Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	J. Katakura	NDS 112,495 (2011)	1-Jan-2010

Q(β^-)=−4419 *14*; S(n)=10428 *12*; S(p)=3716 *8*; Q(α)=−261 *10* 2012Wa38
Note: Current evaluation has used the following Q record −4420 1410428 11 *3716* 8 −263 10 2009AuZZ.

^{125}Cs Levels

Cross Reference (XREF) Flags

- A ^{110}Pd(^{19}F,4nγ)
- B ^{125}Ba ε decay (3.3 min)
- C ^{118}Sn(^{10}B,3nγ),^{114}Cd(^{14}N,3nγ)
- D ^{125}Cs IT decay (0.90 ms)

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0.0	1/2$^{(+)}$	46.7 min *1*	ABCD	%ε+%β^+=100 μ=+1.409 *7* $T_{1/2}$: Unweighted av of 45 min *1* (1954Mi16), 49 min *5* (1962Pr09) and 46 min *4* (1967DaZY). J$^\pi$: Atomic-beam magnetic resonance (1971Da01; also 1966Da11). μ: From LASER spectroscopy (1981Th06). See also 2005St24 compilation. <r^2>$^{1/2}$=4.788 fm *6* (2004An14, evaluation).
77.11 *24*	3/2$^{(+)}$	1.2 ns *1*	ABCD	$T_{1/2}$: From (1987Fr10). J$^\pi$: M1+E2 γ to 1/2$^{(+)}$.
84.82 *24*	(5/2$^+$)	14.5 ns *15*	ABCD	$T_{1/2}$: From (1976Be11). J$^\pi$: E2 γ to 1/2$^{(+)}$; systematics.
140.3 *3*	(3/2$^-$)		B	J$^\pi$: E1 γ to 1/2$^{(+)}$; γ to (5/2$^+$).
185.1 *4*	1/2$^{(+)}$,3/2,5/2		B	J$^\pi$: γ's to 3/2$^{(+)}$,(5/2$^+$) and (3/2$^-$).
253.1[g] *3*	(7/2$^+$)		A CD	J$^\pi$: E2 γ to 3/2$^{(+)}$. γ from (11/2$^-$) has mult=Q.
266.1[c] *11*	(11/2$^-$)	0.90 ms *3*	A CD	%IT=100 $T_{1/2}$: From ^{125}Cs IT Decay (0.90 ms). J$^\pi$: Systematics.
540.7[@] *11*	(9/2$^+$)		A C	J$^\pi$: Systematics.
631.8[c] *11*	(15/2$^-$)		A C	
683.3[g] *5*	(11/2$^+$)		A C	
850.0[#] *11*	(11/2$^+$)		A C	J$^\pi$: ΔJ=1 from (13/2).
1196.6[@] *11*	(13/2$^+$)		A C	
1203.8[c] *11*	(19/2$^-$)		A C	
1279.0[b] *11*	(17/2$^-$)		A C	
1293.6[g] *6*	(15/2$^+$)		A C	
1574.8[#] *11*	(15/2$^+$)		A C	
1753.9[h] *11*	(19/2$^-$)		A C	
1899.1[b] *12*	(21/2$^-$)		A C	
1963.0[c] *12*	(23/2$^-$)		A C	
1986.6[@] *11*	(17/2$^+$)		A	
2055.3[g] *6*	(19/2$^+$)		A C	
2318.3[&] *12*	(17/2$^+$)		A	
2396.6[a] *12*	(19/2$^+$)		A	
2424.5[h] *12*	(23/2$^-$)		A C	
2425.4[#] *11*	(19/2$^+$)		A	

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Adopted Levels, Gammas (continued)

^{125}Cs Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	XREF	Comments
2518.5[&] *12*	(21/2$^+$)	A	
2570.8[d] *12*	(23/2$^-$)	A	
2691.0[b] *12*	(25/2$^-$)	A	
2699.1[a] *12*	(23/2$^+$)	A	
2832.9[c] *12*	(27/2$^-$)	A C	
2895.9[@] *12*	(21/2$^+$)	A	
2919.6 *7*	(23/2$^+$)	A	
2943.9[g] *7*	(23/2$^+$)	A	
2945.7[&] *12*	(25/2$^+$)	A	
3178.2[d] *12*	(27/2$^-$)	A	
3241.1[e] *16*	(25/2$^+$)	A	
3243.8[h] *12*	(27/2$^-$)	A	
3257.5[a] *12*	(27/2$^+$)	A	
3385.5[#] *12*	(23/2$^-$)	A	
3500.1[e] *13*	(27/2$^+$)	A	
3553.4[b] *12*	(29/2$^-$)	A	
3616.9[&] *12*	(29/2$^+$)	A	
3723.9[c] *12*	(31/2$^-$)	A	
3841.0[e] *13*	(29/2$^+$)	A	
3976.0[d] *12*	(31/2$^-$)	A	
4010.2[a] *12*	(31/2$^+$)	A	
4212.7[e] *13*	(31/2$^+$)	A	
4358.3[b] *12*	(33/2$^-$)	A	
4451.2[&] *12*	(33/2$^+$)	A	
4593.2[c] *13*	(35/2$^-$)	A	
4604.3[e] *13*	(33/2$^+$)	A	
4920.4[d] *12*	(35/2$^-$)	A	
4925.7[a] *12*	(35/2$^+$)	A	
5028.4[e] *13*	(35/2$^+$)	A	
5212.8[b] *12*	(37/2$^-$)	A	
5429.2[&] *13*	(37/2$^+$)	A	
5495.8[e] *14*	(37/2$^+$)	A	
5518.9[c] *13*	(39/2$^-$)	A	
5937.0[a] *14*	(39/2$^+$)	A	
6189.0[b] *14*	(41/2$^-$)	A	
6469.1[&] *15*	(41/2$^+$)	A	
6520.2[c] *13*	(43/2$^-$)	A	
7273.1[b] *15*	(45/2$^-$)	A	
7600.2[c] *17*	(47/2$^-$)	A	
8759.2[c] *20*	(51/2$^-$)	A	
10003.2[c] *22*	(55/2$^-$)	A	
11310.2[c] *24*	(59/2$^-$)	A	
0+x[f]	(23/2$^+$)	A	Additional information 1. E(level): x ≈ 3 MeV (2006Si16) from systematics.
611.0+x[f] *10*	(27/2$^+$)	A	
1354.0+x[f] *15*	(31/2$^+$)	A	
2187.0+x[f] *18*	(35/2$^+$)	A	

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Adopted Levels, Gammas (continued)

^{125}Cs Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	XREF
3030.0+x[f] *20*	(39/2$^+$)	A
3901.0+x[f] *23*	(43/2$^+$)	A
4850.0+x[f] *25*	(47/2$^+$)	A
5829+x[f] *3*	(51/2$^+$)	A

† From a least-squares fit by evaluators to the adopted Eγ's.
‡ From $\gamma(\theta)$ and band structure in ^{110}Pd(^{19}F,4nγ), ^{96}Zr(^{34}S,p4nγ) and ^{118}Sn(^{10}B,3nγ), unless otherwise noted.
# Band(A): $\pi g_{9/2}$, α=+1/2. Strongly−coupled band.
@ Band(a): $\pi g_{9/2}$, α=−1/2. Strongly-coupled band.
& Band(B): 3-qp band, α=+1/2. $\pi h_{11/2}\otimes\nu h_{11/2}\otimes\nu g_{7/2}$, Strongly-coupled band.
a Band(b): 3-qp band, α=−1/2. $\pi h_{11/2}\otimes\nu h_{11/2}\otimes\nu g_{7/2}$, Strongly-coupled band.
b Band(C): Yrast band, $\pi h_{11/2}$, α=+1/2.
c Band(c): Yrast band, $\pi h_{11/2}$, α=−1/2.
d Band(D): $\pi h_{11/2}\otimes(\gamma$ vibrational band).
e Band(E): ΔJ=1 band based on (25/2$^+$).
f Band(F): 3-qp decoupled band based on (23/2$^+$). Configuration=$(\pi g_{9/2}/\pi g_{7/2})\otimes(\pi h^2_{11/2})/\nu h^2_{11/2})$ with preference for $\pi g_{7/2}\otimes\nu h^2_{11/2}$ configuration from TAC calculations for lower part of the band.
g Band(G): $\pi g_{7/2}$, α=−1/2.
h Band(H): Band based on 19/2$^-$, α=−1/2.

Adopted Levels, Gammas (continued)

γ(^{125}Cs)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	α[†]	Comments
77.11	3/2(+)	77.1 *3*	100	0.0	1/2(+)	M1+E2	0.22 *6*	2.03 *9*	B(M1)(W.u.)=(0.0128 *13*); B(E2)(W.u.)=(6.E+1 *6*) α(K)=1.67 *4*; α(L)=0.28 *4*; α(M)=0.059 *9*; α(N+..)=0.0141 *20* α(N)=0.0124 *18*; α(O)=0.00164 *20*; α(P)=6.42×10^{-5} *12* Mult.,δ: From ^{125}Ba ε decay.
84.82	(5/2$^+$)	84.6 *3*	100	0.0	1/2(+)	E2		3.39 *7*	B(E2)(W.u.)=55 *6* α(K)=2.00 *4*; α(L)=1.099 *24*; α(M)=0.239 *6*; α(N+..)=0.0539 *12* α(N)=0.0482 *11*; α(O)=0.00561 *12*; α(P)=5.38×10^{-5} *10* Mult.: From ^{125}Ba ε decay.
140.3	(3/2$^-$)	55.0 *5*	56 *5*	84.82	(5/2$^+$)				
		63.1 *5*	9 *5*	77.11	3/2(+)				
		140.9 *5*	100 *9*	0.0	1/2(+)	E1		0.0845 *15*	α(K)=0.0726 *13*; α(L)=0.00951 *17*; α(M)=0.00193 *4*; α(N+..)=0.000460 *8* α(N)=0.000404 *7*; α(O)=5.44×10^{-5} *10*; α(P)=2.36×10^{-6} *4* Mult.: From ^{125}Ba ε decay.
185.1	1/2(+),3/2,5/2	45.0 *5*	≈38	140.3	(3/2$^-$)				
		100.1 *5*	75 *40*	84.82	(5/2$^+$)				
		108.0 *5*	100 *25*	77.11	3/2(+)				
253.1	(7/2$^+$)	168.3 *3*	100 *5*	84.82	(5/2$^+$)	E2(+M1)	>1.11	0.280 *21*	α(K)=0.218 *12*; α(L)=0.049 *8*; α(M)=0.0105 *17*; α(N+..)=0.0024 *4* α(N)=0.0022 *4*; α(O)=0.00027 *4*; α(P)=7.05×10^{-6} *11* Mult.,δ: From α=0.36 *10* based on an intensity balance in ^{125}Cs IT decay (0.90 ms).
		176.0 *3*	75 *4*	77.11	3/2(+)	E2		0.258	α(K)=0.198 *3*; α(L)=0.0475 *8*; α(M)=0.01009 *16*; α(N+..)=0.00233 *4* α(N)=0.00207 *4*; α(O)=0.000256 *4*; α(P)=6.14×10^{-6} *10* Mult.: From α=0.43 *11* based on an intensity balance in ^{125}Cs IT decay (0.90 ms).
266.1	(11/2$^-$)	(13)		253.1	(7/2$^+$)	(M2)		1.595×10^4	α(L)=1.242×10^4 *18*; α(M)=2.85×10^3 *4*; α(N+..)=683 *10* α(N)=602 *9*; α(O)=78.2 *11*; α(P)=2.78 *4* B(M2)(W.u.)=0.23 *9* Mult.: Reduced transition probabilities are consistent only with mult=E2 or M2. The level scheme requires M2.

$^{125}_{55}Cs_{70}$-4

Adopted Levels, Gammas (continued)

γ(^{125}Cs) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]
540.7	(9/2$^+$)	274.6 *3*	100	266.1	(11/2$^-$)	(D)	
631.8	(15/2$^-$)	365.7 *3*	100	266.1	(11/2$^-$)	Q	
683.3	(11/2$^+$)	430.2 *3*	100	253.1	(7/2$^+$)	Q	
850.0	(11/2$^+$)	309.3 *3*	100 *20*	540.7	(9/2$^+$)		
		583.9 *3*	<40	266.1	(11/2$^-$)		
1196.6	(13/2$^+$)	346.5 *3*	100 *25*	850.0	(11/2$^+$)	D+Q	+0.14 *1*
		655.8 *3*	50 *25*	540.7	(9/2$^+$)	Q	
1203.8	(19/2$^-$)	572.2 *3*	100	631.8	(15/2$^-$)	Q	
1279.0	(17/2$^-$)	647.1 *3*	100	631.8	(15/2$^-$)	D+Q	−0.30 *7*
1293.6	(15/2$^+$)	610.3 *3*	100	683.3	(11/2$^+$)	Q	
1574.8	(15/2$^+$)	378.1 *3*	100 *17*	1196.6	(13/2$^+$)		
		725.0 *3*	17	850.0	(11/2$^+$)		
1753.9	(19/2$^-$)	474.7 *3*	100 *22*	1279.0	(17/2$^-$)	D+Q	−0.23 *1*
		1122.0 *3*	22 *11*	631.8	(15/2$^-$)	Q	
1899.1	(21/2$^-$)	620.5 *3*	29	1279.0	(17/2$^-$)	Q	
		695.3 *3*	100	1203.8	(19/2$^-$)	D+Q	−0.25 *1*
1963.0	(23/2$^-$)	759.5 *3*	100	1203.8	(19/2$^-$)	Q	
1986.6	(17/2$^+$)	411.7 *3*	100 *50*	1574.8	(15/2$^+$)		
		789.9 *3*	<100	1196.6	(13/2$^+$)		
2055.3	(19/2$^+$)	761.7 *3*	100	1293.6	(15/2$^+$)	(Q)	
2318.3	(17/2$^+$)	1686.4 *3*	100	631.8	(15/2$^-$)	D+Q	+0.07 *3*
2396.6	(19/2$^+$)	78		2318.3	(17/2$^+$)		
		1117.4 *3*	100 *11*	1279.0	(17/2$^-$)	D+Q	−0.03 *1*
2424.5	(23/2$^-$)	525.6 *3*	100 *50*	1899.1	(21/2$^-$)		
		670.2 *3*	<100	1753.9	(19/2$^-$)	(Q)	
		1221.0 *3*	<50	1203.8	(19/2$^-$)		
2425.4	(19/2$^+$)	438.9 *3*	1.0×10^2 *5*	1986.6	(17/2$^+$)		
		850.7 *3*	≤100	1574.8	(15/2$^+$)		
2518.5	(21/2$^+$)	121.7 *3*	100 *11*	2396.6	(19/2$^+$)	D+Q	+0.30 *6*
		764.6 *3*	16 *5*	1753.9	(19/2$^-$)	D+Q	−0.25 *15*
2570.8	(23/2$^-$)	1366.6 *3*	100	1203.8	(19/2$^-$)	Q	
2691.0	(25/2$^-$)	728.1 *3*	100 *20*	1963.0	(23/2$^-$)		
		791.9 *3*	100 *20*	1899.1	(21/2$^-$)	Q	
2699.1	(23/2$^+$)	180.5 *3*	100	2518.5	(21/2$^+$)	D+Q	−0.7 *3*
		302		2396.6	(19/2$^+$)		
2832.9	(27/2$^-$)	869.9 *3*	100	1963.0	(23/2$^-$)	Q	
2895.9	(21/2$^+$)	470.2 *3*	50	2425.4	(19/2$^+$)		
		909.2 *3*	<100	1986.6	(17/2$^+$)		
2919.6	(23/2$^+$)	864.3 *3*	100	2055.3	(19/2$^+$)		
2943.9	(23/2$^+$)	888.6 *3*	100	2055.3	(19/2$^+$)		
2945.7	(25/2$^+$)	246.5 *3*	100	2699.1	(23/2$^+$)	D+Q	−0.34 *19*
3178.2	(27/2$^-$)	607.0 *3*	<100	2570.8	(23/2$^-$)		

$^{125}_{55}Cs_{70}$-5

Adopted Levels, Gammas (continued)

γ(^{125}Cs) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]
3178.2	(27/2$^-$)	1215.4 *3*	50	1963.0	(23/2$^-$)		
3241.1	(25/2$^+$)	542		2699.1	(23/2$^+$)		
3243.8	(27/2$^-$)	819.4 *3*	100	2424.5	(23/2$^-$)		
3257.5	(27/2$^+$)	311.8 *3*	100 *5*	2945.7	(25/2$^+$)	D+Q	−0.2 *4*
		558.4 *3*	<10	2699.1	(23/2$^+$)		
3385.5	(23/2$^-$)	489.2 *3*	<100	2895.9	(21/2$^+$)		
		960.5 *3*	<100	2425.4	(19/2$^+$)		
3500.1	(27/2$^+$)	258		3243.8	(27/2$^-$)		
		554		2945.7	(25/2$^+$)		
		801[@]		2699.1	(23/2$^+$)		
3553.4	(29/2$^-$)	720.4 *3*	67 *33*	2832.9	(27/2$^-$)	D+Q	−0.35 *2*
		862.7 *3*	100 *33*	2691.0	(25/2$^-$)		
3616.9	(29/2$^+$)	359.5 *3*	100 *13*	3257.5	(27/2$^+$)	D+Q	−0.19 *3*
		671.1 *3*	<25	2945.7	(25/2$^+$)		
3723.9	(31/2$^-$)	891.2 *3*	100	2832.9	(27/2$^-$)	Q	
3841.0	(29/2$^+$)	342		3500.1	(27/2$^+$)		
		583		3257.5	(27/2$^+$)		
		895		2945.7	(25/2$^+$)		
3976.0	(31/2$^-$)	797.5 *3*	<100	3178.2	(27/2$^-$)		
		1143.0 *3*	50	2832.9	(27/2$^-$)		
4010.2	(31/2$^+$)	393.4 *3*	100 *25*	3616.9	(29/2$^+$)	D+Q	+0.39 *14*
		752.8 *3*	<50	3257.5	(27/2$^+$)		
4212.7	(31/2$^+$)	372		3841.0	(29/2$^+$)		
		596		3616.9	(29/2$^+$)		
		955		3257.5	(27/2$^+$)		
4358.3	(33/2$^-$)	634.3 *3*	<100	3723.9	(31/2$^-$)		
		804.9 *3*	<100	3553.4	(29/2$^-$)		
4451.2	(33/2$^+$)	441.1 *3*	1.0×10^2 *5*	4010.2	(31/2$^+$)		
		834.2 *3*	<100	3616.9	(29/2$^+$)		
4593.2	(35/2$^-$)	235		4358.3	(33/2$^-$)		
		869 *1*	100	3723.9	(31/2$^-$)	Q	
4604.3	(33/2$^+$)	392		4212.7	(31/2$^+$)		
		594		4010.2	(31/2$^+$)		
		987		3616.9	(29/2$^+$)		
4920.4	(35/2$^-$)	944.2 *3*	<100	3976.0	(31/2$^-$)		
		1196.8 *3*	<100	3723.9	(31/2$^-$)		
4925.7	(35/2$^+$)	474.3 *3*	<100	4451.2	(33/2$^+$)		
		915.5 *3*	<100	4010.2	(31/2$^+$)		
5028.4	(35/2$^+$)	424		4604.3	(33/2$^+$)		
		578		4451.2	(33/2$^+$)		
		1018[@]		4010.2	(31/2$^+$)		

$^{125}_{55}Cs_{70}$-6

Adopted Levels, Gammas (continued)

γ(^{125}Cs) (continued)

E_i(level)	J_i^π	E_γ‡	I_γ‡	E_f	J_f^π
5212.8	(37/2$^-$)	620 *1*	<100	4593.2	(35/2$^-$)
		854.5 *3*	<50	4358.3	(33/2$^-$)
5429.2	(37/2$^+$)	504		4925.7	(35/2$^+$)
		978.0 *3*	100	4451.2	(33/2$^+$)
5495.8	(37/2$^+$)	468		5028.4	(35/2$^+$)
		569		4925.7	(35/2$^+$)
		1045@		4451.2	(33/2$^+$)
5518.9	(39/2$^-$)	307		5212.8	(37/2$^-$)
		925.7 *3*	1.0×10^2 *5*	4593.2	(35/2$^-$)
5937.0	(39/2$^+$)	508		5429.2	(37/2$^+$)
		1011		4925.7	(35/2$^+$)
6189.0	(41/2$^-$)	670		5518.9	(39/2$^-$)
		976		5212.8	(37/2$^-$)
6469.1	(41/2$^+$)	532		5937.0	(39/2$^+$)
		1040		5429.2	(37/2$^+$)
6520.2	(43/2$^-$)	331		6189.0	(41/2$^-$)
		1001.3 *3*	100	5518.9	(39/2$^-$)
7273.1	(45/2$^-$)	753		6520.2	(43/2$^-$)
		1084		6189.0	(41/2$^-$)
7600.2	(47/2$^-$)	1080		6520.2	(43/2$^-$)
8759.2	(51/2$^-$)	1159		7600.2	(47/2$^-$)
10003.2	(55/2$^-$)	1244		8759.2	(51/2$^-$)
11310.2	(59/2$^-$)	1307		10003.2	(55/2$^-$)
611.0+x	(27/2$^+$)	611		0+x	(23/2$^+$)
1354.0+x	(31/2$^+$)	743		611.0+x	(27/2$^+$)
2187.0+x	(35/2$^+$)	833		1354.0+x	(31/2$^+$)
3030.0+x	(39/2$^+$)	843		2187.0+x	(35/2$^+$)
3901.0+x	(43/2$^+$)	871		3030.0+x	(39/2$^+$)
4850.0+x	(47/2$^+$)	949		3901.0+x	(43/2$^+$)
5829+x	(51/2$^+$)	979		4850.0+x	(47/2$^+$)

† Additional information 2.
‡ From ^{110}Pd(^{19}F,4nγ) except for γ's observed only in ^{125}Ba ε decay. Iγ for transitions from the 253-keV level are from ^{125}Cs IT Decay (0.90 ms).
# From A_2, A_4 values in ^{110}Pd(^{19}F,4nγ), ^{96}Zr(^{34}S,p4nγ) and ^{118}Sn(^{10}B,3nγ), unless otherwise indicated.
@ Placement of transition in the level scheme is uncertain.

$^{125}_{55}Cs_{70}$-7

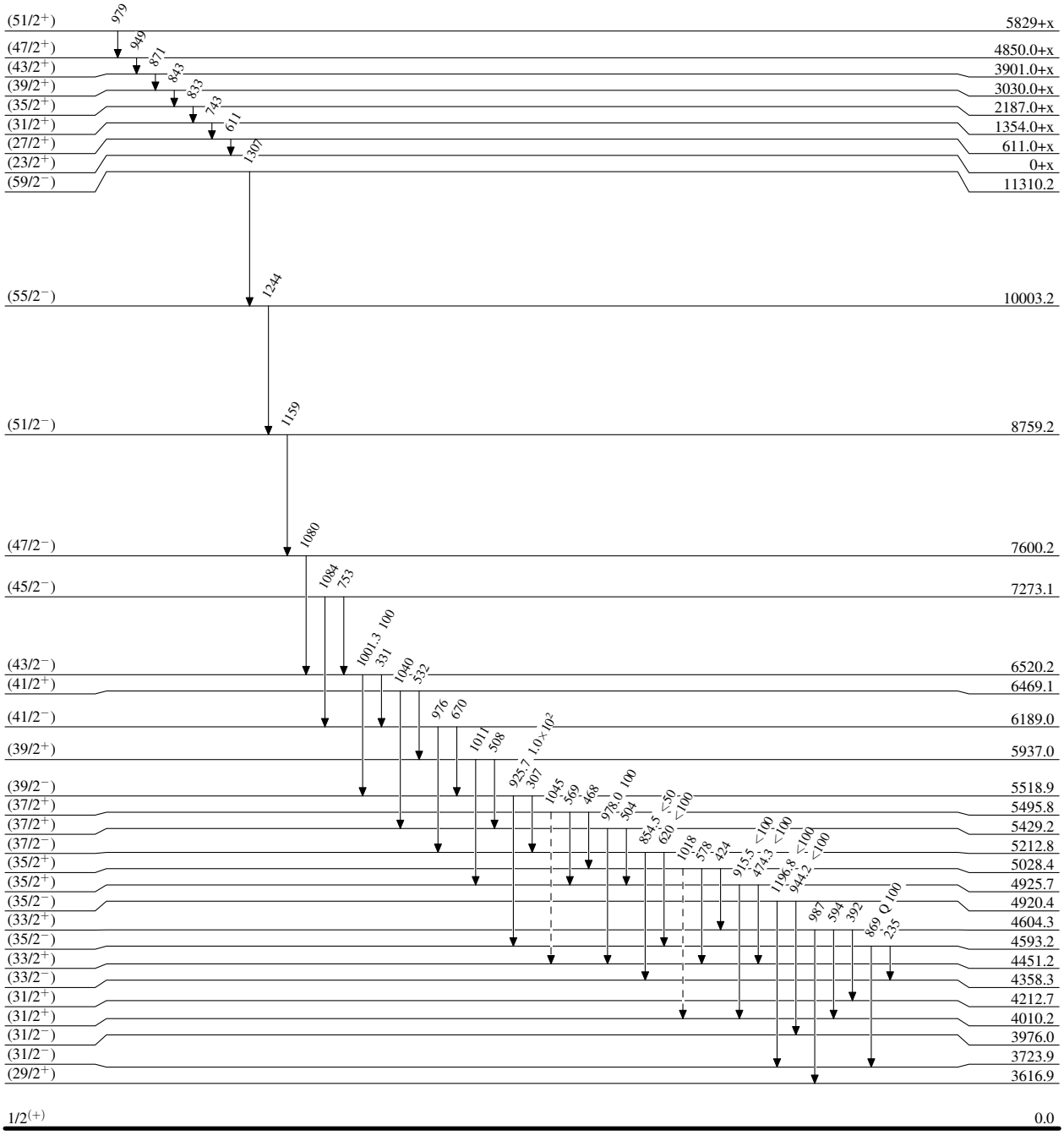
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{125}_{55}Cs_{70}$

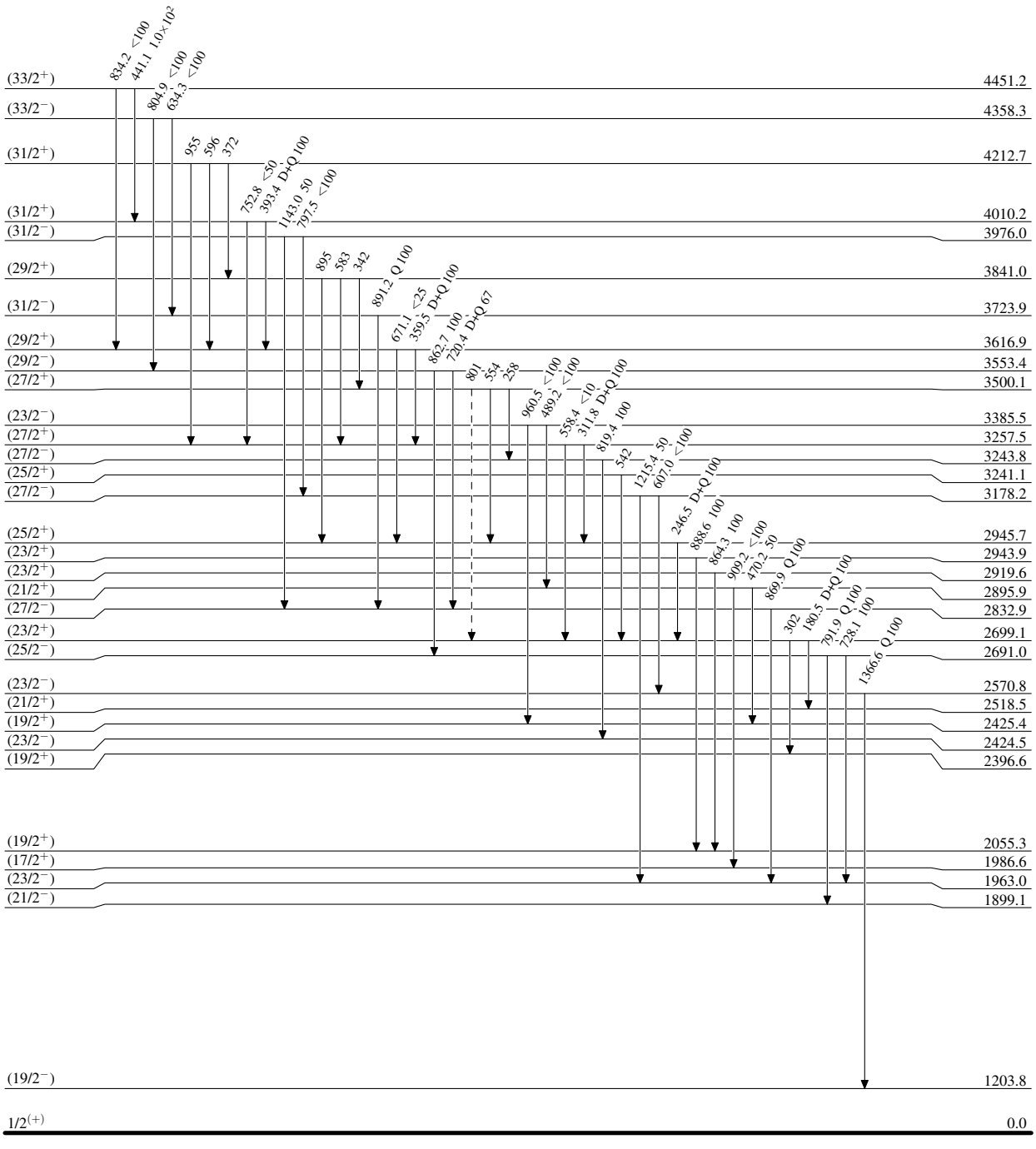
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{125}_{55}Cs_{70}$

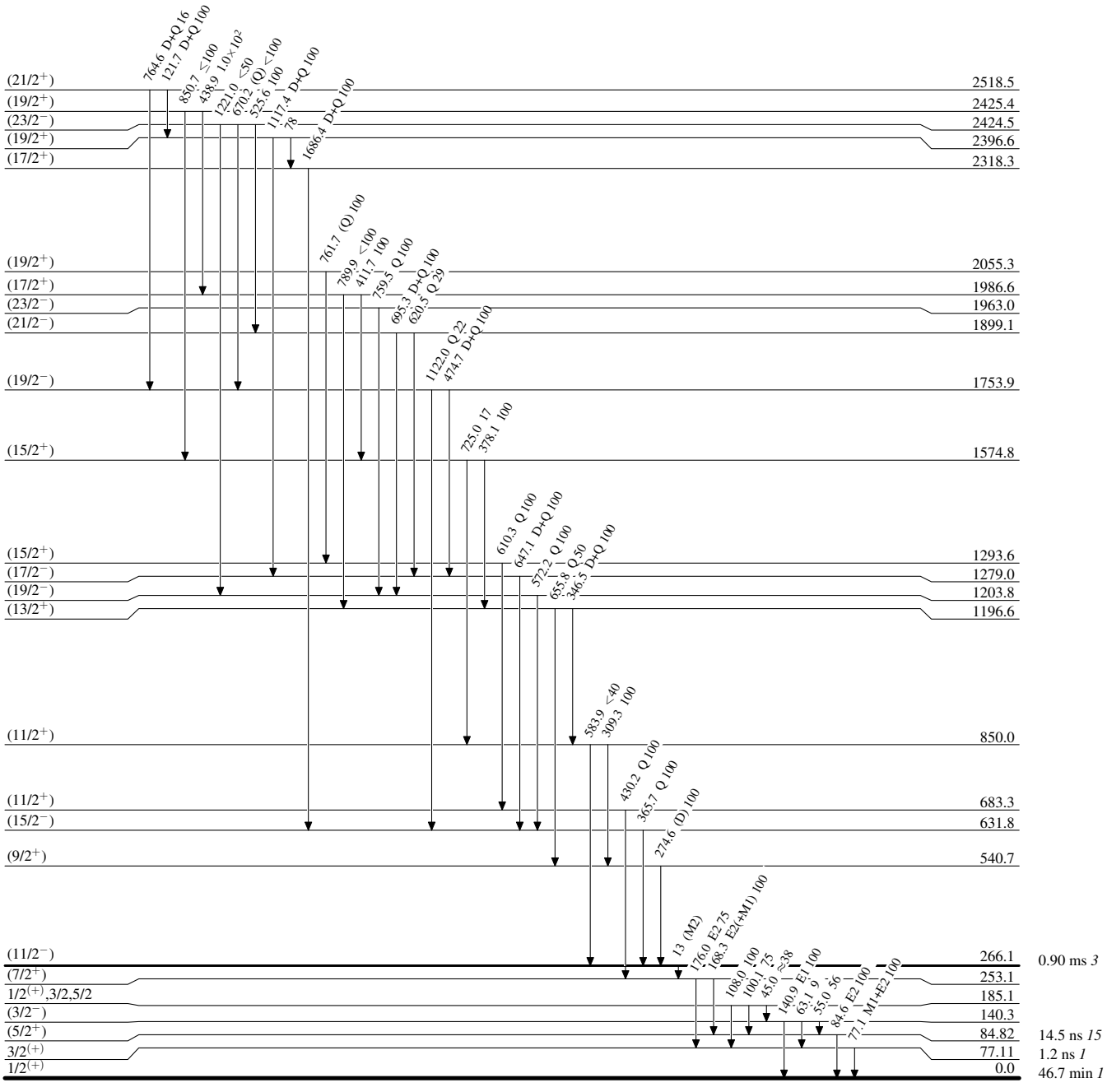
Adopted Levels, Gammas

Legend

Level Scheme (continued)

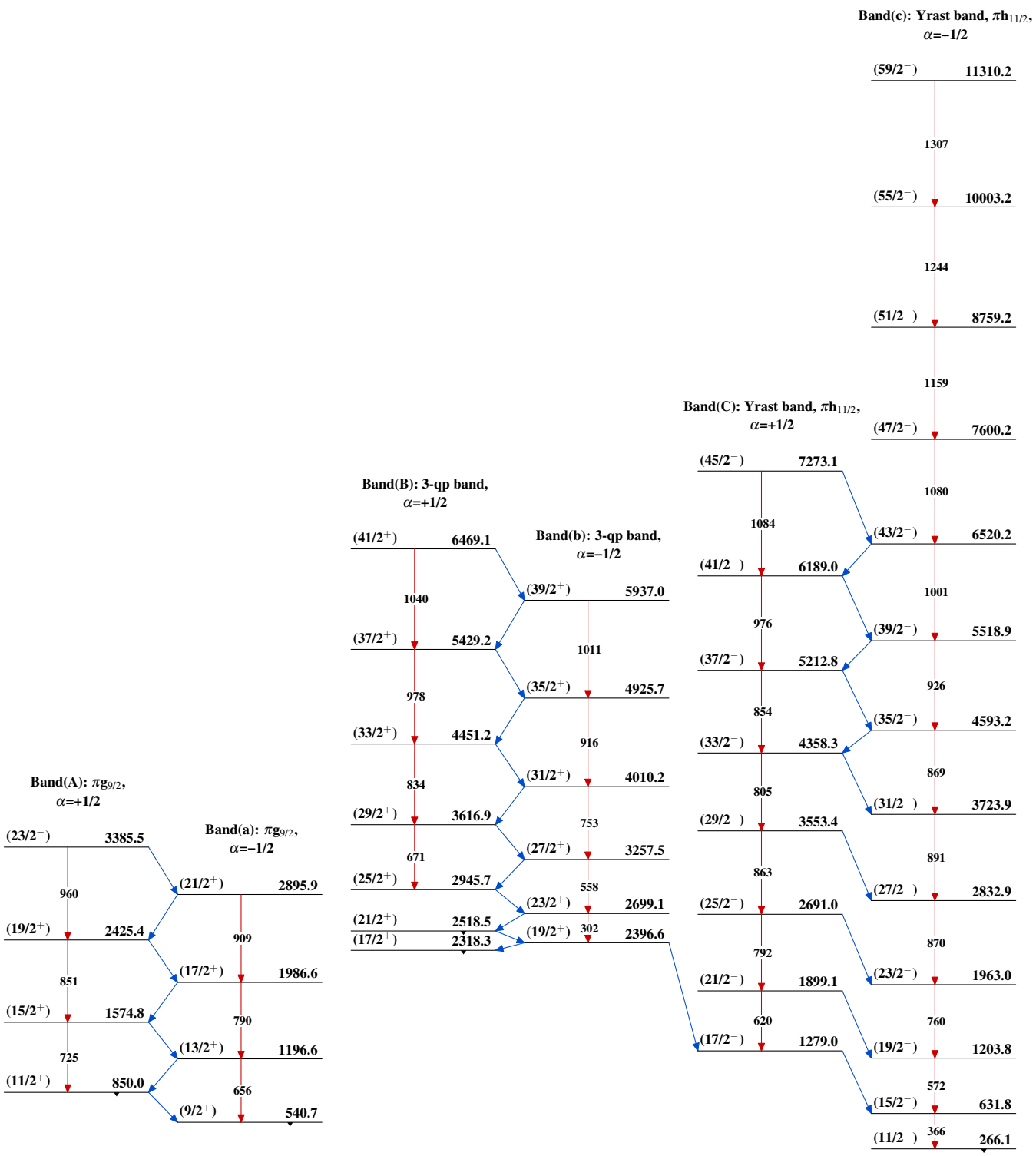
Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)

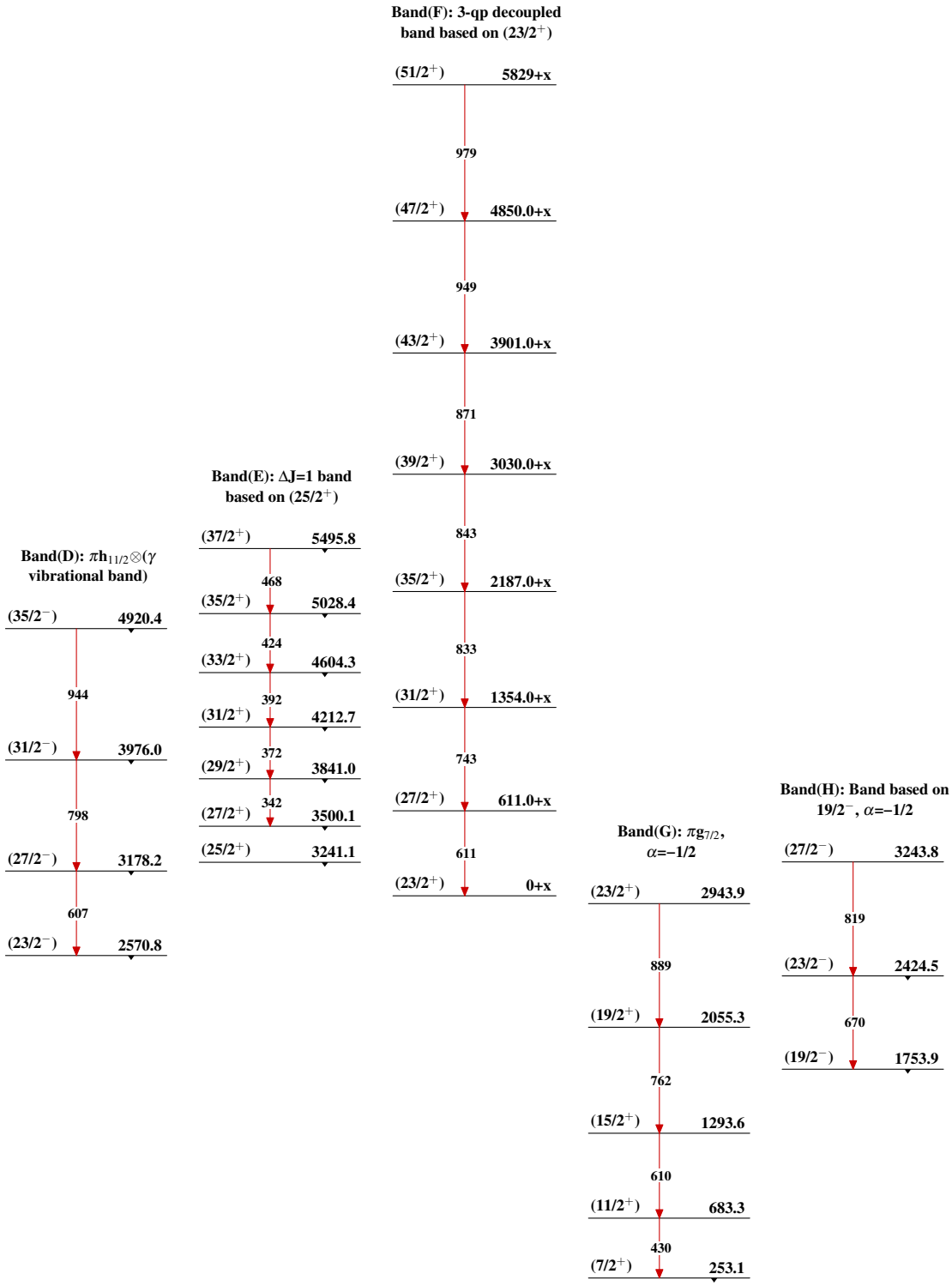


$^{125}_{55}Cs_{70}$

Adopted Levels, Gammas



Adopted Levels, Gammas (continued)



$^{125}_{55}Cs_{70}$