Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 108,2035 (2007)	30-Mar-2007

Q(β^-)=−7786 *6*; S(n)=11387.6 *25*; S(p)=6457 *5*; Q(α)=−1166 *18* 2012Wa38
Note: Current evaluation has used the following Q record −7870 9011397 176472 18-1173 15 2003Au03.

^{104}Cd Levels

Cross Reference (XREF) Flags

A ^{104}In ε decay (1.80 min)
B ^{104}Pd(^{3}He,3nγ)
C ^{102}Pd(α,2nγ)
D (HI,xnγ)
E ^{104}In β^+ decay (15.7 s)

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	XREF	Comments
0.0[g]	0$^+$	57.7 min *10*	ABCDE	%ε+%β^+=100 $T_{1/2}$: from 1970Mu17. Others: 59 min *2* (1955Jo25), 54 min *1* (1955Ku37), 57 min *2* (1960Pr14).
658.00[g] *20*	2$^+$	6.3 ps *21*	ABCD	J$^\pi$: E2 γ to g.s.
1492.1[g] *4*	4$^+$	<4.2 ps	ABCD	J$^\pi$: from $\gamma(\theta)$ in ^{102}Pd(α,2nγ), stretched E2.
2107.9 *6*			B	
2114.2 *4*	(4)$^+$		A CD	J$^\pi$: M1 γ to 4$^+$.
2296.2 *7*			A	
2370.2[#] *4*	6$^+$	<4.2 ps	A CD	J$^\pi$: stretched E2 to 4$^+$.
2435.5 *4*	6$^+$	58 ps *4*	ABCD	J$^\pi$: E2 γ to 4 +.
2492.2 *6*			A	
2539.4 *4*			A	
2607.3 *5*			A	
2614.0[d] *4*	(5)	27 ps *4*	A C	
2617.0 *5*			A	
2723.6 *5*			A	
2758.7 *9*			A	
2773.6 *5*			A	
2843.8 *4*	(5,6,7)		A C	J$^\pi$: log *ft*=6.36 from (6$^+$) parent.
2869.4 *7*			B	
2903.1 *4*	8$^+$	0.8 ns +*2*−*1*	ABCD	$T_{1/2}$: from 1985An27,887 ps *70* (RDDS) and 811 ps *70* (DDCM) (2001Mu19). J$^\pi$: E2 γ to 6$^+$.
3080.4 *5*			A	
3110.5 *5*			A	
3136.7 *4*			A	
3194.4 *5*	(5,6,7)		A	J$^\pi$: log *ft*=7.3 from (6$^+$) parent.
3211.0[#] *4*	8$^+$	<4.9 ps	ABCD	XREF: C(3212). γ's seen in ε decay and (α,2nγ) suggest that same level is populated in both; however, if direct ε feeding is correct then J^π(parent)=7$^+$. See 1989Va05. J$^\pi$: from $\gamma(\theta)$ in ^{102}Pd(α,2nγ), stretched E2.
3239.8 *6*			A	
3252.7 *5*			A	
3298.0 *4*	8$^+$	1.04 ps *21*	A CD	J$^\pi$: E2 γ to 6$^+$.
3391.7 *5*			A	
3498.3 *5*			A	
3616.2 *5*	(5$^+$,6$^+$,7$^+$)		A	J$^\pi$: log *ft*=5.88 from (6$^+$) parent.
3653.4[d] *4*	(7)	<11 ps	D	
3687.1 *6*			A	

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Adopted Levels, Gammas (continued)

^{104}Cd Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$	XREF	Comments
3727.1 *4*	7$^-$	6.9 ps *7*	D	
3737.6 *9*			A	
3787.9 *5*	7$^+$	<17 ps	A D	
3830.2 *9*			A	
3905.2[e] *5*	9$^{(+)}$	<104 ps	CD	J$^{\pi}$: E2 γ to 8$^+$.
3949.5 *6*	(5$^+$,6$^+$,7$^+$)		A	J$^{\pi}$: log *ft*=5.6 from (6$^+$) parent.
4038.6[&] *4*	9$^-$	10.4 ps *5*	CD	J$^{\pi}$: E1 γ to 8$^+$.
4101.6[#] *4*	10$^+$	2.1 ps *14*	CD	J$^{\pi}$: stretched E2 to 8$^+$.
4151.5 *6*			A	
4154.8[@] *5*	8$^-$		D	
4253.7 *5*			A	
4311.0 *9*			A	
4328.8[e] *6*	(10$^+$)		CD	
4397.3[d] *4*	(9)	6.2 ps *+7–14*	B D	
4399.7 *5*	(5$^+$,6$^+$,7$^+$)		A	J$^{\pi}$: log *ft*=5.25 from (6$^+$) parent.
4466.1 *5*	(10$^+$)		CD	
4498.4 *6*			A	
4518.4 *5*			A	
4738.2[e] *5*	(12$^+$)		D	
4741.5[&] *4*	11$^-$	3.60 ps *14*	CD	
4800 *1*	(5$^+$,6$^+$,7$^+$)		A	J$^{\pi}$: log *ft*=4.4 from (6$^+$) parent.
4810.2[@] *5*	10$^-$	6.9 ps *7*	D	
4818.0[#] *5*	11$^+$	55 ps *4*	CD	
5147.1[d] *5*	(11)	<4.2 ps	D	
5158.3[#] *5*	12$^+$		D	
5200	(5$^+$,6$^+$,7$^+$)		A	J$^{\pi}$: log *ft*=4.3 from (6$^+$) parent.
5372.7[e] *7*	(14$^+$)		D	
5452.8 *5*	(12)	<3.5 ps	D	
5572.9[@] *5*	12$^-$	<1.4 ps	D	
5600	(5$^+$,6$^+$,7$^+$)		A	J$^{\pi}$: log *ft*=3.7 from (6$^+$) parent.
5672.4[&] *4*	13$^-$	0.42 ps *21*	D	
5792.9[#] *5*	13$^+$	2.1 ps *4*	D	
5924.7[d] *5*	(13)		D	
6123.2 *5*	(14)		D	
6241.0[#] *5*	14$^+$		D	
6241.8 *5*	(14)	0.76 ps *14*	D	
6328.6[@] *4*	14$^-$	2.01 ps *14*	D	
6662.1[&] *4*	15$^-$	0.56 ps *6*	D	T$_{1/2}$: from DSA. T$_{1/2}$=0.28 ps *7* (DDCM), <1.4 ps (RDDS).
6986.1[d] *6*	(15)		D	
7009.2 *6*	(16)		D	
7148.6[#] *5*	(15$^-$)	<1.2 ps	D	
7193.7[a] *5*	(14$^+$)		D	
7277.7[@] *5*	16$^-$	1.04 ps *14*	D	
7781.8[&] *5*	17$^-$	0.37 ps *4*	D	T$_{1/2}$: from DSA. T$_{1/2}$<0.7 ps (RDDS).
7785.3 *6*	(16)		D	
8143.0[#] *5*	(17$^-$)		D	
8164.5[a] *5*	(16$^+$)		D	
8437.1[@] *5*	18$^-$	0.28 ps *4*	D	
8605.7 *7*	(18)		D	

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Adopted Levels, Gammas (continued)

^{104}Cd Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$	XREF	Comments
8715.8[#] *5*	(18)		D	
9088.5[&] *6*	19^-	<0.52 ps	D	$T_{1/2}$: from DSA.
9091.5[a] *5*	(18^+)		D	
9139.7[#] *5*	(19)		D	
9294.0[c] *6*	19^-		D	
9429.1[b] *7*	(19^-)		D	
9687.6[@] *5*	20^-	<0.53 ps	D	$T_{1/2}$: from DSA.
10127.8[a] *5*	(20^+)		D	
10528.6[b] *8*	(21^-)		D	
10630.7[&] *7*	(21^-)		D	
10707.0[c] *7*	(21^-)		D	
11287.7[@] *7*	(22^-)		D	
11363.4[a] *6*	(22^+)		D	
11382.7 *7*	(22^-)		D	
11810.0[b] *8*	(23^-)		D	
12264.1[c] *8*	(23^-)		D	
12348.0[&] *14*	(23^-)		D	
12791.2[a] *6*	(24^+)		D	
13036.9[@] *11*	(24^-)		D	
14106.5[c] *11*	(25^-)		D	
14616.5[a] *8*	(26^+)		D	
14868.5[@] *16*	(26^-)		D	
16110.4[c] *14*	(27^-)		D	
16864.8[@] *21*	(28^-)		D	
18243.4[c] *17*	(29^-)		D	
x[f]			D	Additional information 1.
546.90+x[f] *20*			D	
969.1+x[f] *3*			D	
1439.9+x[f] *4*			D	
2060.5+x[f] *4*			D	
2777.8+x[f] *5*			D	

[†] Level energy from least-squares adjustment.
[‡] J^{π} without comments are from γ multipolarities derived from DCO ratios and band assignments.
[#] Band(A): γ cascade based on 6^+.
[@] Band(B): Band based on 8^-. Probable $\nu h_{11/2}\nu d_{5/2}$ excitation.
[&] Band(C): Band based on 9^-. Probable $\nu h_{11/2}\nu g_{7/2}$ excitation.
[a] Band(D): Band based on (14^+).
[b] Band(E): Band based on (19^-).
[c] Band(F): Band based on 19^-. Probable $\nu h_{11/2}\nu g_{7/2}$ excitation.
[d] Band(G): γ cascade based on (5). Negative parity is given in figure 1 of 2002Ro19, but not in authors′ Table 1.
[e] Band(H): γ cascade based on (9).
[f] Band(I): γ cascade.
[g] Band(J): g.s. band.

Adopted Levels, Gammas (continued)

$\gamma(^{104}Cd)$

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[†]	Comments
658.00	2^+	658.0 *2*	100	0.0	0^+	E2	B(E2)(W.u.)=25 *9*
1492.1	4^+	834.1 *3*	100	658.00	2^+	E2	B(E2)(W.u.)>11
2107.9		615.8 *5*	100	1492.1	4^+		
2114.2	$(4)^+$	622.1 *2*	100	1492.1	4^+	M1	
2296.2		1638.2 *6*	100	658.00	2^+		
2370.2	6^+	878.1 *2*	100	1492.1	4^+	E2	B(E2)(W.u.)>8.9
2435.5	6^+	321.3 *2*	31.5 *10*	2114.2	$(4)^+$	E2	B(E2)(W.u.)=23 *3*
		943.3 *3*	100 *10*	1492.1	4^+	E2	B(E2)(W.u.)=0.34 *5*
2492.2		377.9 *5*	8 *2*	2114.2	$(4)^+$		
		1000.2 *6*	100 *20*	1492.1	4^+		
2539.4		424.4 *6*	64 *20*	2114.2	$(4)^+$		
		1047.7 *4*	100 *30*	1492.1	4^+		
		1881.3 *5*	100 *30*	658.00	2^+		
2607.3		1115.2 *3*	100	1492.1	4^+		
2614.0	(5)	499.7 *2*	100	2114.2	$(4)^+$		
2617.0		502.6 *8*	100 *10*	2114.2	$(4)^+$		
		1124.9 *3*	55 *5*	1492.1	4^+		
2723.6		1231.5 *3*	100	1492.1	4^+		
2758.7		2100.7 *8*	100	658.00	2^+		
2773.6		403.3 *4*	22 *3*	2370.2	6^+		
		1281.6 *3*	100	1492.1	4^+		
2843.8	(5,6,7)	473.7 *2*	100	2370.2	6^+		
2869.4		499.2 *5*	100	2370.2	6^+		
2903.1	8^+	467.3 *3*	7 *2*	2435.5	6^+	E2	B(E2)(W.u.)=0.07 *3* Mult.: from 1985An27 and also DCO.
		532.9 *2*	100 *10*	2370.2	6^+	E2	B(E2)(W.u.)=0.53 *16*
3080.4		710.2 *3*	100	2370.2	6^+		
3110.5		1618.4 *3*	100	1492.1	4^+		
3136.7		292.5 *12*	14 *3*	2843.8	(5,6,7)		
		767.4 *8*	100 *3*	2370.2	6^+		
		1644.6 *2*	60 *20*	1492.1	4^+		
3194.4	(5,6,7)	1702.3 *3*	100	1492.1	4^+		
3211.0	8^+	308.1 *3*	17 *3*	2903.1	8^+	E2	B(E2)(W.u.)>1.2×10^2
		775.8 *2*	81 *11*	2435.5	6^+	E2	B(E2)(W.u.)>5.8
		841.2 *3*	100 *15*	2370.2	6^+	E2	B(E2)(W.u.)>4.8
3239.8		804.1 *6*	100 *25*	2435.5	6^+		
		1747.8 *5*	95 *25*	1492.1	4^+		
3252.7		817.2 *2*	100	2435.5	6^+		
3298.0	8^+	862.5 *4*	35 *6*	2435.5	6^+	E2	B(E2)(W.u.)=10 *3*
		928.3 *3*	100 *19*	2370.2	6^+	E2	B(E2)(W.u.)=20 *7*
3391.7		548.4 *6*	40 *20*	2843.8	(5,6,7)		
		1021.4 *2*	100 *20*	2370.2	6^+		
3498.3		2006.2 *3*	100	1492.1	4^+		
3616.2	$(5^+,6^+,7^+)$	772.4 *3*	100	2843.8	(5,6,7)		
3653.4	(7)	1039.3 *2*	100	2614.0	(5)		
3687.1		1316.9 *4*	100	2370.2	6^+		
3727.1	7^-	1356.5 *3*	100	2370.2	6^+	E1+M2	δ: −0.20 *10* or (−3.6 +*10*−*22*).
3737.6		1245.4 *7*	100	2492.2			
3787.9	7^+	1417.4 *3*	100	2370.2	6^+	M1+E2	E_γ: E=1416.5 in ^{104}In ε decay.
3830.2		1338.0 *7*	100	2492.2			
3905.2	$9^{(+)}$	1001.8 *4*	100	2903.1	8^+	E2	B(E2)(W.u.)>0.19
3949.5	$(5^+,6^+,7^+)$	1514.4 *5*	100 *25*	2435.5	6^+		
		1578.7 *7*	33 *18*	2370.2	6^+		
4038.6	9^-	311.8	0.9 *3*	3727.1	7^-		
		740.7 *2*	13.8 *6*	3298.0	8^+	E1+M2	δ: −0.16 *3* or (−3.8 *5*).

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Adopted Levels, Gammas (continued)

$\gamma(^{104}Cd)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[†]	Comments
4038.6	9^-	827.7 *1*	100.0 *3*	3211.0	8^+	E1+M2	δ: −0.17 *3* or (−3.6 *5*).
		1134.8 *3*	10.0 *6*	2903.1	8^+		
4101.6	10^+	890.7 *2*	100	3211.0	8^+	E2	B(E2)(W.u.)=17 *11*
4151.5		1715.6 *5*	100	2435.5	6^+		
4154.8	8^-	366.6 *3*	34 *6*	3787.9	7^+	E1+M2	
		428.0 *3*	100 *19*	3727.1	7^-	M1	
4253.7		1818.2 *3*	100	2435.5	6^+		
4311.0		1940.8 *8*	100	2370.2	6^+		
4328.8	(10^+)	423.3 *3*	100	3905.2	$9^{(+)}$		
		1425.4 *12*	29 *5*	2903.1	8^+		
4397.3	(9)	669.9 *2*	92 *4*	3727.1	7^-		
		743.8 *2*	100 *4*	3653.4	(7)		
4399.7	$(5^+,6^+,7^+)$	1496.5 *3*	100	2903.1	8^+		
4466.1	(10^+)	560.9 *2*	3.3 *2*	3905.2	$9^{(+)}$		
4498.4		2006.2 *3*	100	2492.2			
4518.4		1674.5 *3*	100	2843.8	(5,6,7)		
4738.2	(12^+)	272.3 *3*	87 *13*	4466.1	(10^+)		
		409.1 *3*	100 *7*	4328.8	(10^+)		
4741.5	11^-	639.7 *2*	11.9 *5*	4101.6	10^+	E1+M2	δ: −0.1 *1* or (−5.8 *+22−83*).
		703.0 *1*	100.0 *3*	4038.6	9^-	E2	B(E2)(W.u.)=28.2 *11*
4810.2	10^-	413.0 *5*	50 *19*	4397.3	(9)	M1	B(M1)(W.u.)=0.011 *5*
		657.9 *7*		4154.8	8^-		
		774.1 *6*	100 *31*	4038.6	9^-	M1	B(M1)(W.u.)=0.0032 *13*
		1158.1 *7*	63 *19*	3653.4	(7)		
4818.0	11^+	79.4 *4*	7.3 *22*	4738.2	(12^+)	D	
		716.6 *2*	100 *15*	4101.6	10^+	E2	B(E2)(W.u.)=1.7 *4* δ: +0.17 *2* or +11 *+5−3*.
5147.1	(11)	749.3 *2*	100	4397.3	(9)		
5158.3	12^+	340.9 *2*	66 *3*	4818.0	11^+	M1+E2	δ: +0.06 *5* or −12>δ>+26.
		1056.9 *2*	100 *6*	4101.6	10^+	E2	
5372.7	(14^+)	634.4 *4*	100	4738.2	(12^+)		
5452.8	(12)	634.8 *2*	100	4818.0	11^+		
5572.9	12^-	763.0 *2*	100 *3*	4810.2	10^-	E2	B(E2)(W.u.)>42
		830.7 *3*	28.7 *23*	4741.5	11^-		
5672.4	13^-	930.8 *1*	100.0	4741.5	11^-	E2	B(E2)(W.u.)=7.E+1 *4*
5792.9	13^+	634.8 *1*	100 *6*	5158.3	12^+		
		973.8 *3*	27.5 *14*	4818.0	11^+	E2	B(E2)(W.u.)=2.3 *5* E_γ: level-energy difference=974.7.
5924.7	(13)	777.1 *2*	84 *5*	5147.1	(11)		
		1184.2 *3*	100 *5*	4741.5	11^-		E_γ: level-energy difference=1183.1.
6123.2	(14)	670.4 *2*	100	5452.8	(12)		
6241.0	14^+	448.2 *1*	100	5792.9	13^+	M1+E2	δ: −0.02 *3* or −10 *+2−4*.
6241.8	(14)	789.0 *2*	100	5452.8	(12)		
6328.6	14^-	654.6 *2*	50.0 *18*	5672.4	13^-		E_γ: level-energy difference=656.3.
		755.7 *1*	100 *4*	5572.9	12^-	E2	B(E2)(W.u.)=26.2 *23*
6662.1	15^-	990.0 *1*	100	5672.4	13^-	E2	B(E2)(W.u.)=37 *4* E_γ: level-energy difference=989.7.
6986.1	(15)	1061.4 *3*	100	5924.7	(13)		
7009.2	(16)	767.4 *3*	100	6241.8	(14)		
7148.6	(15^-)	907.7 *1*	100	6241.0	14^+		
7193.7	(14^+)	1268.8 *4*	100	5924.7	(13)		
7277.7	16^-	617.3 *2*	27.9 *14*	6662.1	15^-		
		948.7 *1*	100.0 *7*	6328.6	14^-	E2	B(E2)(W.u.)=19 *3*
7781.8	17^-	1119.8 *2*	100	6662.1	15^-	E2	B(E2)(W.u.)=30 *4*
7785.3	(16)	636.7 *3*	100	7148.6	(15^-)		

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Adopted Levels, Gammas (continued)

γ(^{104}Cd) (continued)

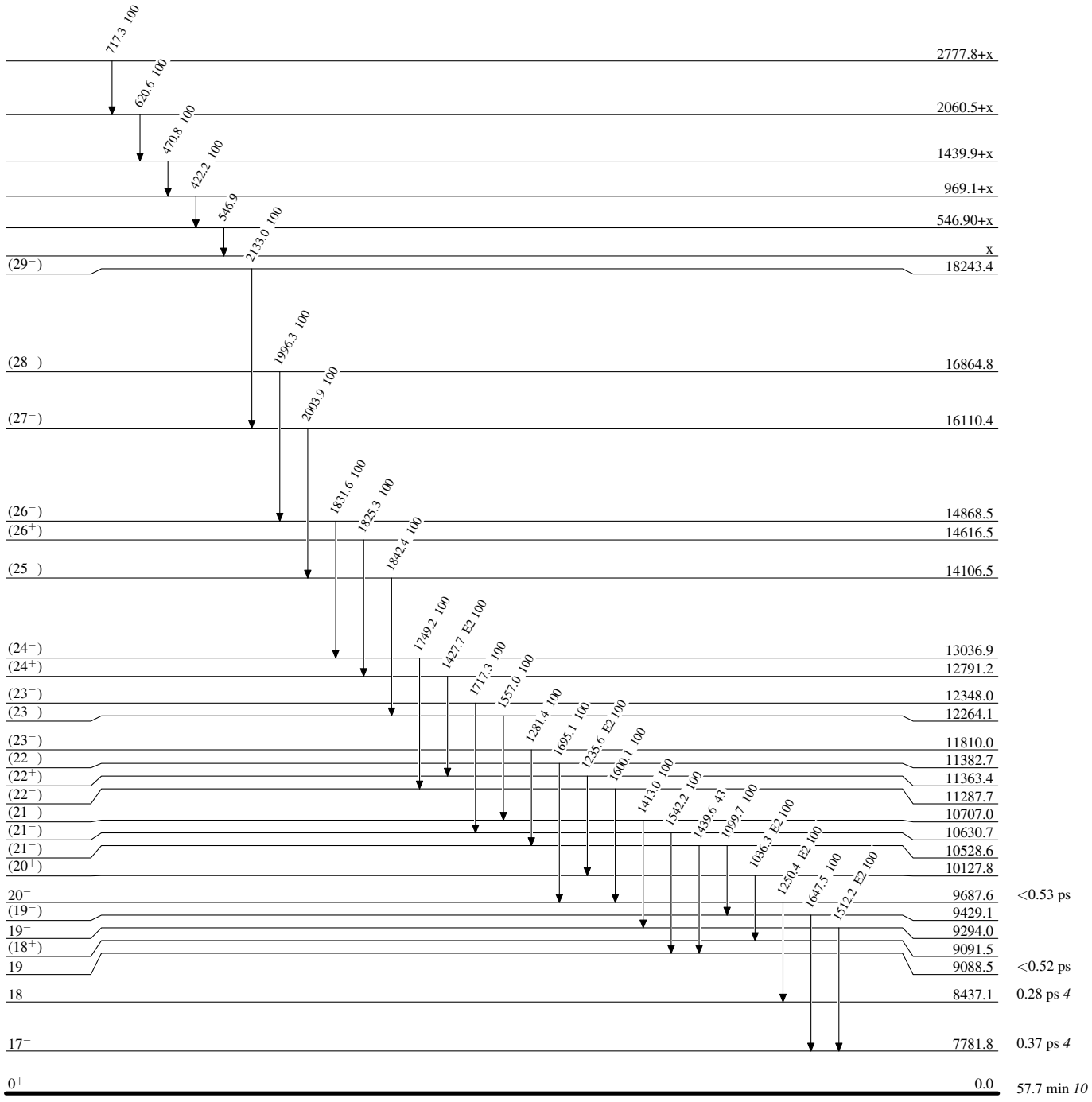
E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[†]	Comments
8143.0	(17$^-$)	360.9 *2*	87 *6*	7781.8	17$^-$		
		994.7 *2*	100 *6*	7148.6	(15$^-$)	E2	
8164.5	(16$^+$)	970.7 *2*	68 *4*	7193.7	(14$^+$)	E2	
		1501.2 *4*	100 *4*	6662.1	15$^-$		
8437.1	18$^-$	1159.4 *2*	100	7277.7	16$^-$	E2	B(E2)(W.u.)=33 *5*
8605.7	(18)	820.4 *4*	100	7785.3	(16)		
8715.8	(18)	572.8 *1*	100	8143.0	(17$^-$)		
9088.5	19$^-$	1306.6 *3*	100	7781.8	17$^-$	E2	B(E2)(W.u.)>9.8
9091.5	(18$^+$)	926.7 *2*	100 *4*	8164.5	(16$^+$)		
		1311.1 *4*	30.4 *18*	7781.8	17$^-$		
9139.7	(19)	423.9 *2*	100	8715.8	(18)	M1+E2	δ: +0.05 *3* or −20>δ>+109.
9294.0	19$^-$	1512.2 *4*	100	7781.8	17$^-$	E2	
9429.1	(19$^-$)	1647.5 *6*	100	7781.8	17$^-$		
9687.6	20$^-$	1250.4 *2*	100	8437.1	18$^-$	E2	B(E2)(W.u.)>12
10127.8	(20$^+$)	1036.3 *1*	100	9091.5	(18$^+$)	E2	
10528.6	(21$^-$)	1099.7 *5*	100 *14*	9429.1	(19$^-$)		
		1439.6 *9*	43 *14*	9088.5	19$^-$		
10630.7	(21$^-$)	1542.2 *4*	100	9088.5	19$^-$		
10707.0	(21$^-$)	1413.0 *3*	100	9294.0	19$^-$		
11287.7	(22$^-$)	1600.1 *5*	100	9687.6	20$^-$		
11363.4	(22$^+$)	1235.6 *2*	100	10127.8	(20$^+$)	E2	
11382.7	(22$^-$)	1695.1 *4*	100	9687.6	20$^-$		
11810.0	(23$^-$)	1281.4 *3*	100	10528.6	(21$^-$)		
12264.1	(23$^-$)	1557.0 *4*	100	10707.0	(21$^-$)		
12348.0	(23$^-$)	1717.3 *12*	100	10630.7	(21$^-$)		
12791.2	(24$^+$)	1427.7 *3*	100	11363.4	(22$^+$)	E2	
13036.9	(24$^-$)	1749.2 *8*	100	11287.7	(22$^-$)		
14106.5	(25$^-$)	1842.4 *7*	100	12264.1	(23$^-$)		
14616.5	(26$^+$)	1825.3 *5*	100	12791.2	(24$^+$)		
14868.5	(26$^-$)	1831.6 *11*	100	13036.9	(24$^-$)		
16110.4	(27$^-$)	2003.9 *8*	100	14106.5	(25$^-$)		
16864.8	(28$^-$)	1996.3 *13*	100	14868.5	(26$^-$)		
18243.4	(29$^-$)	2133.0 *10*	100	16110.4	(27$^-$)		
546.90+x		546.9 *2*		x			
969.1+x		422.2 *2*	100	546.90+x			
1439.9+x		470.8 *2*	100	969.1+x			
2060.5+x		620.6 *2*	100	1439.9+x			
2777.8+x		717.3 *2*	100	2060.5+x			

[†] From DCO ratios in (HI,xnγ).

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

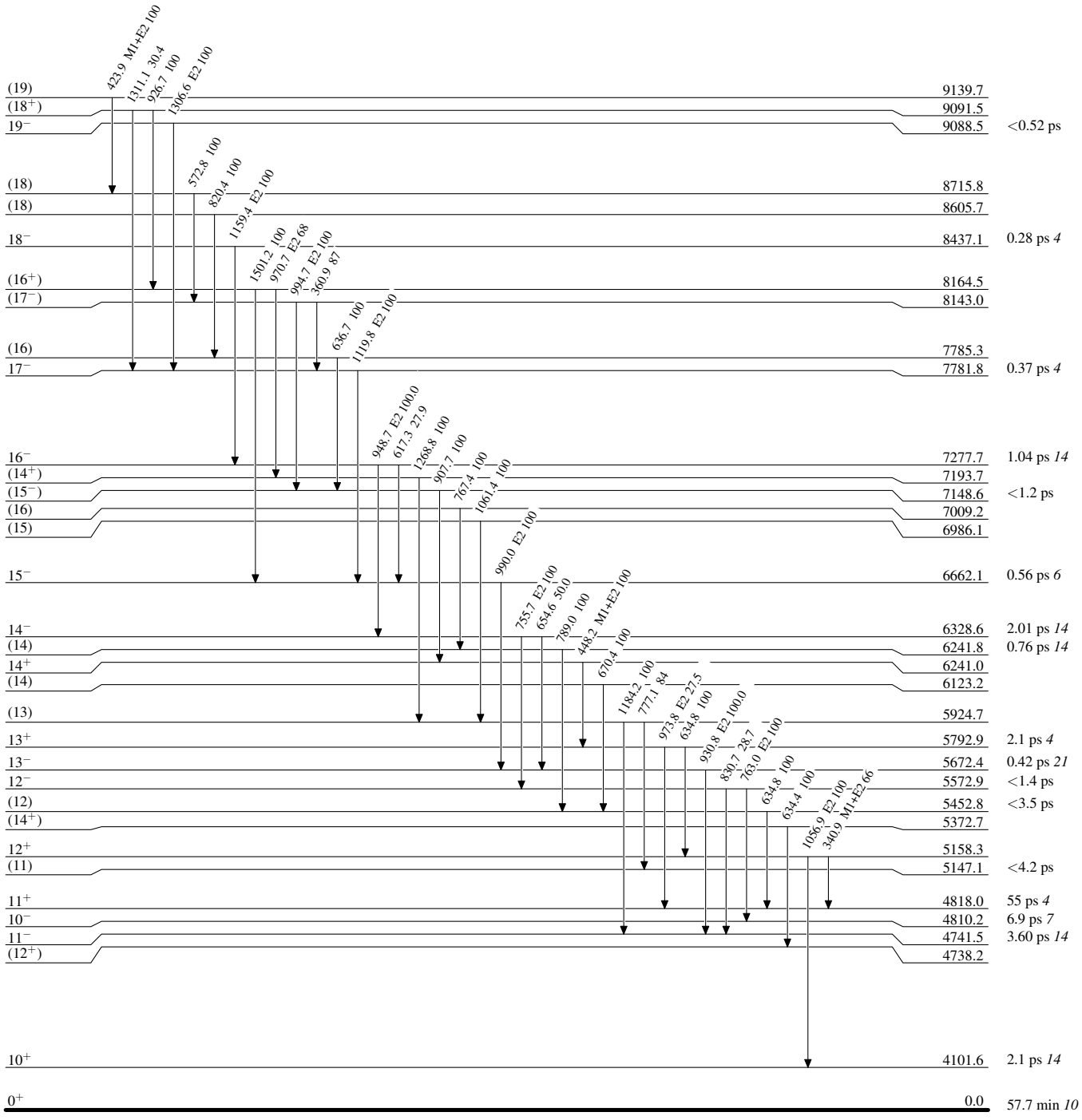


$^{104}_{48}Cd_{56}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

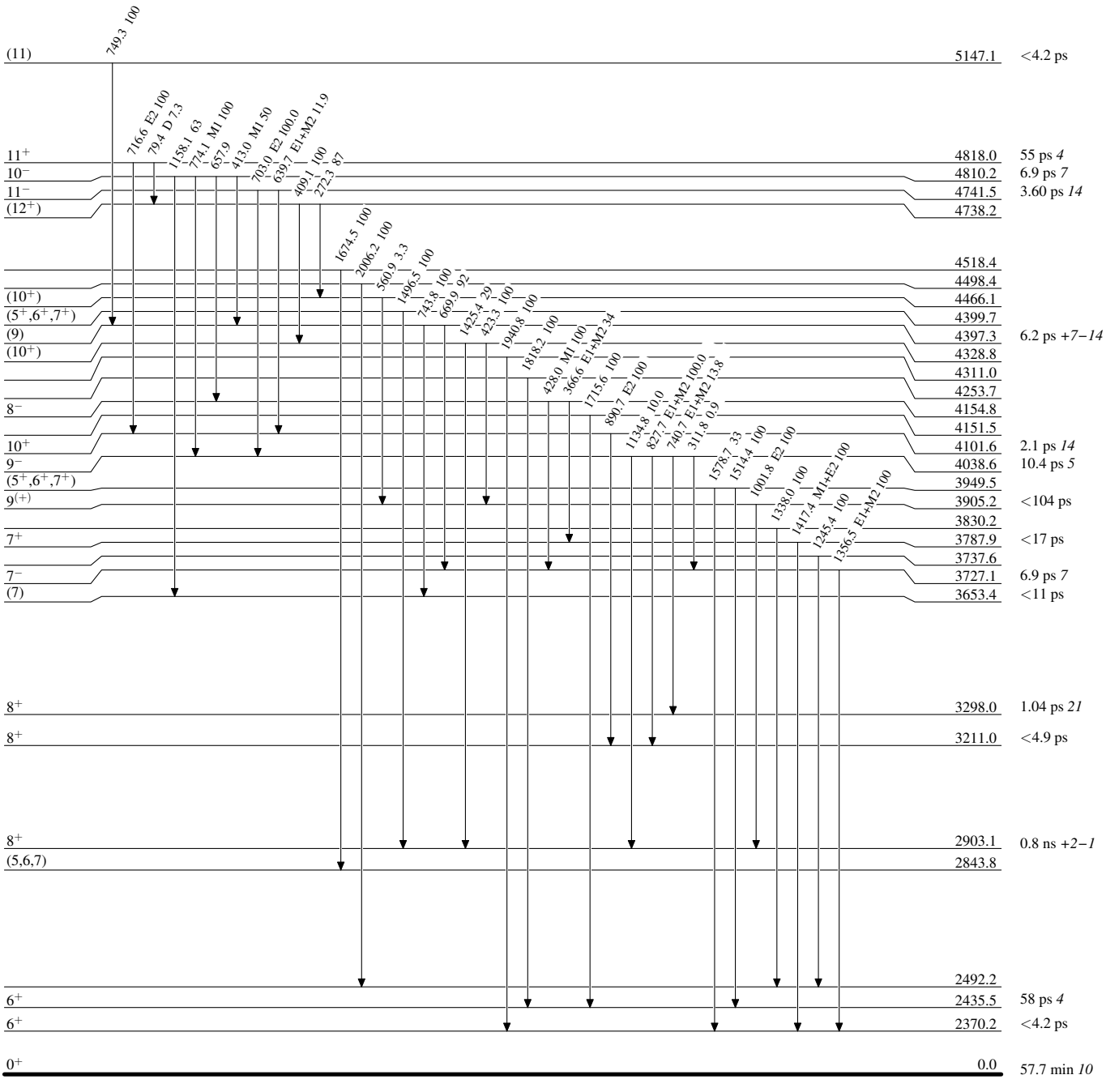


$^{104}_{48}Cd_{56}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

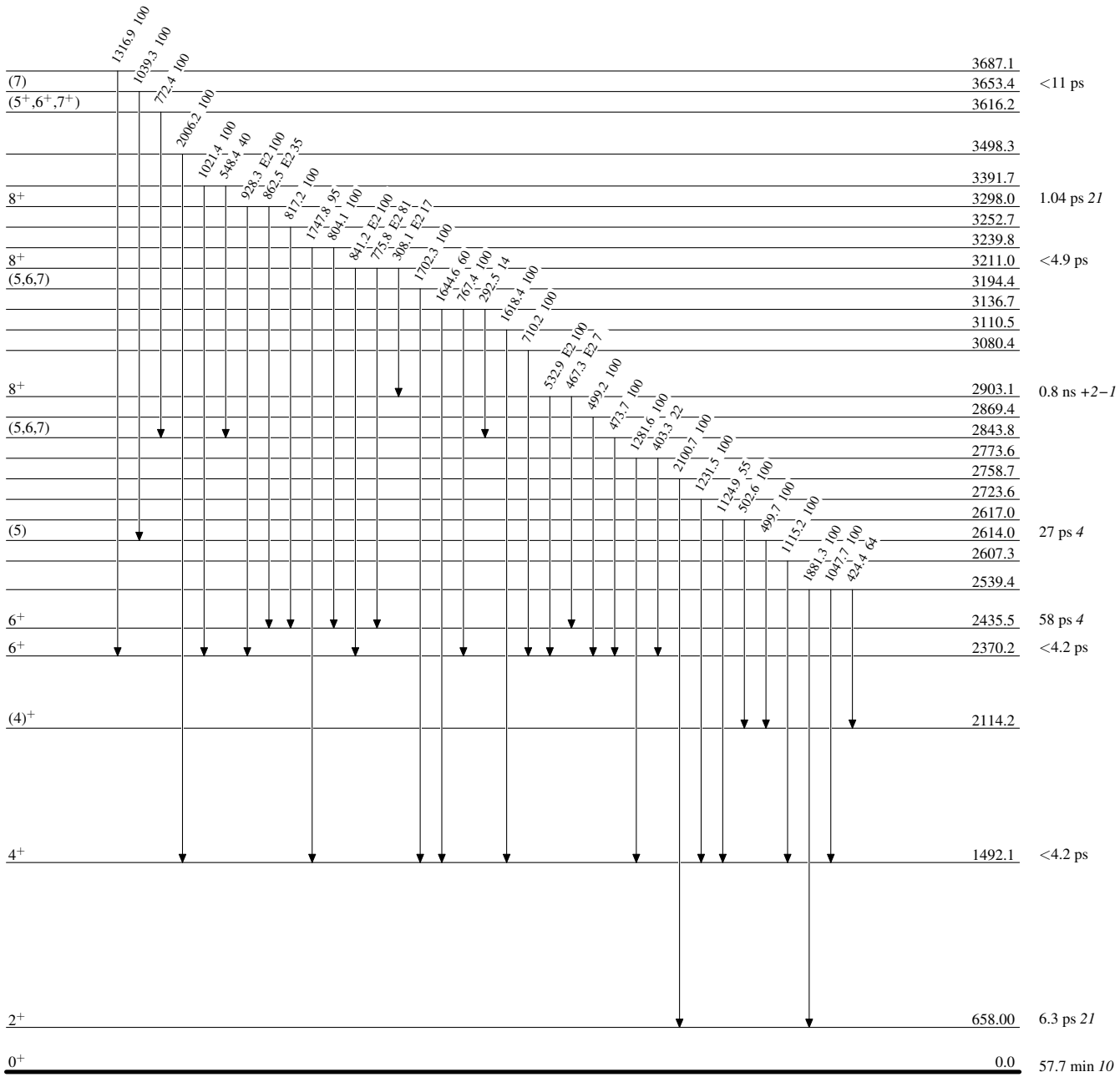


$^{104}_{48}Cd_{56}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

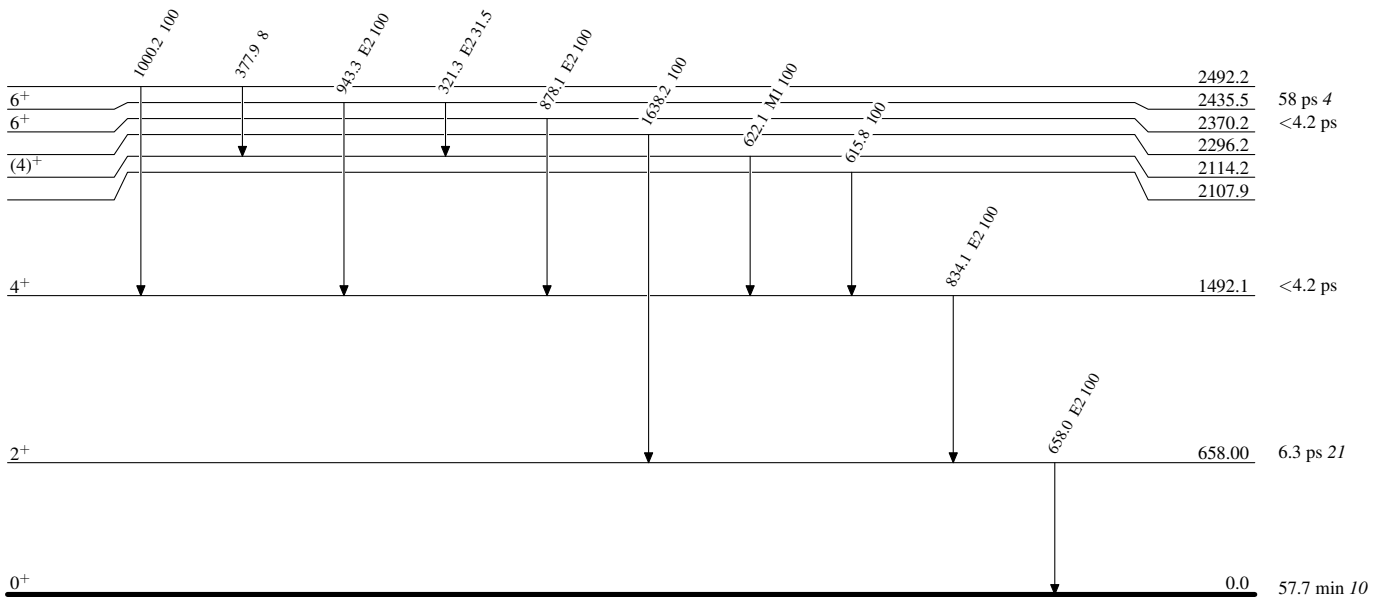


$^{104}_{48}Cd_{56}$

Adopted Levels, Gammas

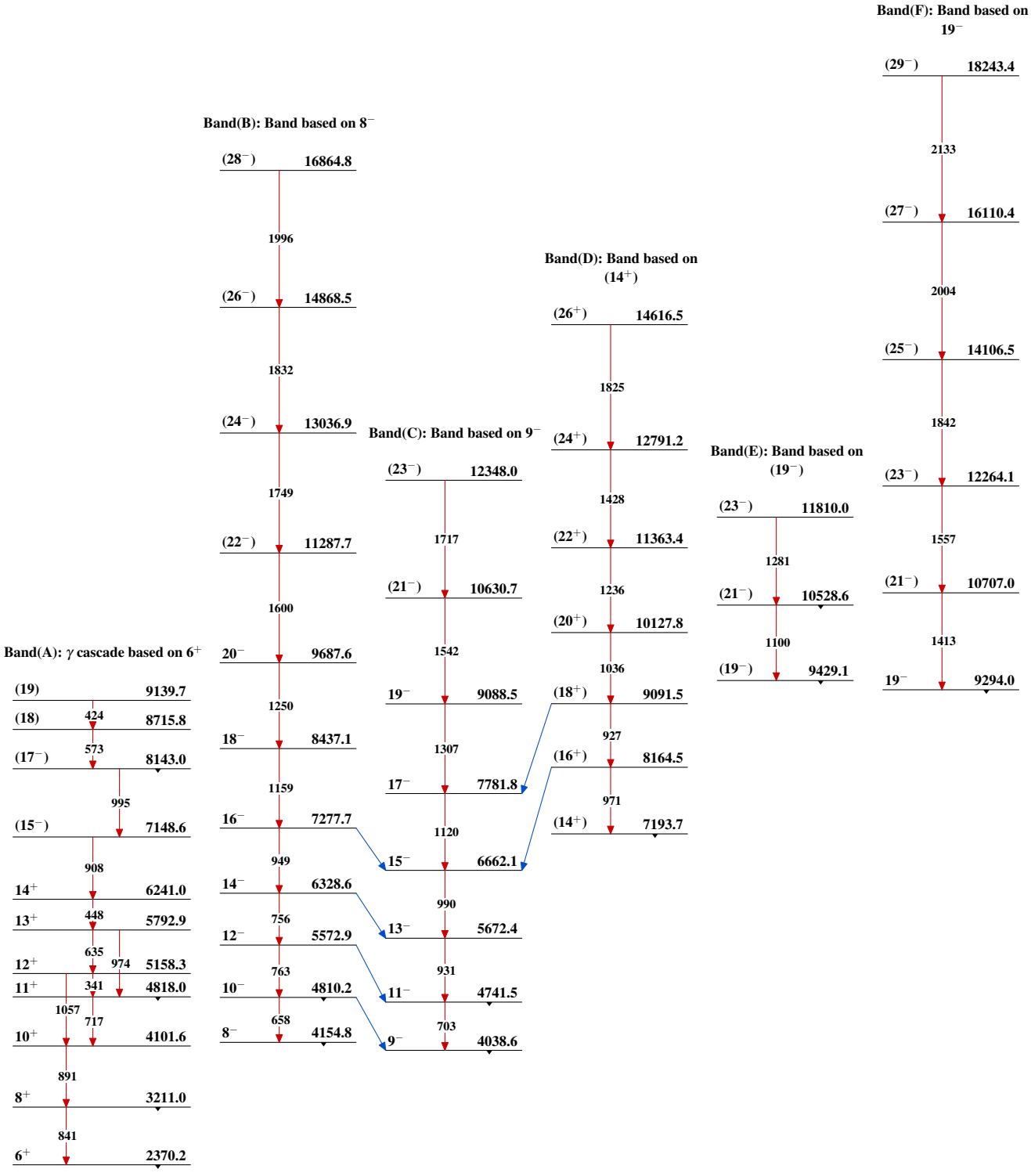
Level Scheme (continued)

Intensities: Relative photon branching from each level



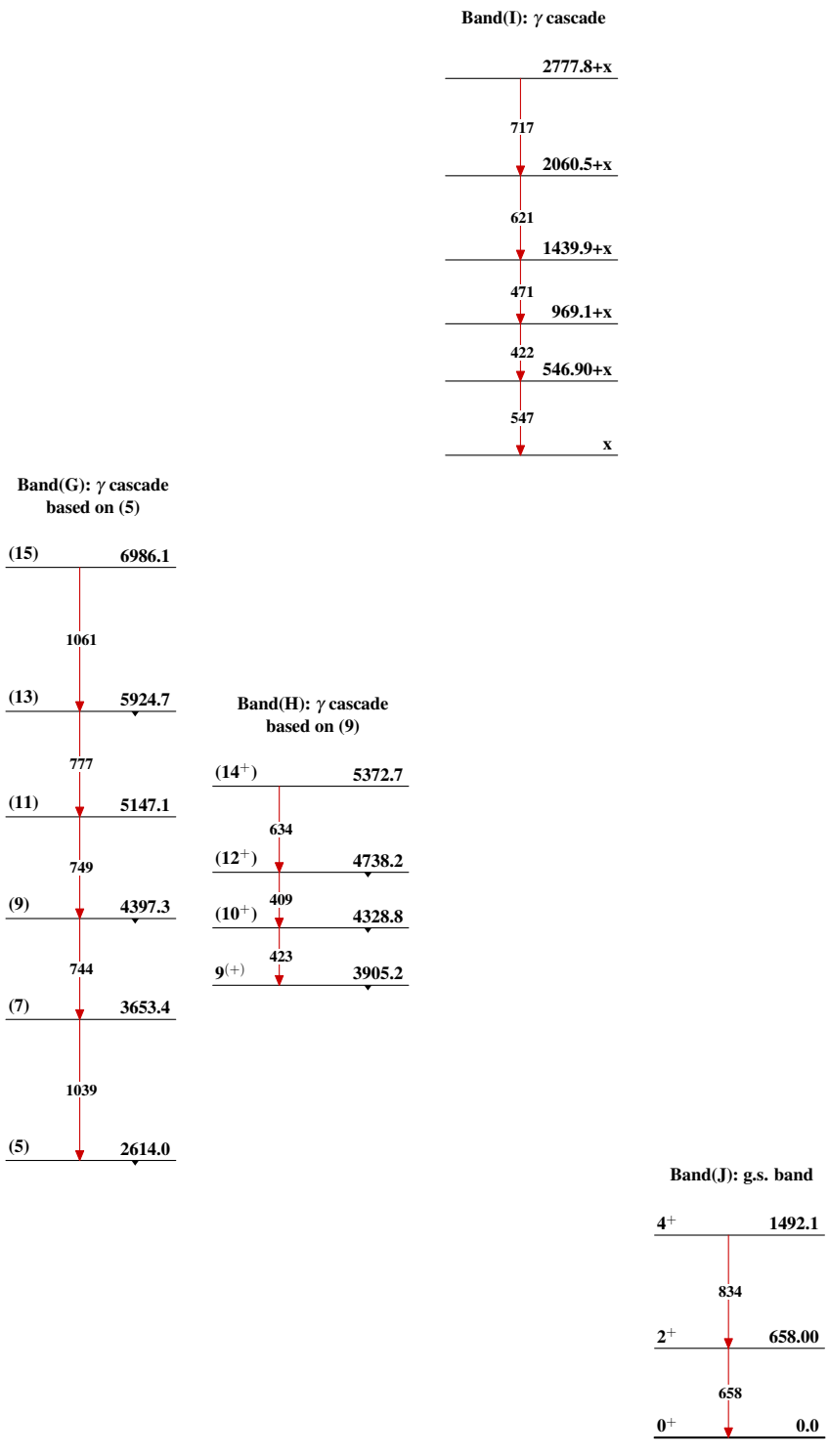
$^{104}_{48}Cd_{56}$

Adopted Levels, Gammas



$^{104}_{48}Cd_{56}$

Adopted Levels, Gammas (continued)



$^{104}_{48}Cd_{56}$