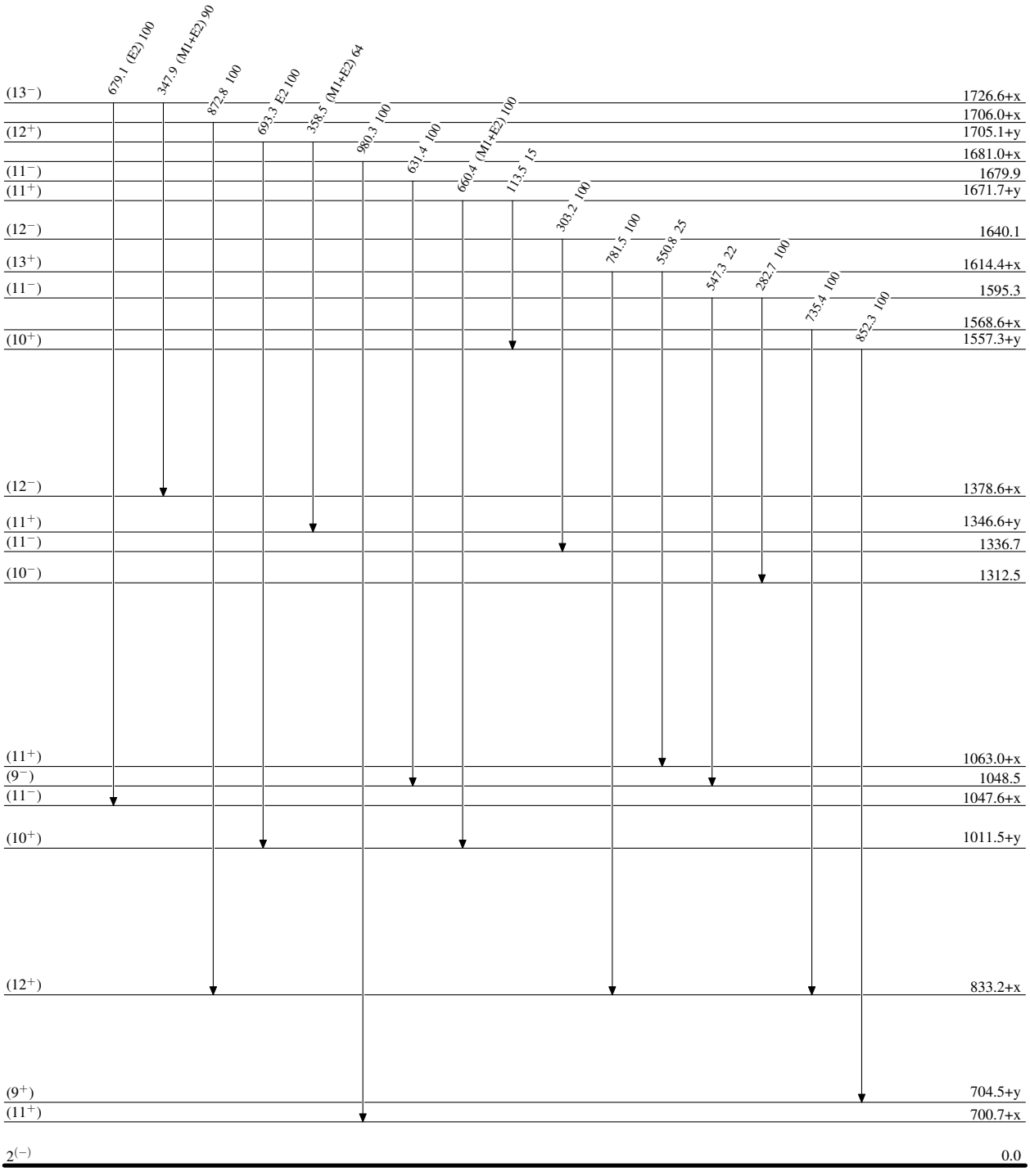


$^{118}_{55}Cs_{63}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

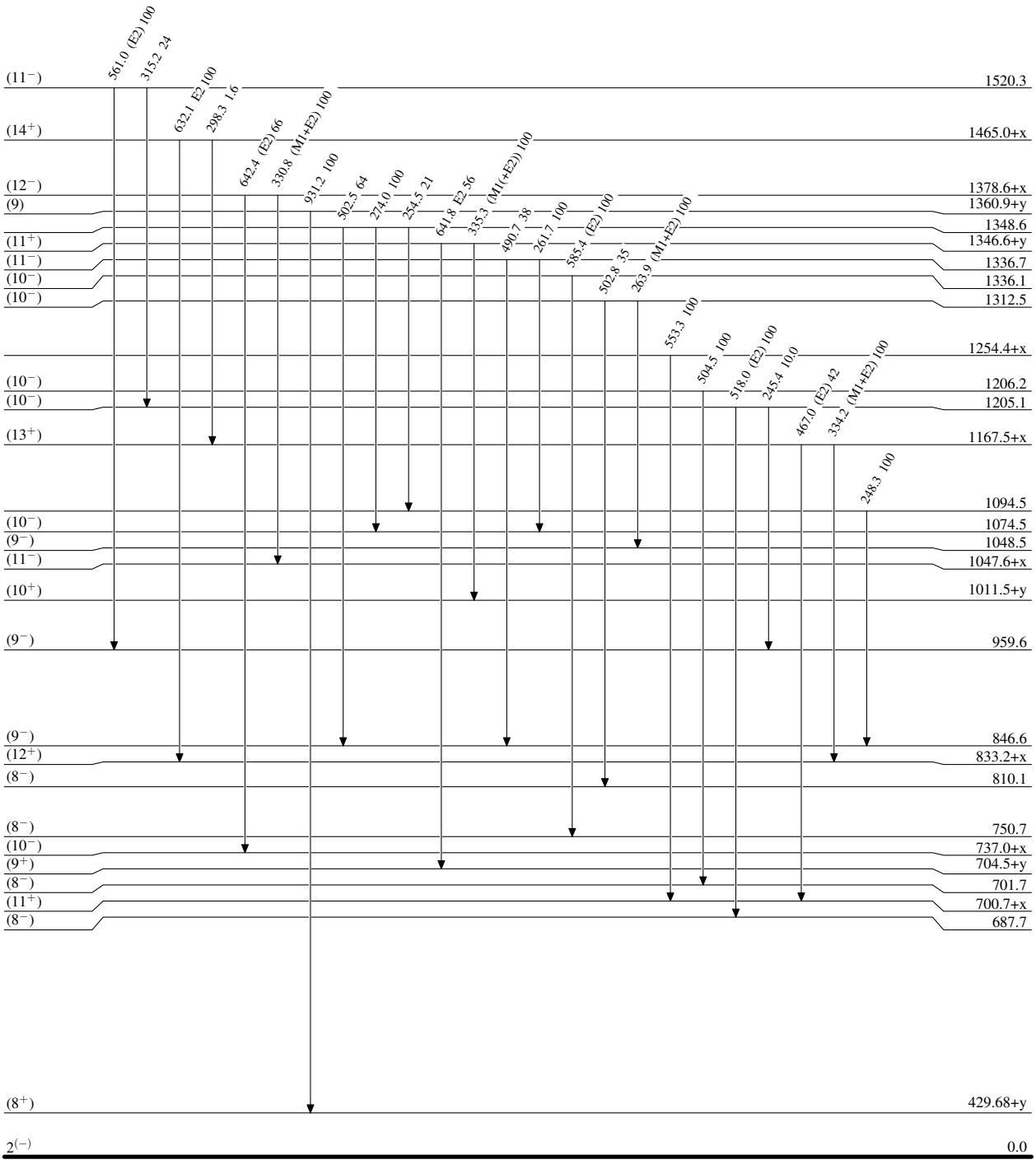


$^{118}_{55}Cs_{63}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

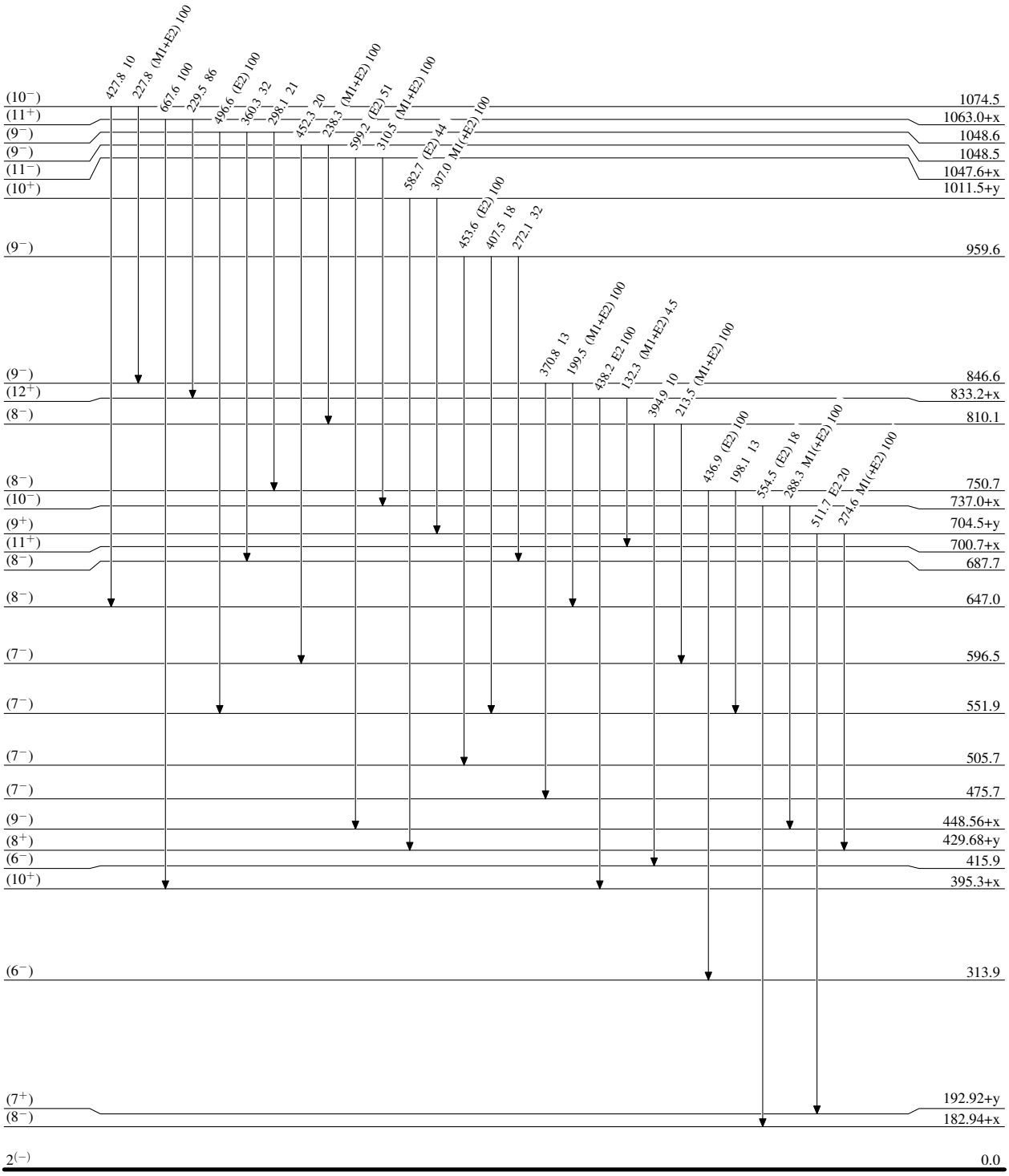


$^{118}_{55}Cs_{63}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

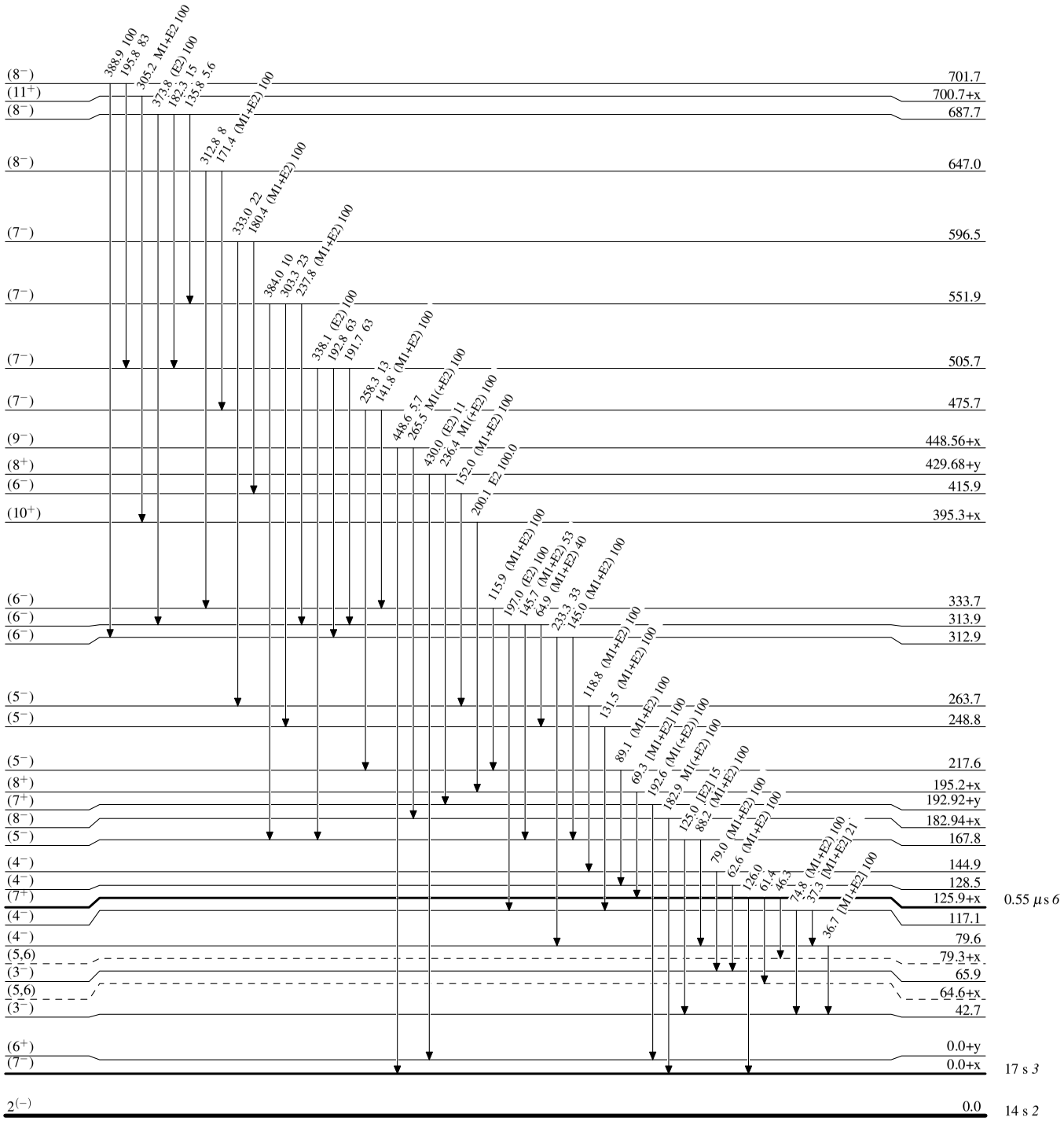


$^{118}_{55}Cs_{63}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

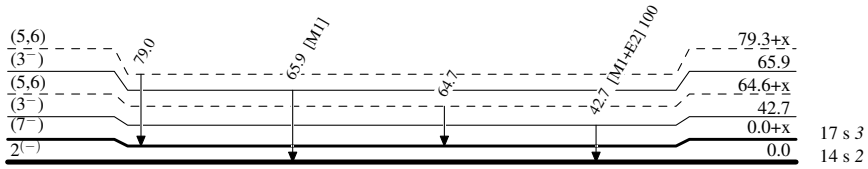


$^{118}_{55}Cs_{63}$

Adopted Levels, Gammas

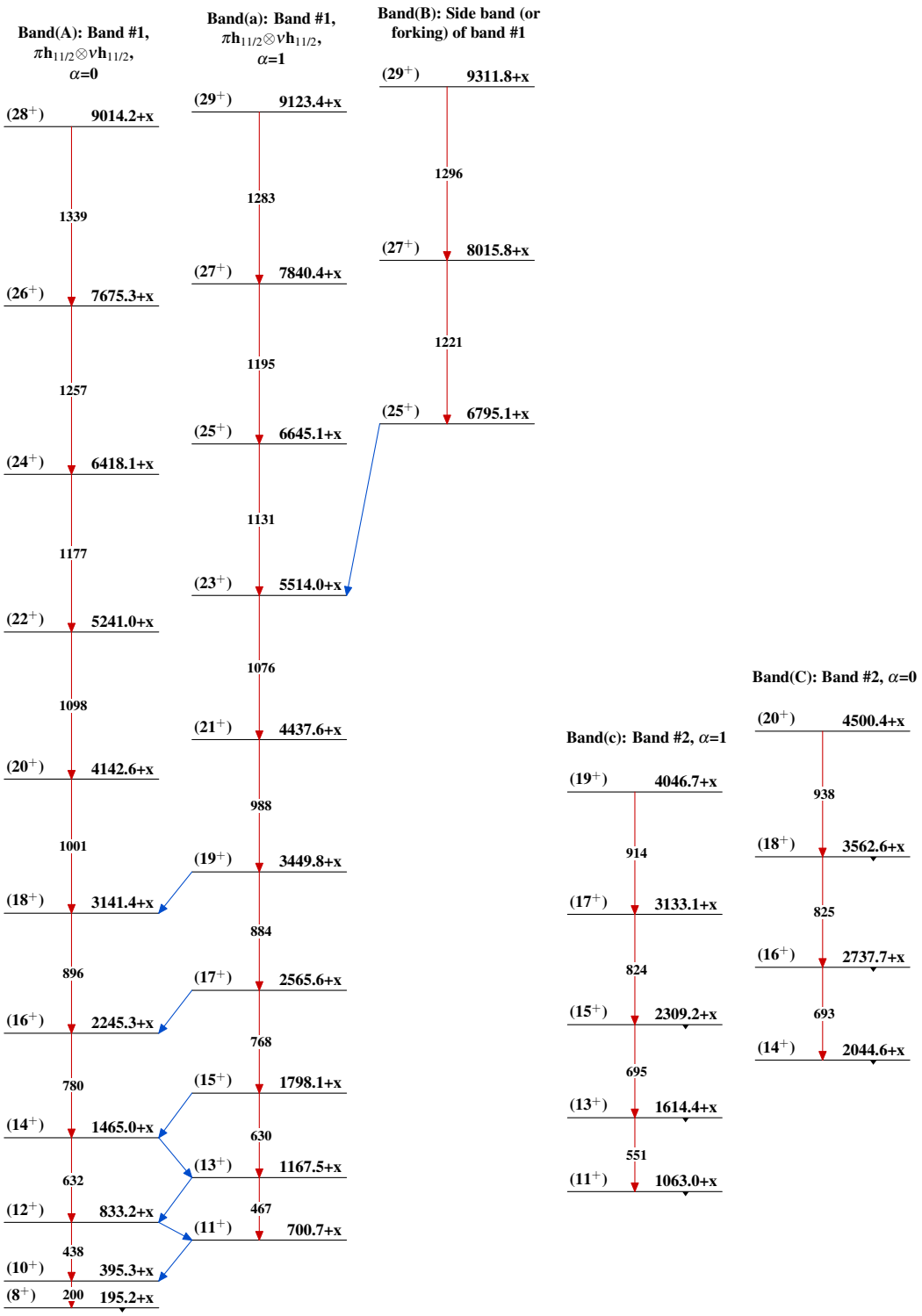
Level Scheme (continued)

Intensities: Relative photon branching from each level



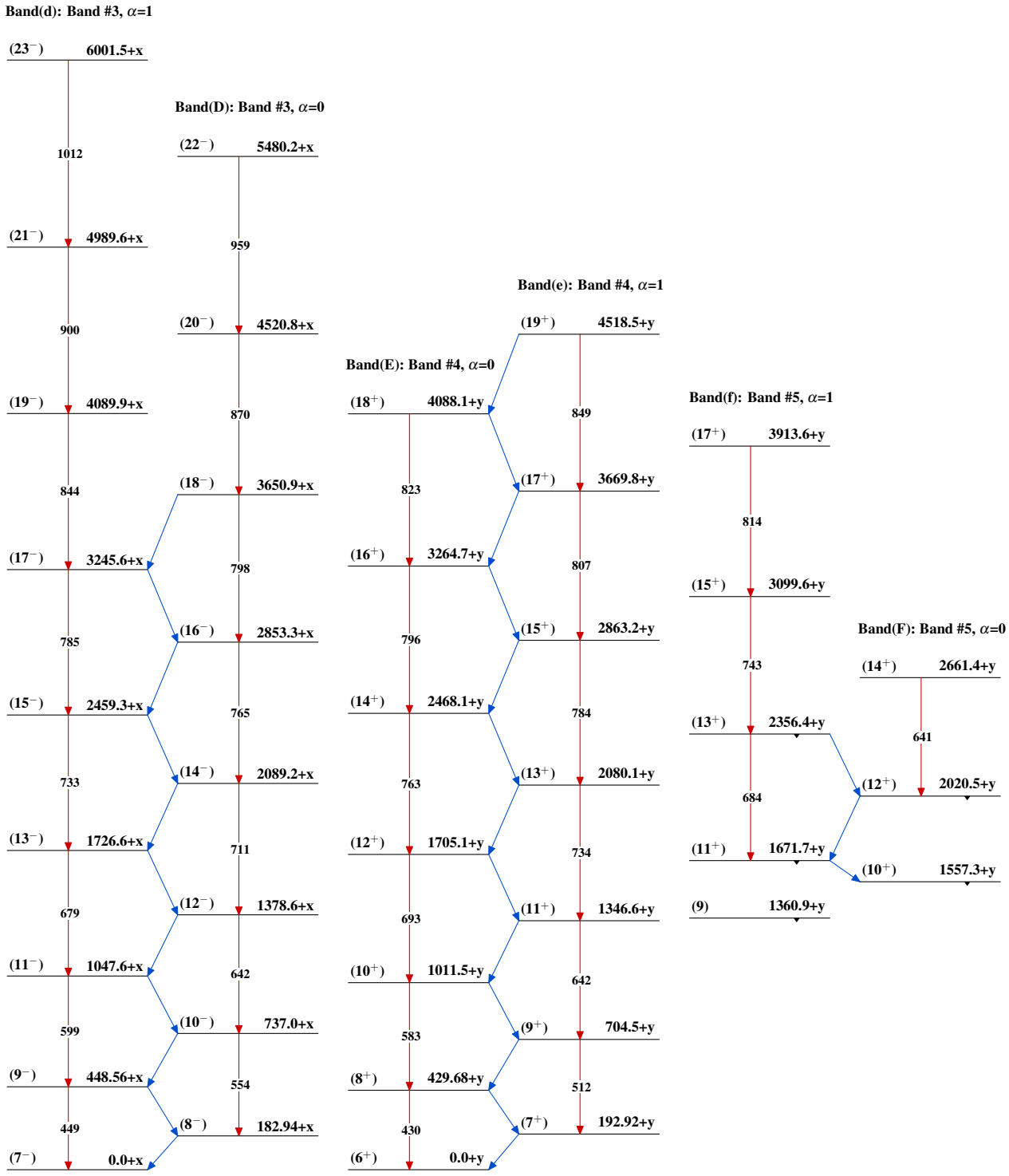
$^{118}_{55}Cs_{63}$

Adopted Levels, Gammas



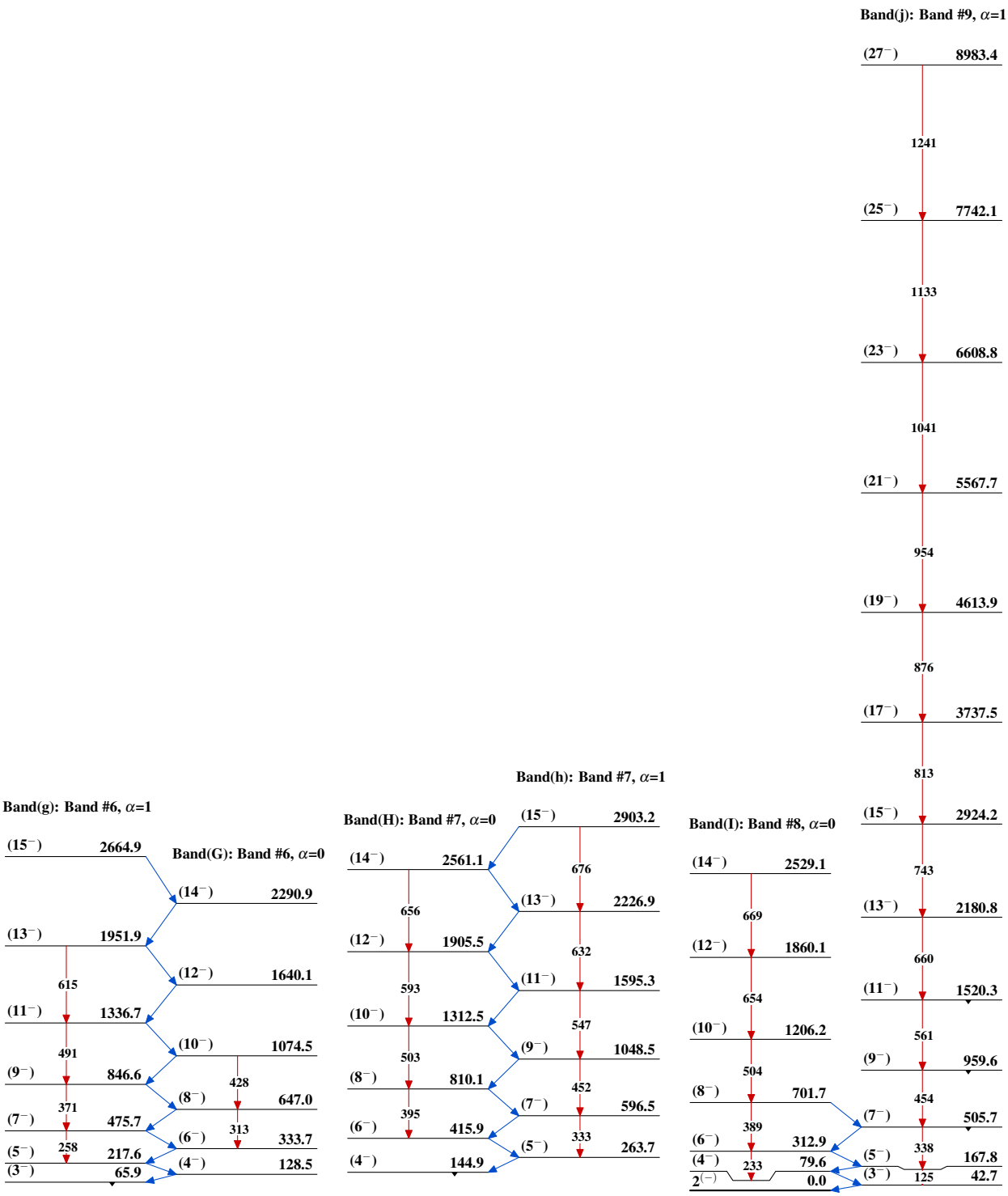
$^{118}_{55}Cs_{63}$

Adopted Levels, Gammas (continued)



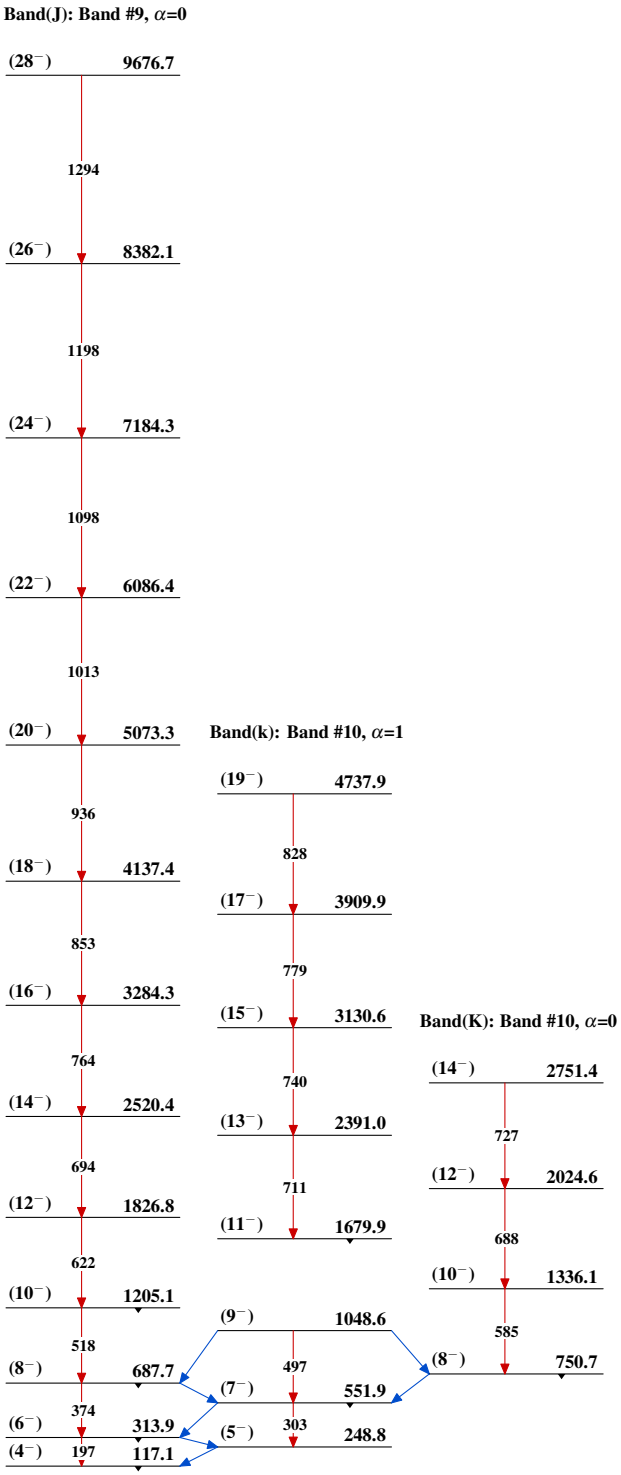
$^{118}_{55}Cs_{63}$

Adopted Levels, Gammas (continued)



$^{118}_{55}Cs_{63}$

Adopted Levels, Gammas (continued)



$^{118}_{55}Cs_{63}$