

¹²⁴Ba ε decay 1986We01

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	J. Katakura, Z. D. Wu		NDS 109, 1655 (2008)	1-Apr-2008

Parent: ¹²⁴Ba: E=0.0; J^π=0⁺; T_{1/2}=11.0 min 5; Q(ε)=2642 15; %ε+%β⁺ decay=100.0

The decay scheme is that proposed by 1986We01 on the basis of E_γ sums and γγ coin. The decay scheme is incomplete. Many low-energy γ rays may cause the intensity imbalance. Log ft values may suffer from the imbalance.

1986We01: La(³He,spall) Ce(³He,spall) E(³He)=280 MeV, on-line ms, semi; measured E_γ, I_γ, ce, γγ coin, γce coin.

1972Dr06: ¹¹⁶Sn(¹²C,4n) chem; measured T_{1/2}, γ.

Other: 1978Bo32.

¹²⁴Cs Levels

E(level) [†]	J ^π [‡]	T _{1/2}	E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]
0.0	1 ⁺	30.8 s 5	417.19 10	(3,4) ⁺	1000.91 25	0,1,2
169.53 6	(1) ⁺		443.86 9	(1,2) ⁺	1014.45 22	
188.98 6	(2) ⁺		464.91 15	1,2	1040.32 20	0,1,2
211.65 6	(3) ⁺		505.60 8	(1,2,3) ⁺	1049.23 22	0,1
242.88 6	(3) ⁺		512.29 10	(1,2,3) ⁺	1097.88 18	0,1
253.32 7	(1) ⁺		557.98 20	(1,2) ⁺	1131.93 17	1
270.32 8	(3) ⁺		596.17 17		1141.58 19	0,1,2
272.13 9	(0,1) ⁺		596.63 8	+	1168.62 21	0,1
272.68 6	(2,3) ⁺		613.90 8	(0,1,2) ⁺	1216.62 12	(1 ⁺)
282.62 7	3 ⁺		671.42 12	0,1,2	1244.57 10	(1) ⁺
301.12 8	(4) ⁻		751.65 14	(1 ⁺)	1259.84 14	(1 ⁺)
312.48 6	(2) ⁺		770.82 9	(1,2,3) ⁺	1388.90 16	(1 ⁺)
338.5? 8			846.5 3		1433.4 3	0,1,2
348.76? 9			864.1 4	1,2	1589.4 4	0,1,2
362.73 6	(3) ⁺		895.7 3	0,1,2	1623.2 5	0,1,2
397.61 17	(5) ⁻		920.69 17	(0 to 3) ⁺	1638.3? 10	0,1,2
401.32 9	(1,2) ⁺		933.85 20	0,1	1707.3 5	0,1,2
404.31 9	(1 ⁺ ,2 ⁺)		950.4?			

[†] From a least-squares fit to E_γ's.

[‡] From Adopted Levels.

ε,β⁺ radiations

E(decay)	E(level)	Iβ ⁺ [†]	Iε [†]	Log ft	I(ε+β ⁺) [†]	Comments
(935 15)	1707.3		0.40 9	5.77 10	0.40 9	εK=0.8471 2; εL=0.1197 2; εM+=0.03324 4
(1004 15)	1638.3?		0.21 5	6.11 11	0.21 5	εK=0.8477 2; εL=0.1192 1; εM+=0.03309 4
(1019 15)	1623.2		0.31 7	5.96 10	0.31 7	εK=0.8478 2; εL=0.1191 1; εM+=0.03306 3
(1053 15)	1589.4		0.96 15	5.49 8	0.96 15	εK=0.8481 2; εL=0.11893 9; εM+=0.03300 3
(1209 15)	1433.4		0.63 12	5.80 9	0.63 12	εK=0.8490; εL=0.11814 7; εM+=0.03274 3
(1253 15)	1388.90		3.2 5	5.13 8	3.2 5	εK=0.8491; εL=0.11794 7; εM+=0.03268 3
(1382 15)	1259.84	0.0067 15	3.7 5	5.15 7	3.7 5	av Eβ=171.4 68; εK=0.8484 3; εL=0.11730 9; εM+=0.03248 3
(1397 15)	1244.57	0.019 4	9.1 13	4.77 7	9.1 13	av Eβ=178.2 68; εK=0.8482 3; εL=0.11721 9; εM+=0.03245 3
(1425 15)	1216.62	0.037 8	13.1 18	4.63 7	13.1 18	av Eβ=190.5 66; εK=0.8477 4; εL=0.1170 1; εM+=0.03240 3
(1473 15)	1168.62	0.0048 10	1.08 18	5.74 8	1.08 18	av Eβ=211.5 66; εK=0.8465 5; εL=0.1167 2; εM+=0.03230 4
(1500 15)	1141.58	0.0033 6	0.59 8	6.02 7	0.59 8	av Eβ=223.4 66; εK=0.8456 6; εL=0.11650 13;

Continued on next page (footnotes at end of table)

^{124}Ba ε decay **1986We01** (continued) ε, β^+ radiations (continued)

E(decay)	E(level)	$I\beta^+$ †	$I\varepsilon$ †	Log ft	$I(\varepsilon + \beta^+)$ †	Comments
(1510 15)	1131.93	0.011 3	1.8 5	5.54 13	1.8 5	$\varepsilon M^+ = 0.03224$ 4 av $E\beta = 227.6$ 66; $\varepsilon K = 0.8453$ 6; $\varepsilon L = 0.11642$ 13; $\varepsilon M^+ = 0.03222$ 4
(1544 15)	1097.88	0.0123 24	1.55 25	5.63 8	1.56 25	av $E\beta = 242.4$ 66; $\varepsilon K = 0.8439$ 8; $\varepsilon L = 0.11612$ 15; $\varepsilon M^+ = 0.03213$ 5
(1593 15)	1049.23	0.0124 23	1.11 17	5.80 7	1.12 17	av $E\beta = 263.7$ 66; $\varepsilon K = 0.8413$ 10; $\varepsilon L = 0.11562$ 17; $\varepsilon M^+ = 0.03199$ 5
(1602 15)	1040.32	0.0083 18	0.70 14	6.00 9	0.71 14	av $E\beta = 267.6$ 66; $\varepsilon K = 0.8408$ 10; $\varepsilon L = 0.11553$ 18; $\varepsilon M^+ = 0.03196$ 5
(1641 15)	1000.91	0.0073 19	0.48 12	6.19 11	0.49 12	av $E\beta = 284.8$ 66; $\varepsilon K = 0.8382$ 12; $\varepsilon L = 0.11506$ 20; $\varepsilon M^+ = 0.03182$ 6
(1708 15)	933.85	0.028 5	1.25 19	5.81 7	1.28 19	av $E\beta = 314.0$ 66; $\varepsilon K = 0.8326$ 15; $\varepsilon L = 0.11412$ 24; $\varepsilon M^+ = 0.03156$ 7
(1746 15)	895.7	0.015 5	0.54 18	6.20 15	0.55 18	av $E\beta = 330.7$ 66; $\varepsilon K = 0.8287$ 17; $\varepsilon L = 0.1135$ 3; $\varepsilon M^+ = 0.03138$ 8
(1778 15)	864.1	0.009 4	0.27 12	6.51 19	0.28 12	av $E\beta = 344.5$ 66; $\varepsilon K = 0.8252$ 19; $\varepsilon L = 0.1129$ 3; $\varepsilon M^+ = 0.03123$ 8
(1890 15)	751.65	0.22 3	4.3 6	5.36 7	4.5 6	av $E\beta = 393.7$ 66; $\varepsilon K = 0.8095$ 25; $\varepsilon L = 0.1106$ 4; $\varepsilon M^+ = 0.03056$ 11
(1971 15)	671.42	0.022 6	0.31 8	6.54 12	0.33 9	av $E\beta = 428.8$ 66; $\varepsilon K = 0.795$ 3; $\varepsilon L = 0.1085$ 5; $\varepsilon M^+ = 0.02999$ 12
(2028 15)	613.90	0.09 4	1.0 5	6.05 20	1.1 5	av $E\beta = 454.1$ 66; $\varepsilon K = 0.784$ 4; $\varepsilon L = 0.1068$ 5; $\varepsilon M^+ = 0.02952$ 13
(2084 15)	557.98	0.025 9	0.24 8	6.71 16	0.26 9	av $E\beta = 478.8$ 67; $\varepsilon K = 0.771$ 4; $\varepsilon L = 0.1051$ 5; $\varepsilon M^+ = 0.02902$ 14
(2177 15)	464.91	0.12 2	0.87 18	6.18 9	0.99 20	av $E\beta = 519.9$ 67; $\varepsilon K = 0.748$ 4; $\varepsilon L = 0.1018$ 6; $\varepsilon M^+ = 0.02811$ 16
(2198 15)	443.86	0.030 10	0.20 7	6.83 16	0.23 8	av $E\beta = 529.2$ 67; $\varepsilon K = 0.743$ 4; $\varepsilon L = 0.1010$ 6; $\varepsilon M^+ = 0.02789$ 16
(2238 15)	404.31	0.13 3	0.82 17	6.23 10	0.95 20	av $E\beta = 546.7$ 67; $\varepsilon K = 0.732$ 5; $\varepsilon L = 0.0994$ 6; $\varepsilon M^+ = 0.02747$ 17
(2241 15)	401.32	0.21 4	1.3 3	6.04 9	1.5 3	av $E\beta = 548.0$ 67; $\varepsilon K = 0.731$ 5; $\varepsilon L = 0.0993$ 6; $\varepsilon M^+ = 0.02743$ 17
(2279 [‡] 15)	362.73	0.15 3	0.84 18	6.24 10	0.99 21	av $E\beta = 565.2$ 67; $\varepsilon K = 0.720$ 5; $\varepsilon L = 0.0978$ 7; $\varepsilon M^+ = 0.02700$ 18
(2330 15)	312.48	0.55 9	2.6 4	5.76 8	3.2 5	av $E\beta = 587.5$ 67; $\varepsilon K = 0.705$ 5; $\varepsilon L = 0.0957$ 7; $\varepsilon M^+ = 0.02642$ 18
(2370 15)	272.13	0.36 8	1.5 3	6.01 10	1.9 4	av $E\beta = 605.4$ 67; $\varepsilon K = 0.692$ 5; $\varepsilon L = 0.0939$ 7; $\varepsilon M^+ = 0.02593$ 19
(2389 15)	253.32	0.74 14	3.1 6	5.72 9	3.8 7	av $E\beta = 613.8$ 67; $\varepsilon K = 0.686$ 5; $\varepsilon L = 0.0931$ 7; $\varepsilon M^+ = 0.02570$ 19
(2472 15)	169.53	4.3 6	14.4 19	5.07 7	18.7 25	av $E\beta = 651.2$ 67; $\varepsilon K = 0.659$ 5; $\varepsilon L = 0.0893$ 7; $\varepsilon M^+ = 0.02465$ 20
(2642 15)	0.0	5 3	12 8	5.2 3	17 11	av $E\beta = 727.2$ 68; $\varepsilon K = 0.600$ 6; $\varepsilon L = 0.0812$ 8; $\varepsilon M^+ = 0.02242$ 20

† Absolute intensity per 100 decays.

‡ Existence of this branch is questionable.

¹²⁴Ba ε decay **1986We01 (continued)**

γ(¹²⁴Cs)

I_γ normalization: From I(354γ, 2⁺ to 0⁺ in ¹²⁴Xe)=47% 6.

RI(F,H,I) Whole intensity of this γ was assigned to other components by authors.

α(K)exp are from Ice(K)/I_γ normalized to α(K)(E2)=0.0207 for 354γ (2⁺ to 0⁺) in ¹²⁴Xe.

E _γ [†]	I _γ ^{†‡e}	E _i (level)	J _i ^π	E _f	J _f ^π	Mult. ^c	α ^f	Comments
^x ≈33								L/M=4.0 4. E _γ : listed only in authors' conversion-electron table.
36.1 ^{ai}		348.76?		312.48	(2) ⁺			
^x 38.0 1								
^x 38.65 5								
38.65 ⁱ 5		443.86	(1,2) ⁺	404.31	(1 ⁺ ,2 ⁺)			E _γ : 38.7 in authors' drawing. Not placed in authors' table.
43.70 5	1.26 6	1141.58	0,1,2	1097.88	0,1			
^x 44.90 8	0.30 5							
50.3 1	0.07 2	362.73	(3) ⁺	312.48	(2) ⁺			
53.85 5	3.89 8	242.88	(3) ⁺	188.98	(2) ⁺	M1	5.37	α(K)=4.60 7; α(L)=0.618 9; α(M)=0.1266 18; α(N+..)=0.0306 5 α(N)=0.0267 4; α(O)=0.00371 6; α(P)=0.000181 3 α(L)exp=0.63 +5-6, L/M=4.5 6.
58.20 8	0.26 3	301.12	(4) ⁻	242.88	(3) ⁺	E1	0.974	α(K)=0.825 12; α(L)=0.1189 18; α(M)=0.0242 4; α(N+..)=0.00565 9 α(N)=0.00498 8; α(O)=0.000644 10; α(P)=2.39×10 ⁻⁵ 4 α(L)exp=0.12 +3-2.
59.15 8	0.17 3	312.48	(2) ⁺	253.32	(1) ⁺			
61.6 ^{gi} 1		362.73	(3) ⁺	301.12	(4) ⁻			E _γ : complex line (1986We01).
61.6 ^g 1	≈0.017	505.60	(1,2,3) ⁺	443.86	(1,2) ⁺			E _γ : complex line (1986We01). I _γ : From the intensity (≈0.06) in the figure in 1986We01. I _γ =0.17 4 for a doublet.
66.2 1	0.22 4	348.76?		282.62	3 ⁺			
69.50 5	3.06 6	312.48	(2) ⁺	242.88	(3) ⁺	(M1)	2.56	α(K)=2.19 4; α(L)=0.294 5; α(M)=0.0601 9; α(N+..)=0.01455 21 α(N)=0.01270 18; α(O)=0.001765 25; α(P)=8.63×10 ⁻⁵ 13 α(K)exp≈1.2, K/L≈8.9.
70.9 1	0.22 4	282.62	3 ⁺	211.65	(3) ⁺			E _γ : complex line (1986We01).
73.3 ^a		242.88	(3) ⁺	169.53	(1) ⁺			
74.8 [@] 1	≈0.06	671.42	0,1,2	596.63	⁺			
^x 76.9 1	0.13 3					(M1)	1.91	α(K)=1.637 24; α(L)=0.219 4; α(M)=0.0448 7; α(N+..)=0.01085 16 α(N)=0.00947 14; α(O)=0.001316 19; α(P)=6.44×10 ⁻⁵ 10 α(K)exp≈1.6.
^x 79.4 1	0.15 3					M1,E2	3.0 13	α(K)=1.9 5; α(L)=0.8 7; α(M)=0.18 14; α(N+..)=0.04 4 α(N)=0.04 3; α(O)=0.004 4; α(P)=6.1×10 ⁻⁵ 3 α(K)exp=2.1 +8-6.
81.3 1	0.10 2	443.86	(1,2) ⁺	362.73	(3) ⁺	M1,E2	2.8 12	α(K)=1.8 5; α(L)=0.8 6; α(M)=0.16 13; α(N+..)=0.04 3 α(N)=0.033 25; α(O)=0.004 3; α(P)=5.7×10 ⁻⁵ 3 α(K)exp=2.2 +11-6.

¹²⁴Ba ε decay **1986We01** (continued)

γ(¹²⁴Cs) (continued)

E_γ †	I_γ †‡e	E_i (level)	J_i^π	E_f	J_f^π	Mult. ^c	δ^c	α^f	Comments	
83.7 1	0.34 3	253.32	(1) ⁺	169.53	(1) ⁺	(M1,E2)		2.5 11	$\alpha(K)=1.7$ 4; $\alpha(L)=0.7$ 5; $\alpha(M)=0.14$ 11; $\alpha(N+..)=0.033$ 24 $\alpha(N)=0.029$ 22; $\alpha(O)=0.0035$ 25; $\alpha(P)=5.3 \times 10^{-5}$ 3 $\alpha(K)\text{exp} \approx 1.2$, $K/L \approx 3.2$.	
84.40 ^{gi} 15		338.5?		253.32	(1) ⁺				I_γ : From the intensity in the figure in 1986We01 . $I_\gamma=0.29$ 3 for a doublet. $\alpha(K)\text{exp} \approx 0.8$, $K/L \approx 7.1$.	
84.40 ^g 15	0.20 3	596.63	+	512.29	(1,2,3) ⁺					
88.3 1	0.12 3	505.60	(1,2,3) ⁺	417.19	(3,4) ⁺				$\alpha(K)\text{exp} \approx 0.5$. $\alpha(K)=0.255$ 4; $\alpha(L)=0.0347$ 5; $\alpha(M)=0.00705$ 10; $\alpha(N+..)=0.001665$ 24 $\alpha(N)=0.001463$ 21; $\alpha(O)=0.000194$ 3; $\alpha(P)=7.85 \times 10^{-6}$ 12 $\alpha(K)\text{exp}=0.25$ +5-4, $K/L=7.5$ 12.	
89.50 8	0.62 4	301.12	(4) ⁻	211.65	(3) ⁺	E1		0.299		
90.07 5	1.03 4	362.73	(3) ⁺	272.68	(2,3) ⁺	M1(+E2)	<0.2	1.24 4	$\alpha(K)=1.052$ 19; $\alpha(L)=0.152$ 14; $\alpha(M)=0.031$ 3; $\alpha(N+..)=0.0075$ 7 $\alpha(N)=0.0066$ 6; $\alpha(O)=0.00090$ 7; $\alpha(P)=4.10 \times 10^{-5}$ 6 $\alpha(K)\text{exp}=0.88$ 12, $K/L=7.5$ 11, $L/M \approx 4.6$.	
90.95 7	0.20 3	596.63	+	505.60	(1,2,3) ⁺	M1,E2		1.9 8	$\alpha(K)=1.3$ 3; $\alpha(L)=0.5$ 4; $\alpha(M)=0.10$ 8; $\alpha(N+..)=0.023$ 17 $\alpha(N)=0.020$ 15; $\alpha(O)=0.0024$ 17; $\alpha(P)=4.19 \times 10^{-5}$ 22 $\alpha(K)\text{exp}=2.2$ +6-5.	
93.68 ^g 5	0.60 4	282.62	3 ⁺	188.98	(2) ⁺	M1(+E2)	<0.6	1.25 17	$\alpha(K)=1.00$ 8; $\alpha(L)=0.20$ 8; $\alpha(M)=0.042$ 17; $\alpha(N+..)=0.010$ 4 $\alpha(N)=0.009$ 4; $\alpha(O)=0.0011$ 4; $\alpha(P)=3.71 \times 10^{-5}$ 8 I_γ : From the intensity in the figure in 1986We01 . $I_\gamma=0.64$ 4 for a doublet. $\alpha(K)\text{exp}=0.96$ +11-9.	
93.68 ^{gi} 5		864.1	1,2	770.82	(1,2,3) ⁺				$\alpha(K)=1.184$ 17; $\alpha(L)=0.504$ 8; $\alpha(M)=0.1089$ 16; $\alpha(N+..)=0.0247$ 4 $\alpha(N)=0.0221$ 4; $\alpha(O)=0.00260$ 4; $\alpha(P)=3.29 \times 10^{-5}$ 5 $\alpha(K)\text{exp}=0.92$ +30-23, $K/L=3.5$ +7-6.	
96.50 15	0.04 2	397.61	(5) ⁻	301.12	(4) ⁻					
100.7 1	0.26 4	270.32	(3) ⁺	169.53	(1) ⁺	E2		1.82		
101.58 7	0.62 4	613.90	(0,1,2) ⁺	512.29	(1,2,3) ⁺	M1+E2	1.0 3	1.31 16	$\alpha(K)=0.95$ 8; $\alpha(L)=0.29$ 7; $\alpha(M)=0.062$ 15; $\alpha(N+..)=0.014$ 4 $\alpha(N)=0.013$ 3; $\alpha(O)=0.0015$ 4; $\alpha(P)=3.05 \times 10^{-5}$ 7 $\alpha(K)\text{exp}=0.89$ 15, $K/L=3.4$ +6-5, $L/M=4.2$ 2.	
102.6 1	0.65 5	272.13	(0,1) ⁺	169.53	(1) ⁺	<i>d</i>			$\alpha(K)\text{exp}=0.58$ 6, $K/L=5.6$ 6, $L/M=4.2$ 4 for 102.6 γ and 103.16 γ.	
103.16 5	2.96 8	272.68	(2,3) ⁺	169.53	(1) ⁺	<i>d</i>			$\alpha(K)=0.87$ 19; $\alpha(L)=0.26$ 17; $\alpha(M)=0.06$ 4; $\alpha(N+..)=0.013$ 9 $\alpha(N)=0.011$ 8; $\alpha(O)=0.0014$ 9; $\alpha(P)=2.81 \times 10^{-5}$ 15 $\alpha(K)\text{exp}=1.3$ +4-2.	
104.6 1	0.37 4	417.19	(3,4) ⁺	312.48	(2) ⁺	M1,E2		1.2 4		
108.29 5	2.02 6	613.90	(0,1,2) ⁺	505.60	(1,2,3) ⁺	M1		0.718	$\alpha(K)=0.615$ 9; $\alpha(L)=0.0819$ 12; $\alpha(M)=0.01676$ 24; $\alpha(N+..)=0.00406$ 6 $\alpha(N)=0.00354$ 5; $\alpha(O)=0.000493$ 7; $\alpha(P)=2.42 \times 10^{-5}$ 4 $\alpha(K)\text{exp}=0.56$ 3, $K/L=7.2$ 3, $L/M=1.8$ 2.	

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¹²⁴Ba ε decay 1986We01 (continued)

γ(¹²⁴Cs) (continued)

E_γ †	I_γ †‡e	E_f (level)	J_i^π	E_f	J_f^π	Mult. ^c	δ^c	α^f	Comments
113.0 @i	≈0.06	301.12	(4) ⁻	188.98	(2) ⁺				
115.0 @i 2	≈0.10	417.19	(3,4) ⁺	301.12	(4) ⁻				
119.89 7	3.45 7	362.73	(3) ⁺	242.88	(3) ⁺	M1		0.539	$\alpha(K)=0.462$ 7; $\alpha(L)=0.0613$ 9; $\alpha(M)=0.01255$ 18; $\alpha(N+..)=0.00304$ 5 $\alpha(N)=0.00265$ 4; $\alpha(O)=0.000369$ 6; $\alpha(P)=1.81 \times 10^{-5}$ 3 $\alpha(K)\text{exp}=0.43$ +3-1, K/L=7.5 +5-4, L/M=4.8 4. $\alpha(K)=0.524$ 23; $\alpha(L)=0.132$ 17; $\alpha(M)=0.028$ 4; $\alpha(N+..)=0.0065$ 9 $\alpha(N)=0.0057$ 8; $\alpha(O)=0.00071$ 9; $\alpha(P)=1.74 \times 10^{-5}$ 3 $\alpha(K)\text{exp}=0.46$ 4, K/L=4.1 3, L/M=2.8 9.
123.5 1	1.17 6	312.48	(2) ⁺	188.98	(2) ⁺	M1+E2	1.0 2	0.69 5	
129.30 15	0.32 5	401.32	(1,2) ⁺	272.13	(0,1) ⁺	M1,E2		0.59 16	$\alpha(K)=0.46$ 9; $\alpha(L)=0.11$ 6; $\alpha(M)=0.023$ 14; $\alpha(N+..)=0.005$ 3 $\alpha(N)=0.005$ 3; $\alpha(O)=0.0006$ 3; $\alpha(P)=1.52 \times 10^{-5}$ 6 $\alpha(K)\text{exp}=0.67$ +19-13.
130.70 ^h 15	<0.33 ^h	401.32	(1,2) ⁺	270.32	(3) ⁺				$I_\gamma=0.33$ 5 for a doublet.
130.70 ^h 15	0.13 ^h 2	443.86	(1,2) ⁺	312.48	(2) ⁺				I_γ : From the intensity in the figure in 1986We01. $I_\gamma=0.33$ 5 for a doublet.
134.3 @ ≈143 ^a	≈0.14	404.31 505.60	(1 ⁺ ,2 ⁺) (1,2,3) ⁺	270.32 362.73	(3) ⁺ (3) ⁺				
148.2 @	≤0.3	401.32	(1,2) ⁺	253.32	(1) ⁺				
151.0 ^h 1	0.48 ^h 15	362.73	(3) ⁺	211.65	(3) ⁺				I_γ : From the intensity in the figure in 1986We01. $I_\gamma=1.69$ 15 for a doublet. $\alpha(K)\text{exp}=0.23$ 3, K/L=4.2 4 for a doublet.
151.0 ^h 1	1.21 ^h 15	404.31	(1 ⁺ ,2 ⁺)	253.32	(1) ⁺				I_γ : From the intensity in the figure in 1986We01. $I_\gamma=1.69$ 15 for a doublet.
156.87 ^h 7	2.68 ^h 10	505.60	(1,2,3) ⁺	348.76?					I_γ : From the intensity in the figure in 1986We01. $I_\gamma=5.35$ 10 for a doublet. $\alpha(K)\text{exp}=0.25$ 1, K/L=5.1 +27-14, L/M>2.4 for a doublet.
156.87 ^h 7	2.68 ^h 10	770.82	(1,2,3) ⁺	613.90	(0,1,2) ⁺				I_γ : From the intensity in the figure in 1986We01. $I_\gamma=5.35$ 10 for a doublet.
158.9 @i 169.5 1	≈0.27 46.1 4	401.32 169.53	(1,2) ⁺ (1) ⁺	242.88 0.0	(3) ⁺ 1 ⁺	M1(+E2)	<0.6	0.217 12	$\alpha(K)=0.183$ 7; $\alpha(L)=0.027$ 5; $\alpha(M)=0.0057$ 10; $\alpha(N+..)=0.00136$ 21 $\alpha(N)=0.00119$ 19; $\alpha(O)=0.000161$ 21; $\alpha(P)=6.91 \times 10^{-6}$ 10 $\alpha(K)\text{exp}=0.183$ 8, K/L=7.4 3, L/M≈4.8.
170.2 ⁱ 2 174.2 1	1.1 2 2.55 15	613.90 770.82	(0,1,2) ⁺ (1,2,3) ⁺	443.86 596.63	(1,2) ⁺ +	M1(+E2)	<0.8	0.206 16	$\alpha(K)=0.172$ 9; $\alpha(L)=0.027$ 6; $\alpha(M)=0.0056$ 12; $\alpha(N+..)=0.0013$ 3 $\alpha(N)=0.00117$ 24; $\alpha(O)=0.00016$ 3; $\alpha(P)=6.40 \times 10^{-6}$ 10 $\alpha(K)\text{exp}=0.16$ 2, K/L≈3.9, L/M≈1.4.
185.7 @ 189.0 1	≤0.4 27.4 5	397.61 188.98	(5) ⁻ (2) ⁺	211.65 0.0	(3) ⁺ 1 ⁺	M1+E2	0.5 1	0.162 4	$\alpha(K)=0.136$ 3; $\alpha(L)=0.0209$ 13; $\alpha(M)=0.0043$ 3;

¹²⁴Ba ε decay 1986We01 (continued)

γ(¹²⁴Cs) (continued)

E_γ †	I_γ ‡e	E_i (level)	J_i^π	E_f	J_f^π	Mult. ^c	α^f	Comments
								$\alpha(N+..)=0.00103\ 6$ $\alpha(N)=0.00091\ 6$; $\alpha(O)=0.000122\ 6$; $\alpha(P)=5.09\times 10^{-6}\ 8$ $\alpha(K)_{\text{exp}}=0.126\ 6$, K/L=6.6 +3-4, L/M=3.0 2.
189.0 <i>&i</i> 1		1433.4	0,1,2	1244.57	(1) ⁺			
189.7@	≤1.0	401.32	(1,2) ⁺	211.65	(3) ⁺			
192.70 <i>g&i</i> 15		362.73	(3) ⁺	169.53	(1) ⁺			
192.70 <i>g&</i> 15	1.9 1	404.31	(1 ⁺ ,2 ⁺)	211.65	(3) ⁺	(M1,E2)	0.167 23	$\alpha(K)=0.136\ 12$; $\alpha(L)=0.025\ 9$; $\alpha(M)=0.0052\ 19$; $\alpha(N+..)=0.0012\ 4$ $\alpha(N)=0.0011\ 4$; $\alpha(O)=0.00014\ 4$; $\alpha(P)=4.76\times 10^{-6}\ 13$ $\alpha(K)_{\text{exp}}\leq 0.13$.
211.6 1	9.2 2	211.65	(3) ⁺	0.0	1 ⁺	E2	0.1375	$\alpha(K)=0.1085\ 16$; $\alpha(L)=0.0230\ 4$; $\alpha(M)=0.00485\ 7$; $\alpha(N+..)=0.001127\ 16$ $\alpha(N)=0.000998\ 14$; $\alpha(O)=0.0001257\ 18$; $\alpha(P)=3.49\times 10^{-6}\ 5$ $\alpha(K)_{\text{exp}}=0.114\ 4$, K/L=3.9 3, L/M=2.8 3.
212.6 <i>h</i> @ 2	<0.5 <i>h</i>	401.32	(1,2) ⁺	188.98	(2) ⁺			I_γ : From the intensity in the figure in 1986We01. $I_\gamma=0.70\ 15$ for a doublet.
212.6 <i>h</i> 2	0.20 <i>h</i> 4	613.90	(0,1,2) ⁺	401.32	(1,2) ⁺			I_γ : From the intensity in the figure in 1986We01. $I_\gamma=0.70\ 15$ for a doublet.
≈230.1 <i>h</i>	0.15 <i>h</i> 5	512.29	(1,2,3) ⁺	282.62	3 ⁺			I_γ : From the intensity in the figure in 1986We01. $I_\gamma=0.3\ 1$ for a doublet.
≈230.1 <i>h</i>	≈0.15 <i>h</i>	1244.57	(1) ⁺	1014.45				I_γ : From the intensity in the figure in 1986We01. $I_\gamma=0.3\ 1$ for a doublet.
≈232.6	0.5 1	401.32	(1,2) ⁺	169.53	(1) ⁺			
≈234.6 <i>h#</i>	0.2 <i>h</i> 1	404.31	(1 ⁺ ,2 ⁺)	169.53	(1) ⁺			I_γ : From the intensity in the figure in 1986We01. $I_\gamma=0.4\ 1$ for a triplet.
≈234.6 <i>h#</i>	≈0.2 <i>h</i>	596.17		362.73	(3) ⁺			I_γ : From the intensity in the figure in 1986We01. $I_\gamma=0.4\ 1$ for a doublet.
≈234.6 <i>#i</i>		596.63	⁺	362.73	(3) ⁺			
243.3 <i>gi</i> 3		242.88	(3) ⁺	0.0	1 ⁺			
243.3 <i>g</i> 3	0.75 15	1014.45		770.82	(1,2,3) ⁺			$I_\gamma=0.75\ 15$ for a doublet. $\alpha(K)_{\text{exp}}\approx 0.16$.
≈252.8		505.60	(1,2,3) ⁺	253.32	(1) ⁺			E_γ : one component of a triplet in authors' table.
253.25 <i>h</i> 15	12.1 <i>h</i> 3	253.32	(1) ⁺	0.0	1 ⁺	M1,E2	0.072 4	$\alpha(K)=0.0602\ 11$; $\alpha(L)=0.0097\ 20$; $\alpha(M)=0.0020\ 5$; $\alpha(N+..)=0.00048\ 10$ $\alpha(N)=0.00042\ 9$; $\alpha(O)=5.6\times 10^{-5}\ 9$; $\alpha(P)=2.17\times 10^{-6}\ 17$ $\alpha(K)_{\text{exp}}=0.063\ +5-4$, K/L=5.8 +26-14, L/M=5.0 14. I_γ : From the intensity in the figure in 1986We01. $I_\gamma=13.3\ 3$ for a triplet.
253.25 <i>h</i> 15	1.2 <i>h</i> 3	464.91	1,2	211.65	(3) ⁺			I_γ : From the intensity in the figure in 1986We01. $I_\gamma=13.3\ 3$ for a triplet.
258.6 3	0.3 1	512.29	(1,2,3) ⁺	253.32	(1) ⁺			
262.5 3	0.3 1	505.60	(1,2,3) ⁺	242.88	(3) ⁺			$\alpha(K)_{\text{exp}}\approx 0.12$.

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¹²⁴Ba ε decay 1986We01 (continued)

γ(¹²⁴Cs) (continued)

E_γ †	I_γ †‡e	E_i (level)	J_i^π	E_f	J_f^π	Mult. ^c	α^f	Comments
270.30 15	7.26 30	270.32	(3) ⁺	0.0	1 ⁺	E2	0.0609	$\alpha(K)=0.0494$ 7; $\alpha(L)=0.00913$ 13; $\alpha(M)=0.00191$ 3; $\alpha(N+..)=0.000449$ 7 $\alpha(N)=0.000396$ 6; $\alpha(O)=5.09\times 10^{-5}$ 8; $\alpha(P)=1.653\times 10^{-6}$ 24 $\alpha(K)_{\text{exp}}=0.019$ 2, K/L=3.3 +18-9, L/M=2.7 16.
272.2 2	7.7 4	272.13	(0,1) ⁺	0.0	1 ⁺			
272.8 2	3.8 4	272.68	(2,3) ⁺	0.0	1 ⁺			
278.4 5	0.4 1	1049.23	0,1	770.82	(1,2,3) ⁺			$\alpha(K)_{\text{exp}}\approx 0.08$. E_γ : complex line (1986We01). $I_\gamma=0.8$ 1 for a doublet.
283.7g# 3	0.8 1	596.17		312.48	(2) ⁺			
283.7g#i 3		596.63	+	312.48	(2) ⁺			
283.7g#i 3	<0.8	1216.62	(1 ⁺)	933.85	0,1			I_γ : much less than 0.8.
287.6 3	0.90 8	557.98	(1,2) ⁺	270.32	(3) ⁺	M1,E2	0.0497 8	$\alpha(K)=0.0417$ 12; $\alpha(L)=0.0064$ 9; $\alpha(M)=0.00133$ 20; $\alpha(N+..)=0.00032$ 5 $\alpha(N)=0.00028$ 4; $\alpha(O)=3.7\times 10^{-5}$ 4; $\alpha(P)=1.52\times 10^{-6}$ 15 $\alpha(K)_{\text{exp}}=0.06$ 1.
291 @	≤0.2	1388.90	(1 ⁺)	1097.88	0,1			
294.1 3	0.60 8	505.60	(1,2,3) ⁺	211.65	(3) ⁺	M1,E2	0.0466	$\alpha(K)=0.0391$ 14; $\alpha(L)=0.0060$ 8; $\alpha(M)=0.00124$ 17; $\alpha(N+..)=0.00029$ 4 $\alpha(N)=0.00026$ 4; $\alpha(O)=3.5\times 10^{-5}$ 4; $\alpha(P)=1.43\times 10^{-6}$ 15 $\alpha(K)_{\text{exp}}\approx 0.04$.
300.7g ⁱ 3		301.12	(4) ⁻	0.0	1 ⁺			
300.7g 3	0.92 9	512.29	(1,2,3) ⁺	211.65	(3) ⁺			
312.7 3	0.94 10	312.48	(2) ⁺	0.0	1 ⁺	M1,E2	0.0390 11	$\alpha(K)=0.0328$ 16; $\alpha(L)=0.0049$ 5; $\alpha(M)=0.00102$ 12; $\alpha(N+..)=0.000243$ 24 $\alpha(N)=0.000213$ 22; $\alpha(O)=2.87\times 10^{-5}$ 19; $\alpha(P)=1.20\times 10^{-6}$ 14 $\alpha(K)_{\text{exp}}=0.05$ 2.
320.6	0.3 1	1216.62	(1 ⁺)	895.7	0,1,2			
323.9 3	0.9 1	1244.57	(1) ⁺	920.69	(0 to 3) ⁺	M1,E2	0.0353 13	$\alpha(K)=0.0297$ 17; $\alpha(L)=0.0044$ 4; $\alpha(M)=0.00091$ 9; $\alpha(N+..)=0.000218$ 18 $\alpha(N)=0.000191$ 17; $\alpha(O)=2.58\times 10^{-5}$ 14; $\alpha(P)=1.09\times 10^{-6}$ 13 $\alpha(K)_{\text{exp}}\approx 0.04$.
326.9 4	1.0 2	1097.88	0,1	770.82	(1,2,3) ⁺	M1,E2	0.0343 13	$\alpha(K)=0.0290$ 17; $\alpha(L)=0.0043$ 4; $\alpha(M)=0.00089$ 8; $\alpha(N+..)=0.000212$ 17 $\alpha(N)=0.000186$ 16; $\alpha(O)=2.51\times 10^{-5}$ 13; $\alpha(P)=1.06\times 10^{-6}$ 13 $\alpha(K)_{\text{exp}}\approx 0.03$.
338.8g&i 4		338.5?		0.0	1 ⁺			
338.8g& 4	1.0 2	1259.84	(1 ⁺)	920.69	(0 to 3) ⁺			
353.9h 1	0.70 ^h	596.63	+	242.88	(3) ⁺			E_γ, I_γ : this γ is multiplet including 2 ⁺ to 0 ⁺ transition in ¹²⁴ Xe. Values are from authors' drawing.
353.9 ⁱ		950.4?		596.63	+			I_γ : no intensity was given by authors.
^x 355.2 2	2.4 3							
362.9 5	≈0.1	362.73	(3) ⁺	0.0	1 ⁺			

¹²⁴Ba ε decay **1986We01** (continued)

γ(¹²⁴Cs) (continued)

E_γ †	I_γ †‡e	E_i (level)	J_i^π	E_f	J_f^π	Mult. ^c	δ^c	α^f	Comments
369.0 6	<0.1 ^b	770.82	(1,2,3) ⁺	401.32	(1,2) ⁺				
374.2 3	1.1 1	1388.90	(1 ⁺)	1014.45					
380.4 5	0.5 ^b 1	1244.57	(1) ⁺	864.1	1,2				
385.0 4	0.7 1	596.63	⁺	211.65	(3) ⁺				
388.2 5	<0.5 ^b	1388.90	(1 ⁺)	1000.91	0,1,2				
392.5 4	0.7 1	1433.4	0,1,2	1040.32	0,1,2				
397.8 ^{g&i} 5		397.61	(5) ⁻	0.0	1 ⁺				
397.8 ^{g&i} 5	0.5 1	1244.57	(1) ⁺	846.5					
401.6 3	4.4 ^b 1	401.32	(1,2) ⁺	0.0	1 ⁺	M1(+E2)	<0.8	0.0203 7	$\alpha(K)=0.0174$ 7; $\alpha(L)=0.00232$ 4; $\alpha(M)=0.000475$ 7; $\alpha(N+..)=0.0001148$ 17 $\alpha(N)=0.0001003$ 15; $\alpha(O)=1.387\times 10^{-5}$ 24; $\alpha(P)=6.7\times 10^{-7}$ 4 $\alpha(K)\text{exp}=0.019$ +3-2.
404.2 5	0.8 1	404.31	(1 ⁺ ,2 ⁺)	0.0	1 ⁺				
407.2 4	2.2 1	596.17		188.98	(2) ⁺				
413.3 5	≈0.3	1259.84	(1 ⁺)	846.5					
416.9 4	1.0 1	1168.62	0,1	751.65	(1 ⁺)				
432 ^{@i}	≈0.15	770.82	(1,2,3) ⁺	338.5?					
439.1 4	0.7 1	751.65	(1 ⁺)	312.48	(2) ⁺				
445.0 4	0.7 1	846.5		401.32	(1,2) ⁺				
454.6 ^g 5	<0.4	920.69	(0 to 3) ⁺	464.91	1,2				I_γ : From branching ratio in the figure in 1986We01 . $I_\gamma=0.4$ 1 for a doublet.
454.6 ^g 5	<0.4	1388.90	(1 ⁺)	933.85	0,1				
458.3 ^{@i}	≈0.1	770.82	(1,2,3) ⁺	312.48	(2) ⁺				
464.4 4	1.2 1	464.91	1,2	0.0	1 ⁺				
≈470.5	≤0.3	1638.3?	0,1,2	1168.62	0,1				
473.7 3	4.50 15	1244.57	(1) ⁺	770.82	(1,2,3) ⁺	M1(+E2)	<0.8	0.0133 6	$\alpha(K)=0.0114$ 6; $\alpha(L)=0.00150$ 4; $\alpha(M)=0.000306$ 7; $\alpha(N+..)=7.40\times 10^{-5}$ 18 $\alpha(N)=6.46\times 10^{-5}$ 15; $\alpha(O)=9.0\times 10^{-6}$ 3; $\alpha(P)=4.4\times 10^{-7}$ 3 $\alpha(K)\text{exp}=0.015$ 4.
479.4 3	2.4 1	751.65	(1 ⁺)	272.13	(0,1) ⁺				
482.3 4	1.6 1	671.42	0,1,2	188.98	(2) ⁺				
≈488.4 ⁱ	0.4 1	1259.84	(1 ⁺)	770.82	(1,2,3) ⁺				
≈498.0	≈0.2	751.65	(1 ⁺)	253.32	(1) ⁺				
≈527.8	≤0.2	770.82	(1,2,3) ⁺	242.88	(3) ⁺				
532.5 ^h 4	0.57 ^h 7	895.7	0,1,2	362.73	(3) ⁺				I_γ : From branching ratio in the figure in 1986We01 . $I_\gamma=0.8$ 1 for a doublet.
532.5 ^h 4	0.23 ^h 3	933.85	0,1	401.32	(1,2) ⁺				I_γ : From the intensity in the figure in 1986We01 . $I_\gamma=0.8$ 1 for a doublet.
558.0 ^h 3	≈0.4 ^h	557.98	(1,2) ⁺	0.0	1 ⁺				I_γ : From the intensity in the figure in 1986We01 . $I_\gamma=1.4$ 1 for a doublet.

¹²⁴Ba ε decay **1986We01** (continued)

γ(¹²⁴Cs) (continued)

E_γ †	I_γ †‡e	E_i (level)	J_i^π	E_f	J_f^π	Comments
558.0 ^h 3	≈1.0 ^h	920.69	(0 to 3) ⁺	362.73	(3) ⁺	I _γ : From the intensity in the figure in 1986We01 . I _γ =1.4 I for a doublet.
562.7 4	0.6 I	751.65	(1 ⁺)	188.98	(2) ⁺	
573.1 3	0.9 I	1244.57	(1) ⁺	671.42	0,1,2	
^x 578.6 4	0.5 I					
582.6 4	0.6 I	770.82	(1,2,3) ⁺	188.98	(2) ⁺	
≈593.2	≈0.3	864.1	1,2	270.32	(3) ⁺	
≈597.0	≤0.2	1000.91	0,1,2	404.31	(1 ⁺ ,2 ⁺)	
≈601.9 ⁱ	≤0.2	770.82	(1,2,3) ⁺	169.53	(1) ⁺	
608.6 4	0.7 I	920.69	(0 to 3) ⁺	312.48	(2) ⁺	
610.4 5	0.4 I	1014.45		404.31	(1 ⁺ ,2 ⁺)	
≈618.1	≈0.1	1388.90	(1 ⁺)	770.82	(1,2,3) ⁺	
620.6 3	2.0 I	1216.62	(1 ⁺)	596.17		
623.4 4	0.9 I	895.7	0,1,2	272.68	(2,3) ⁺	
≈638.1	≤0.2	1040.32	0,1,2	401.32	(1,2) ⁺	
648.3 ^{gi} 3		920.69	(0 to 3) ⁺	272.68	(2,3) ⁺	I _γ : From the intensity in the figure in 1986We01 . I _γ =1.2 I for a doublet.
648.3 ^g 3	0.17 2	1244.57	(1) ⁺	596.17		
≈659.1	≤0.4	1216.62	(1 ⁺)	557.98	(1,2) ⁺	
666.2 [@]	<0.2	1707.3	0,1,2	1040.32	0,1,2	
671.1 [@]	≤0.2	671.42	0,1,2	0.0	1 ⁺	
680.7 4	0.6 I	933.85	0,1	253.32	(1) ⁺	
^x 682.8 4	≤0.4					
686.5 4	0.4 I	1244.57	(1) ⁺	557.98	(1,2) ⁺	
693.9 5	0.3 I	1097.88	0,1	404.31	(1 ⁺ ,2 ⁺)	
≈697 ^{ai}		1097.88	0,1	401.32	(1,2) ⁺	
≈701.9	≈0.2	1259.84	(1 ⁺)	557.98	(1,2) ⁺	
≈707.4 ⁱ	≈0.2	950.4?		242.88	(3) ⁺	
727.6 4	0.55 10	1131.93	1	404.31	(1 ⁺ ,2 ⁺)	
≈731 ^a		1131.93	1	401.32	(1,2) ⁺	
751.7 2	6.6 3	751.65	(1 ⁺)	0.0	1 ⁺	
^x 753.8 4	1.0 I					
764.3 4	0.6 I	1168.62	0,1	404.31	(1 ⁺ ,2 ⁺)	
≈767 ^a		1168.62	0,1	401.32	(1,2) ⁺	
768.9 4	0.7 I	1131.93	1	362.73	(3) ⁺	
≈771.6	≈0.2	1014.45		242.88	(3) ⁺	
781	≈0.1 ^b	1244.57	(1) ⁺	464.91	1,2	
786.8 4	0.5 I	1040.32	0,1,2	253.32	(1) ⁺	
≈792.6	≈0.2	1388.90	(1 ⁺)	596.17		
795.8 4	0.5 I	1049.23	0,1	253.32	(1) ⁺	
≈803.4 ⁱ	≈0.1	1141.58	0,1,2	338.5?		
812.4 5	≈0.2	1216.62	(1 ⁺)	404.31	(1 ⁺ ,2 ⁺)	
≈815 ^a		1216.62	(1 ⁺)	401.32	(1,2) ⁺	

¹²⁴Ba ε decay 1986We01 (continued)

γ(¹²⁴Cs) (continued)

<u>E_γ[†]</u>	<u>I_γ^{†‡e}</u>	<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Comments</u>
819.0 4	0.30 7	1131.93	1	312.48	(2) ⁺	
825.6 4	1.1 1	1097.88	0,1	272.13	(0,1) ⁺	
831.4 4	0.7 1	1000.91	0,1,2	169.53	(1) ⁺	
837.1 5	0.40 7	1433.4	0,1,2	596.17		
840.3 5	≈0.4	1244.57	(1) ⁺	404.31	(1 ⁺ ,2 ⁺)	
851.5 5	0.4 1	1040.32	0,1,2	188.98	(2) ⁺	
859.2 4	0.7 1	1259.84	(1 ⁺)	401.32	(1,2) ⁺	
864.0 4	0.8 ^b 2	864.1	1,2	0.0	1 ⁺	
≈878.3	≈0.3	1131.93	1	253.32	(1) ⁺	
881.7 2	3.0 1	1244.57	(1) ⁺	362.73	(3) ⁺	
888.6 5	≈0.15	1131.93	1	242.88	(3) ⁺	
896.4 ^{gi} 4		895.7	0,1,2	0.0	1 ⁺	
896.4 ^g 4	<0.70	1168.62	0,1	272.13	(0,1) ⁺	
≈918.5	≤0.3	1589.4	0,1,2	671.42	0,1,2	
928.4 5	0.45 10	1097.88	0,1	169.53	(1) ⁺	
932.1 3	3.6 1	1244.57	(1) ⁺	312.48	(2) ⁺	
933.6 3	2.10 15	933.85	0,1	0.0	1 ⁺	
937.4 [@]	≈0.1	1707.3	0,1,2	770.82	(1,2,3) ⁺	
943.5 5	0.6 1	1216.62	(1 ⁺)	272.68	(2,3) ⁺	
946.5 3	2.50 15	1216.62	(1 ⁺)	270.32	(3) ⁺	
963.0 ^g 3	<3.1	1131.93	1	169.53	(1) ⁺	E _γ : complex line (1986We01). I _γ =3.10 15 for a doublet.
963.0 ^g 3	<3.1	1216.62	(1 ⁺)	253.32	(1) ⁺	
972.1 3	2.0 1	1244.57	(1) ⁺	272.68	(2,3) ⁺	
974.2 4	0.66 12	1244.57	(1) ⁺	270.32	(3) ⁺	
987.4 4	1.37 15	1388.90	(1 ⁺)	401.32	(1,2) ⁺	
990.0 4	0.90 15	1259.84	(1 ⁺)	270.32	(3) ⁺	
1001.0 4	0.5 1	1000.91	0,1,2	0.0	1 ⁺	
1006.2 4	0.4 1	1259.84	(1 ⁺)	253.32	(1) ⁺	
1027.3 ^g 5	0.6 1	1216.62	(1 ⁺)	188.98	(2) ⁺	E _γ : complex line (1986We01). I _γ =0.6 1 for a doublet.
1027.3 ^g 5	<0.6	1388.90	(1 ⁺)	362.73	(3) ⁺	
1033.6 ⁱ 4	0.30 7	1244.57	(1) ⁺	211.65	(3) ⁺	
1040.0 3	1.3 1	1040.32	0,1,2	0.0	1 ⁺	
1047.1 3	3.0 1	1216.62	(1 ⁺)	169.53	(1) ⁺	
1049.3 3	1.48 8	1049.23	0,1	0.0	1 ⁺	
1055.7 3	1.1 1	1244.57	(1) ⁺	188.98	(2) ⁺	
1071.0 ^{g@}	≈0.15	1259.84	(1 ⁺)	188.98	(2) ⁺	
1071.0 ^{gi}		1433.4	0,1,2	362.73	(3) ⁺	
1075.7 ^g 5	<0.55	1244.57	(1) ⁺	169.53	(1) ⁺	I _γ =0.55 15 for a doublet.
1075.7 ^{gi} 5	<0.55	1388.90	(1 ⁺)	312.48	(2) ⁺	
1090.2 2	2.9 1	1259.84	(1 ⁺)	169.53	(1) ⁺	

124Ba ε decay 1986We01 (continued)γ(124Cs) (continued)

E_γ^\dagger	$I_\gamma^{\ddagger\#e}$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
1097.9 3	1.8 1	1097.88	0,1	0.0	1 ⁺	
1116.2 4	1.0 1	1388.90	(1 ⁺)	272.68	(2,3) ⁺	
1131.9 4	≈0.3 ^b	1131.93	1	0.0	1 ⁺	
1141.6 ^{@i}	≈0.25	1141.58	0,1,2	0.0	1 ⁺	
1168.8 4	0.50 5	1168.62	0,1	0.0	1 ⁺	
1216.7 2	17.0 2	1216.62	(1 ⁺)	0.0	1 ⁺	
1219.4 4	1.1 1	1388.90	(1 ⁺)	169.53	(1) ⁺	
1244.2 [@]	≈0.2	1244.57	(1) ⁺	0.0	1 ⁺	
1259.7 4	1.4 1	1259.84	(1 ⁺)	0.0	1 ⁺	
1388.9 4	1.1 1	1388.90	(1 ⁺)	0.0	1 ⁺	
1400.5 5	0.4 1	1589.4	0,1,2	188.98	(2) ⁺	
1434.3 ^g 5	<0.5	1433.4	0,1,2	0.0	1 ⁺	I _γ =0.5 1 for a doublet.
1434.3 ^g 5	<0.5	1623.2	0,1,2	188.98	(2) ⁺	
1453.2 ^{g@}	≈0.3	1623.2	0,1,2	169.53	(1) ⁺	
1453.2 ^{g@}	<0.3	1707.3	0,1,2	253.32	(1) ⁺	I _γ : much less than 0.3.
1589.3 4	1.5 1	1589.4	0,1,2	0.0	1 ⁺	
≈1623 [@]	≈0.1	1623.2	0,1,2	0.0	1 ⁺	
1638.2 [@]	≈0.3	1638.3?	0,1,2	0.0	1 ⁺	
1708.0 10	0.5 1	1707.3	0,1,2	0.0	1 ⁺	

[†] From 1986We01.

[‡] Relative to I(354γ in ¹²⁴Xe from ¹²⁴Cs decay)=100. For doublets or triplets, intensity of each component is from authors' drawing. Uncertainty was not assigned to these components by authors.

[#] A doublet in authors' table but a triplet in their drawing.

[@] Very weak line identified from coin.

[&] A singlet in authors' table but a doublet in their drawing.

^a Given in authors' drawing, but not in their table.

^b Intensity deduced after subtraction of the one related to ¹²⁴Cs decay to ¹²⁴Xe.

^c From K/L and/or α(K)exp or from α(L)exp in 1986We01.

^d α(exp) values were given for unresolved electron lines of both 102.6- and 103.16-keV transitions.

^e For absolute intensity per 100 decays, multiply by 0.47 6.

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

^g Multiply placed.

^h Multiply placed with intensity suitably divided.

ⁱ Placement of transition in the level scheme is uncertain.

^x γ ray not placed in level scheme.

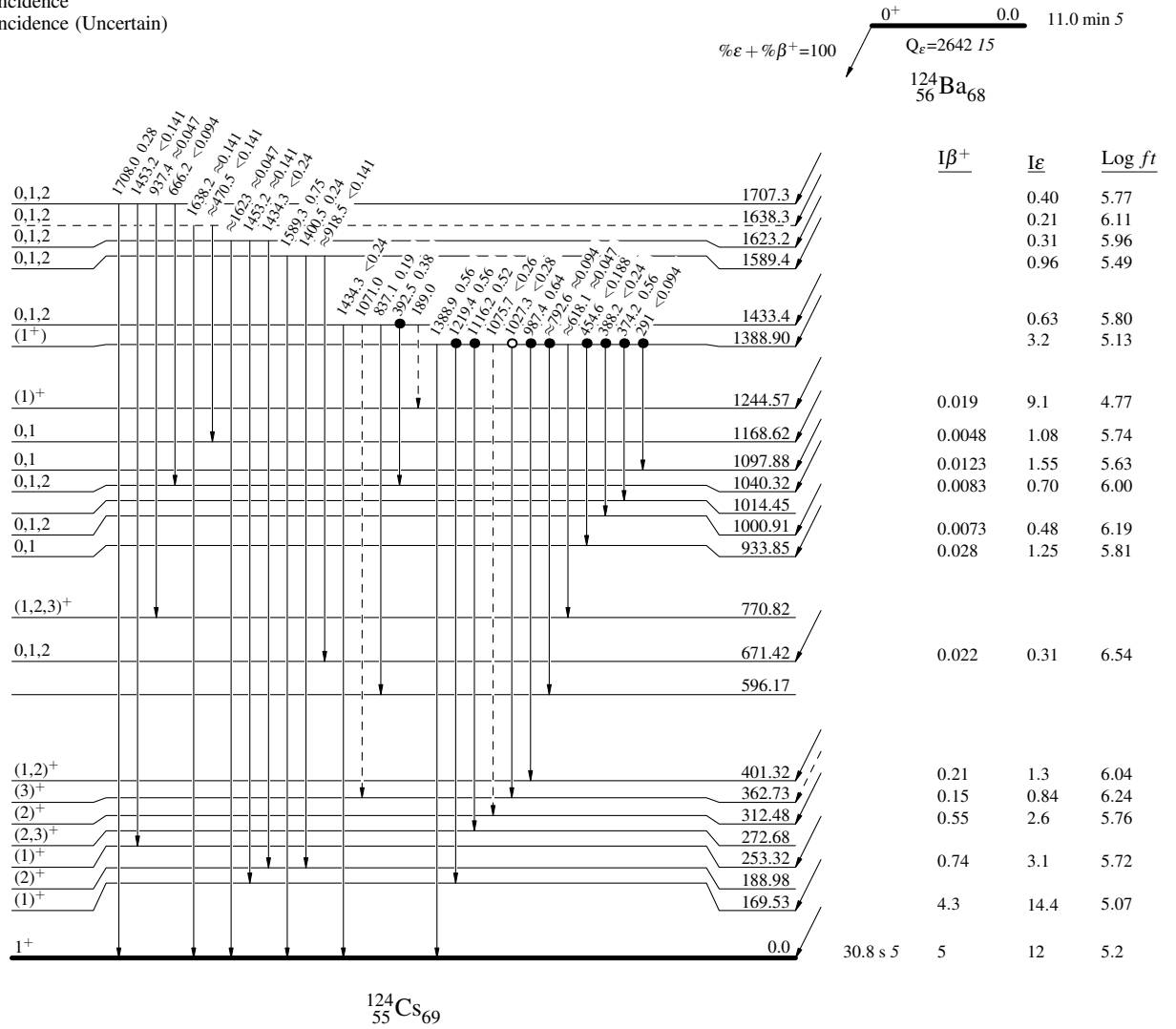
^{124}Ba ϵ decay 1986We01

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - γ Decay (Uncertain)
- Coincidence
- Coincidence (Uncertain)

Decay Scheme

Intensities: $I_{(\gamma+ee)}$ per 100 parent decays



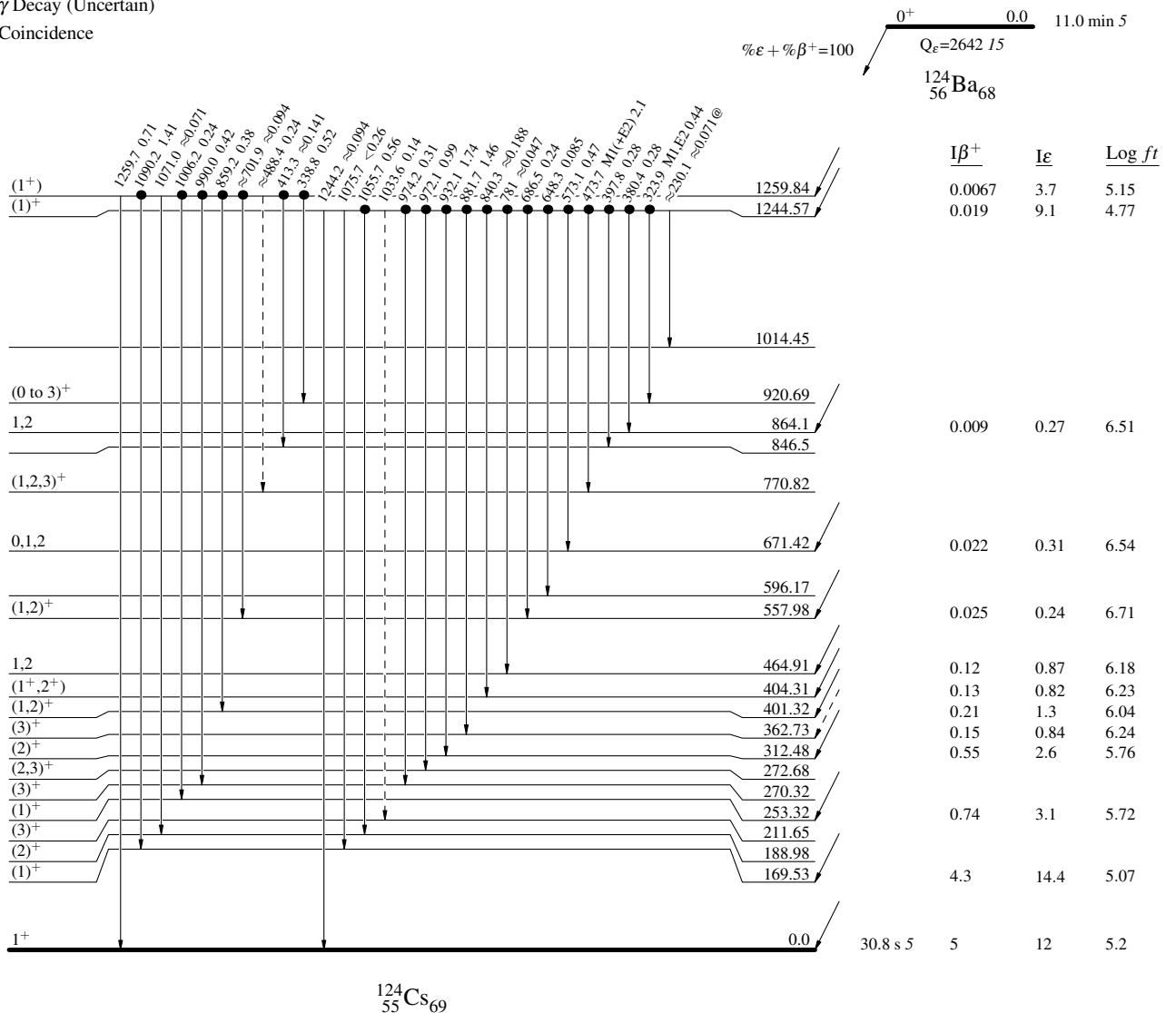
¹²⁴Ba ε decay 1986We01

Decay Scheme (continued)

Legend

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}
- - - - - γ Decay (Uncertain)
- Coincidence

Intensities: I_(γ+ce) per 100 parent decays
 @ Multiply placed: intensity suitably divided



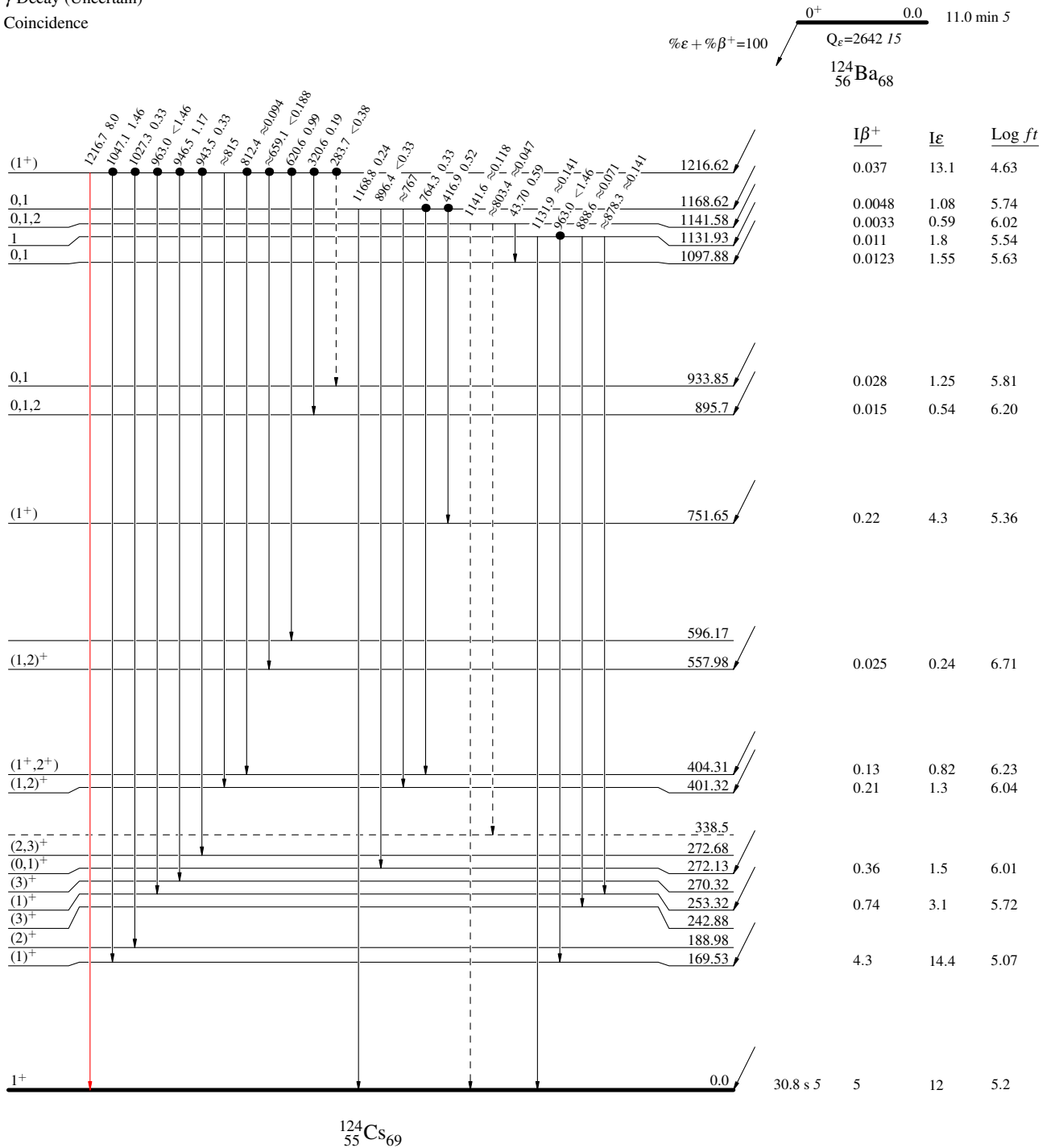
^{124}Ba ϵ decay 1986We01

Decay Scheme (continued)

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - - - γ Decay (Uncertain)
- Coincidence

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
 @ Multiply placed: intensity suitably divided



$^{124}_{55}\text{Cs}_{69}$

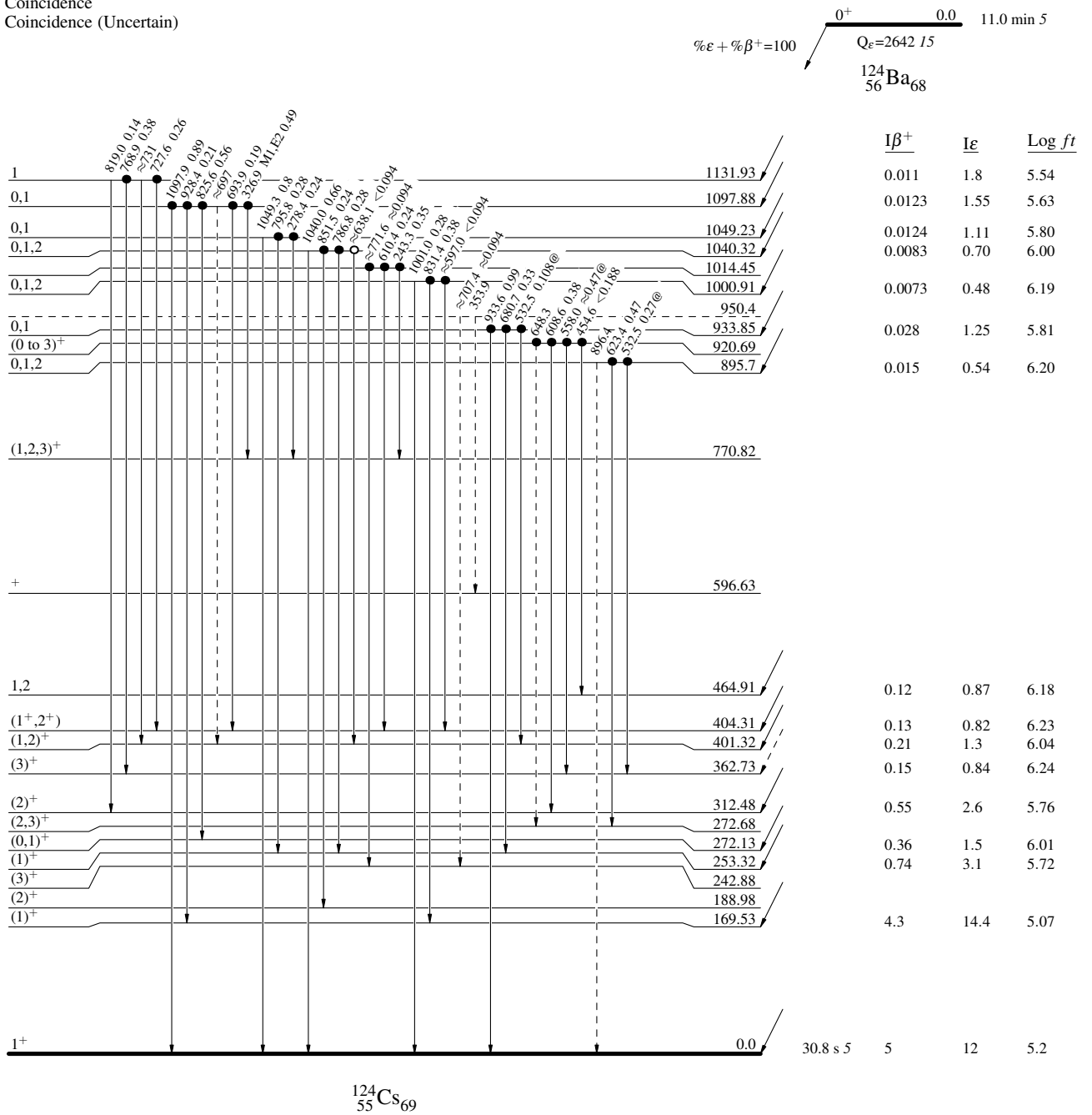
^{124}Ba ϵ decay 1986We01

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - γ Decay (Uncertain)
- Coincidence
- Coincidence (Uncertain)

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
 @ Multiplied: intensity suitably divided



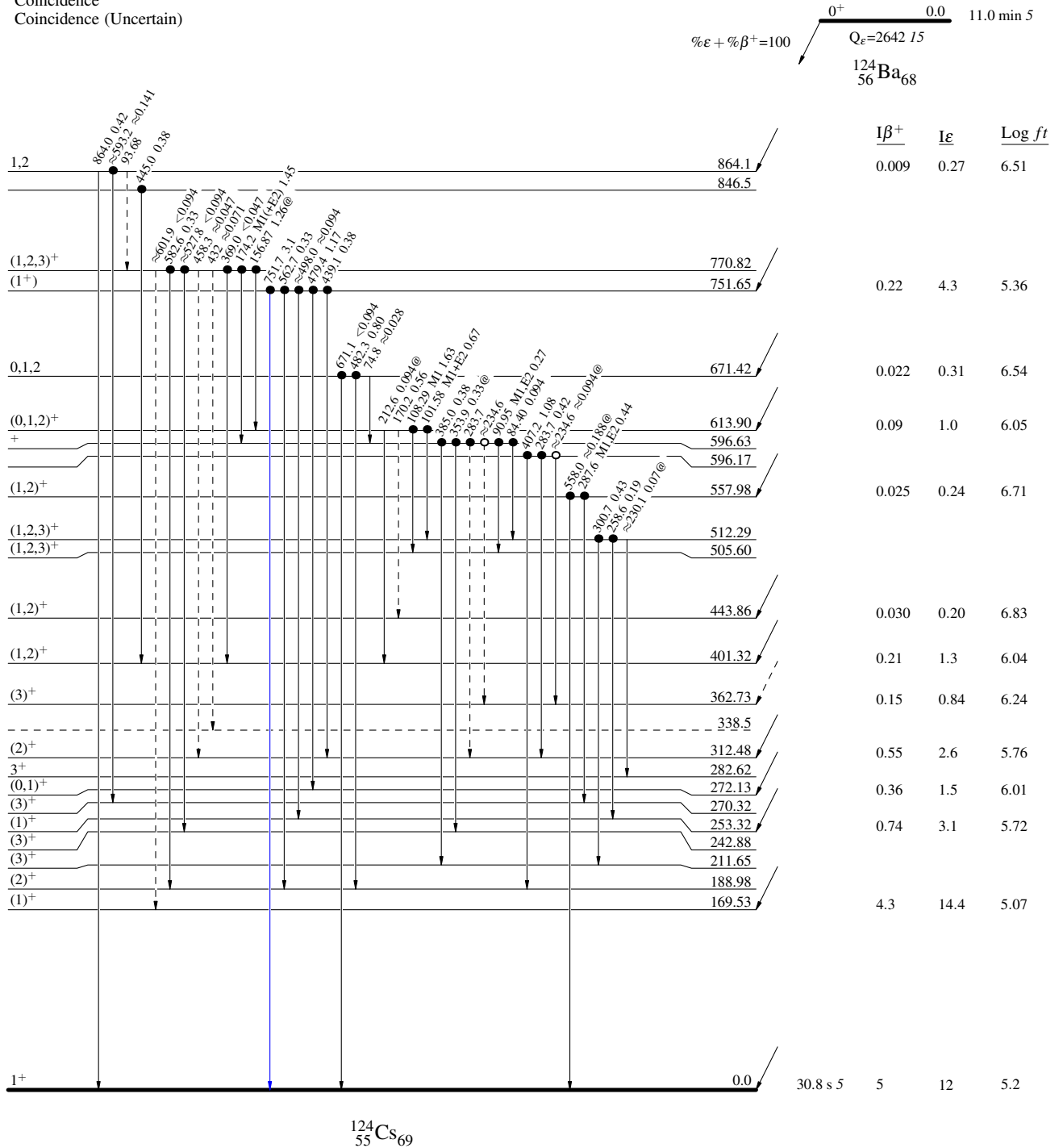
^{124}Ba ϵ decay 1986We01

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - - - γ Decay (Uncertain)
- Coincidence
- Coincidence (Uncertain)

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
 @ Multiplied: intensity suitably divided



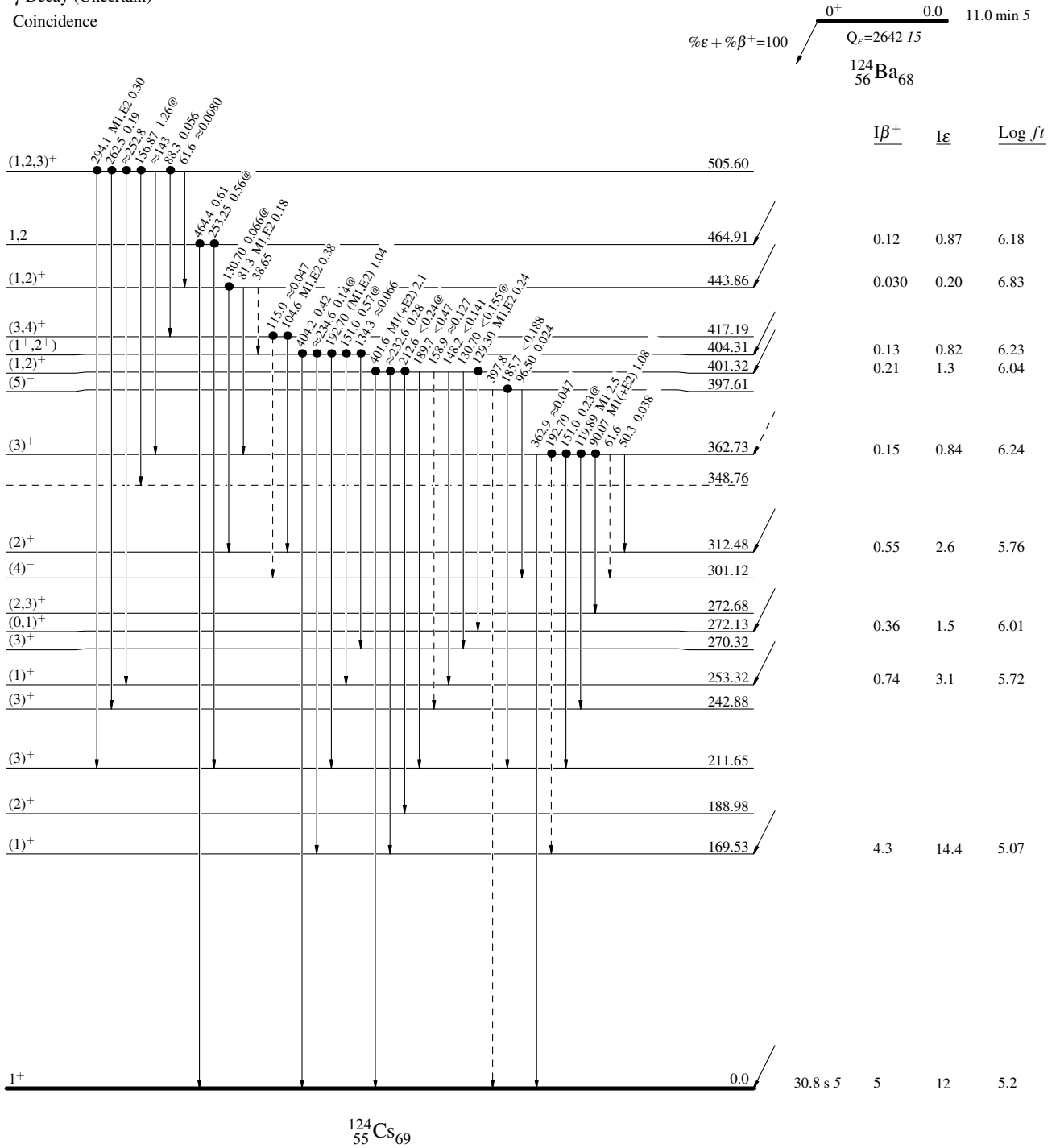
^{124}Ba ϵ decay 1986We01

Decay Scheme (continued)

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - - - γ Decay (Uncertain)
- Coincidence

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
 @ Multiply placed: intensity suitably divided



^{124}Ba ϵ decay 1986We01

Decay Scheme (continued)

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- - - - -→ γ Decay (Uncertain)
- Coincidence

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
 @ Multiply placed: intensity suitably divided

