

**Adopted Levels, Gammas**

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

Q( $\beta^-$ )= $-5.3 \times 10^3$  syst; S(n)= $9.68 \times 10^3$  syst; S(p)= $1.89 \times 10^3$  6; Q( $\alpha$ )= $1.21 \times 10^3$  6 [2012Wa38](#)

Note: Current evaluation has used the following Q record  $-5.44E3$  SY9.62E3 SY1.89E3 6 1.21E3 6 [2003Au03](#).

Uncertainties: 300 for Q( $\beta^-$ ), 200 for S(n).

<sup>124</sup>La Levels

Quasiparticle labels:

C= $\pi 9/2[404]$ ,  $\alpha=+1/2$  ( $g_{9/2}$  orbit).

D= $\pi 9/2[404]$ ,  $\alpha=-1/2$  ( $g_{9/2}$  orbit).

E= $\pi 1/2[550]$ ,  $\alpha=-1/2$  ( $h_{11/2}$  orbit).

F= $\pi 1/2[550]$ ,  $\alpha=+1/2$  ( $h_{11/2}$  orbit).

b= $\nu 1/2[411]$ ,  $\alpha=-1/2$  ( $d_{3/2}$  orbit).

e= $\nu 7/2[523]$ ,  $\alpha=-1/2$  ( $h_{11/2}$  orbit).

f= $\nu 7/2[523]$ ,  $\alpha=+1/2$  ( $h_{11/2}$  orbit).

i= $\nu 5/2[402]$ ,  $\alpha=+1/2$  ( $d_{5/2}$  orbit).

j= $\nu 5/2[402]$ ,  $\alpha=-1/2$  ( $d_{5/2}$  orbit).

Cross Reference (XREF) Flags

- A <sup>124</sup>Ce  $\epsilon$  decay
- B (HL,xny)

E(level) <sup>†</sup>	J $\pi^{\#}h$	T <sub>1/2</sub>	XREF	Comments
0.0+v <sup>‡</sup>		21 s 4		% $\epsilon$ +% $\beta^+$ =100 <a href="#">Additional information 1.</a> J $\pi$ : Low-spin isomer, possibly 1 to 3, because of the existence of direct $\beta$ feed to 2 <sup>+</sup> state in <sup>124</sup> Ba observed in <a href="#">1992Id01</a> . T <sub>1/2</sub> : from $\gamma$ multiscaling ( <a href="#">1997As05</a> ).
0.0+x <sup>b</sup>	(7 <sup>+</sup> )		B	<a href="#">Additional information 2.</a> J $\pi$ : The bandhead J $\pi$ value was based on the comparison of the experimental levels energies with those calculated using CQOCM(Core-quasiparticle coupling model). The assignment is consistent with that assigned using excitation energy systematics by <a href="#">1996Li13</a> .
0.0+y <sup>‡f</sup>	(8 <sup>-</sup> )	29.21 s 17	B	% $\epsilon$ +% $\beta^+$ =100 <a href="#">Additional information 3.</a> T <sub>1/2</sub> : from $\gamma$ multiscaling ( <a href="#">1997As05</a> ). Others: 29 s 1 ( <a href="#">1992Id01</a> ), 29 s 2 ( <a href="#">1992Ic02</a> ), 30 s 2 ( <a href="#">1988GiZV</a> ), 29 s 3 ( <a href="#">1978Bo32</a> ).
54.9+x <sup>&amp; 8</sup>	(6 <sup>-</sup> )		B	
68.9+x <sup>c 7</sup>	(8 <sup>+</sup> )		B	
140.4+x <sup>@ 8</sup>	(7 <sup>-</sup> )		B	
180.7+x <sup>a 8</sup>	(7 <sup>-</sup> )		B	
191.4+x <sup>b 6</sup>	(9 <sup>+</sup> )		B	
267.8+x <sup>&amp; 8</sup>	(8 <sup>-</sup> )		B	
286.43+y <sup>8 24</sup>	(9 <sup>-</sup> )		B	
324.4+x <sup>c 7</sup>	(10 <sup>+</sup> )		B	
438.6+x <sup>@ 8</sup>	(9 <sup>-</sup> )		B	
460.2+x <sup>a 7</sup>	(9 <sup>-</sup> )		B	

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**Adopted Levels, Gammas (continued)**

<sup>124</sup>La Levels (continued)

E(level) <sup>†</sup>	J <sup>π</sup> #h	XREF	E(level) <sup>†</sup>	J <sup>π</sup> #h	XREF	E(level) <sup>†</sup>	J <sup>π</sup> #h	XREF
549.4+x <sup>b</sup> 7	(11 <sup>+</sup> )	B	2986.6+x <sup>c</sup> 8	(18 <sup>+</sup> )	B	5826.0+x <sup>e</sup> 11	(23 <sup>+</sup> )	B
601.68+y <sup>f</sup> 24	(10 <sup>-</sup> )	B	2992.1+x <sup>a</sup> 8	(17 <sup>-</sup> )	B	5917.8+x <sup>a</sup> 13	(23 <sup>-</sup> )	B
654.5+x <sup>&amp;</sup> 7	(10 <sup>-</sup> )	B	3045.6+x <sup>e</sup> 8	(17 <sup>+</sup> )	B	6149.3+y <sup>f</sup> 12	(24 <sup>-</sup> )	B
750.2+x <sup>c</sup> 7	(12 <sup>+</sup> )	B	3099.7+y <sup>g</sup> 5	(17 <sup>-</sup> )	B	6236.5+x <sup>c</sup> 10	(24 <sup>+</sup> )	B
861.8+x <sup>@</sup> 8	(11 <sup>-</sup> )	B	3128.6+y 11		B	6340.0+x <sup>d</sup> 11	(24 <sup>+</sup> )	B
916.3+x <sup>a</sup> 7	(11 <sup>-</sup> )	B	3387.1+x 13		B	6409.8+x <sup>&amp;</sup> 12	(24 <sup>-</sup> )	B
941.6+y <sup>g</sup> 3	(11 <sup>-</sup> )	B	3431.2+y <sup>f</sup> 6	(18 <sup>-</sup> )	B	6592.8+x <sup>@</sup> 12	(25 <sup>-</sup> )	B
1070.1+x <sup>b</sup> 7	(13 <sup>+</sup> )	B	3436.9+x <sup>&amp;</sup> 8	(18 <sup>-</sup> )	B	6686.2+x <sup>b</sup> 10	(25 <sup>+</sup> )	B
1185.6+x <sup>&amp;</sup> 7	(12 <sup>-</sup> )	B	3441.7+x <sup>d</sup> 8	(18 <sup>+</sup> )	B	6724.5+y <sup>g</sup> 12	(25 <sup>-</sup> )	B
1233.4+x <sup>e</sup> 8	(11 <sup>+</sup> )	B	3463.1+x <sup>b</sup> 8	(19 <sup>+</sup> )	B	6900.5+x <sup>e</sup> 12	(25 <sup>+</sup> )	B
1302.1+y <sup>f</sup> 4	(12 <sup>-</sup> )	B	3641.4+x <sup>@</sup> 10	(19 <sup>-</sup> )	B	7317.9+y <sup>f</sup> 14	(26 <sup>-</sup> )	B
1344.1+x <sup>c</sup> 7	(14 <sup>+</sup> )	B	3802.2+y <sup>g</sup> 6	(19 <sup>-</sup> )	B	7389.2+x <sup>d</sup> 12	(26 <sup>+</sup> )	B
1390.5+x <sup>d</sup> 7	(12 <sup>+</sup> )	B	3869.0+x <sup>a</sup> 10	(19 <sup>-</sup> )	B	7436.4+x <sup>c</sup> 12	(26 <sup>+</sup> )	B
1403.3+x <sup>@</sup> 8	(13 <sup>-</sup> )	B	3870.1+x <sup>e</sup> 8	(19 <sup>+</sup> )	B	7538.3+x <sup>&amp;</sup> 14	(26 <sup>-</sup> )	B
1510.3+x <sup>a</sup> 7	(13 <sup>-</sup> )	B	3987.6+y 15		B	7734.4+x <sup>@</sup> 14	(27 <sup>-</sup> )	B
1677.8+y <sup>g</sup> 4	(13 <sup>-</sup> )	B	4000.4+x <sup>c</sup> 8	(20 <sup>+</sup> )	B	7900.1+x <sup>b</sup> 12	(27 <sup>+</sup> )	B
1724.1+x <sup>e</sup> 7	(13 <sup>+</sup> )	B	4176.1+x 16		B	8044.4+x <sup>e</sup> 14	(27 <sup>+</sup> )	B
1740.3+x <sup>b</sup> 7	(15 <sup>+</sup> )	B	4203.3+y <sup>f</sup> 8	(20 <sup>-</sup> )	B	8529.3+x <sup>d</sup> 14	(28 <sup>+</sup> )	B
1837.4+x <sup>&amp;</sup> 7	(14 <sup>-</sup> )	B	4350.9+x <sup>d</sup> 8	(20 <sup>+</sup> )	B	8584.7+y <sup>f</sup> 15	(28 <sup>-</sup> )	B
1967.2+x <sup>d</sup> 7	(14 <sup>+</sup> )	B	4354.6+x <sup>&amp;</sup> 9	(20 <sup>-</sup> )	B	8687.5+x <sup>c</sup> 13	(28 <sup>+</sup> )	B
2054.4+x <sup>@</sup> 9	(15 <sup>-</sup> )	B	4473.3+x <sup>b</sup> 8	(21 <sup>+</sup> )	B	8732.7+x <sup>&amp;</sup> 15	(28 <sup>-</sup> )	B
2059.6+y <sup>f</sup> 4	(14 <sup>-</sup> )	B	4555.5+x <sup>@</sup> 10	(21 <sup>-</sup> )	B	8925.0+x <sup>@</sup> 15	(29 <sup>-</sup> )	B
2094.2+x <sup>c</sup> 7	(16 <sup>+</sup> )	B	4638.9+y <sup>g</sup> 9	(21 <sup>-</sup> )	B	9193.4+x <sup>b</sup> 14	(29 <sup>+</sup> )	B
2210.9+x <sup>a</sup> 7	(15 <sup>-</sup> )	B	4796.9+x <sup>e</sup> 10	(21 <sup>+</sup> )	B	9751.0+x <sup>d</sup> 15	(30 <sup>+</sup> )	B
2252.1+y 11		B	4844.7+x <sup>a</sup> 12	(21 <sup>-</sup> )	B	10130.0+x <sup>@</sup> 16	(31 <sup>-</sup> )	B
2329.2+x <sup>e</sup> 7	(15 <sup>+</sup> )	B	4929.6+y 18		B	10556.7+x <sup>b</sup> 15	(31 <sup>+</sup> )	B
2429.1+y <sup>g</sup> 5	(15 <sup>-</sup> )	B	5096.5+x <sup>c</sup> 8	(22 <sup>+</sup> )	B	11058.2+x <sup>d</sup> 16	(32 <sup>+</sup> )	B
2544.1+x <sup>b</sup> 7	(17 <sup>+</sup> )	B	5107.7+y <sup>f</sup> 10	(22 <sup>-</sup> )	B	11377.1+x <sup>@</sup> 17	(33 <sup>-</sup> )	B
2585.6+x <sup>&amp;</sup> 8	(16 <sup>-</sup> )	B	5345.0+x <sup>&amp;</sup> 11	(22 <sup>-</sup> )	B	11986.0+x <sup>b</sup> 16	(33 <sup>+</sup> )	B
2647.2+x <sup>d</sup> 7	(16 <sup>+</sup> )	B	5357.8+x <sup>d</sup> 9	(22 <sup>+</sup> )	B	12455.3+x <sup>d</sup> 17	(34 <sup>+</sup> )	B
2769.8+y <sup>f</sup> 5	(16 <sup>-</sup> )	B	5531.1+x <sup>@</sup> 11	(23 <sup>-</sup> )	B	12722.2+x <sup>@</sup> 18	(35 <sup>-</sup> )	B
2800.1+y 15		B	5550.6+x <sup>b</sup> 8	(23 <sup>+</sup> )	B	14184.6+x <sup>@</sup> 19	(37 <sup>-</sup> )	B
2803.6+x <sup>@</sup> 9	(17 <sup>-</sup> )	B	5615.1+y <sup>g</sup> 11	(23 <sup>-</sup> )	B			

<sup>†</sup> From a least-squares fit to adopted E<sub>γ</sub>'s.

<sup>‡</sup> High-spin (T<sub>1/2</sub>=29 s) and low-spin (T<sub>1/2</sub><1 s) states were proposed by 1992Id01 from β feedings to levels in <sup>124</sup>Ba.

# From (HI,xnγ), unless otherwise indicated.

@ Band(A): Eb band.

& Band(B): Ei band, α=0.

<sup>a</sup> Band(b): Ej band, α=1.

<sup>b</sup> Band(C): Ee band, α=1.

<sup>c</sup> Band(c): Ef band, α=0.

<sup>d</sup> Band(D): Fe band, α=0.

<sup>e</sup> Band(d): Ff band, α=1.

<sup>f</sup> Band(E): Ce band, α=0. Possible K<sup>π</sup>=8<sup>-</sup> isomer band.

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**Adopted Levels, Gammas (continued)**

<sup>124</sup>La Levels (continued)

<sup>g</sup> Band(e): De band,  $\alpha=1$ . Possible  $K^\pi=8^-$  isomer band.

<sup>h</sup> Assigned based on the bands structures, and with additional Mult. supported if the Mult.of the  $\gamma$  from that level was given, unless otherwise indicated.

$\gamma(^{124}\text{La})$							
$E_i(\text{level})$	$J_i^\pi$	$E_\gamma^\dagger$	$I_\gamma^\dagger$	$E_f$	$J_f^\pi$	Mult. <sup>‡</sup>	$\delta$
140.4+x	(7 <sup>-</sup> )	85.4 6	100 10	54.9+x	(6 <sup>-</sup> )		
180.7+x	(7 <sup>-</sup> )	126.3 6	100 10	54.9+x	(6 <sup>-</sup> )	D+Q	
191.4+x	(9 <sup>+</sup> )	122.6 3	100 5	68.9+x	(8 <sup>+</sup> )	D+Q	
		191.4 6	6.6 6	0.0+x	(7 <sup>+</sup> )	Q	
267.8+x	(8 <sup>-</sup> )	87.6 6	12.9 12	180.7+x	(7 <sup>-</sup> )	D+Q	
		127.6 3	100 5	140.4+x	(7 <sup>-</sup> )	D+Q	
		212.5 6	15.3 15	54.9+x	(6 <sup>-</sup> )		
286.43+y	(9 <sup>-</sup> )	286.5 3	100 5	0.0+y	(8 <sup>-</sup> )	(M1+E2)	+0.37 1
324.4+x	(10 <sup>+</sup> )	133.2 3	100 5	191.4+x	(9 <sup>+</sup> )	D+Q	
		255.4 3	22.4 11	68.9+x	(8 <sup>+</sup> )	Q	
438.6+x	(9 <sup>-</sup> )	171.0 3	100 6	267.8+x	(8 <sup>-</sup> )	D+Q	
		298.0 3	26.5 13	140.4+x	(7 <sup>-</sup> )	Q	
460.2+x	(9 <sup>-</sup> )	192.5 3	100 5	267.8+x	(8 <sup>-</sup> )	D+Q	
		279.6 6	16.9 17	180.7+x	(7 <sup>-</sup> )		
549.4+x	(11 <sup>+</sup> )	225.0 3	100 5	324.4+x	(10 <sup>+</sup> )	D+Q	-0.035 13
		357.9 3	21.4 11	191.4+x	(9 <sup>+</sup> )	Q	
601.68+y	(10 <sup>-</sup> )	315.3 3	100 5	286.43+y	(9 <sup>-</sup> )	(M1+E2)	+0.22 5
		601.6 3	65 3	0.0+y	(8 <sup>-</sup> )	Q	
654.5+x	(10 <sup>-</sup> )	194.5 3	69 3	460.2+x	(9 <sup>-</sup> )	D+Q	
		215.9 3	100 5	438.6+x	(9 <sup>-</sup> )	D+Q	
		386.7 3	77 4	267.8+x	(8 <sup>-</sup> )	Q	
750.2+x	(12 <sup>+</sup> )	200.9 3	100 5	549.4+x	(11 <sup>+</sup> )	D+Q	-0.050 12
		425.6 3	74 3	324.4+x	(10 <sup>+</sup> )	Q	
861.8+x	(11 <sup>-</sup> )	207.5 6	11.0 10	654.5+x	(10 <sup>-</sup> )	D+Q	
		401.6 3	47.4 23	460.2+x	(9 <sup>-</sup> )	Q	
		423.1 3	100 5	438.6+x	(9 <sup>-</sup> )	Q	
916.3+x	(11 <sup>-</sup> )	262.0 3	100 5	654.5+x	(10 <sup>-</sup> )	D+Q	+0.057 4
		456.0 3	35.7 17	460.2+x	(9 <sup>-</sup> )	Q	
		478		438.6+x	(9 <sup>-</sup> )		
		591.3 6	16.2 17	324.4+x	(10 <sup>+</sup> )	D	
941.6+y	(11 <sup>-</sup> )	340.0 3	55 3	601.68+y	(10 <sup>-</sup> )	D+Q	
		655.2 3	100 5	286.43+y	(9 <sup>-</sup> )	Q	
1070.1+x	(13 <sup>+</sup> )	320.0 3	100 5	750.2+x	(12 <sup>+</sup> )	D+Q	-0.113 20
		520.6 3	54.2 25	549.4+x	(11 <sup>+</sup> )	Q	
1185.6+x	(12 <sup>-</sup> )	269.3 3	67 3	916.3+x	(11 <sup>-</sup> )	D+Q	
		531.0 3	100 5	654.5+x	(10 <sup>-</sup> )	Q	
		636.4 3	29.6 14	549.4+x	(11 <sup>+</sup> )	D	
1302.1+y	(12 <sup>-</sup> )	360.5 3	33.1 17	941.6+y	(11 <sup>-</sup> )	D+Q	
		700.3 3	100 5	601.68+y	(10 <sup>-</sup> )	Q	
1344.1+x	(14 <sup>+</sup> )	274.1 3	45.5 22	1070.1+x	(13 <sup>+</sup> )	D+Q	-0.079 15
		593.8 3	100 5	750.2+x	(12 <sup>+</sup> )	Q	
1390.5+x	(12 <sup>+</sup> )	157.1 6	4.5 4	1233.4+x	(11 <sup>+</sup> )		
		840.9 3	100 5	549.4+x	(11 <sup>+</sup> )	(M1+E2)	+0.28 10
		1068.4 6	17.5 19	324.4+x	(10 <sup>+</sup> )		
1403.3+x	(13 <sup>-</sup> )	541.5 3	100 5	861.8+x	(11 <sup>-</sup> )	Q	
1510.3+x	(13 <sup>-</sup> )	324.7 3	82 4	1185.6+x	(12 <sup>-</sup> )	D+Q	
		593.9 3	100 5	916.3+x	(11 <sup>-</sup> )	Q	
		759.6 6	38 4	750.2+x	(12 <sup>+</sup> )	D	
1677.8+y	(13 <sup>-</sup> )	375.9 6	17.6 19	1302.1+y	(12 <sup>-</sup> )		

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**Adopted Levels, Gammas (continued)**

$\gamma(^{124}\text{La})$  (continued)

$E_i(\text{level})$	$J_i^\pi$	$E_\gamma^\dagger$	$I_\gamma^\dagger$	$E_f$	$J_f^\pi$	Mult. $^\ddagger$	$\delta$
1677.8+y	(13 <sup>-</sup> )	736.3 3	100 5	941.6+y	(11 <sup>-</sup> )	Q	
1724.1+x	(13 <sup>+</sup> )	334.0 6	18.1 19	1390.5+x	(12 <sup>+</sup> )	Q	
		490.7 6	40 4	1233.4+x	(11 <sup>+</sup> )	Q	
		974 1	100 5	750.2+x	(12 <sup>+</sup> )	D+Q	
		1174.0 6	25.1 23	549.4+x	(11 <sup>+</sup> )		
1740.3+x	(15 <sup>+</sup> )	396.3 3	90 5	1344.1+x	(14 <sup>+</sup> )	D+Q	-0.091 13
		670.2 3	100 5	1070.1+x	(13 <sup>+</sup> )	Q	
1837.4+x	(14 <sup>-</sup> )	326.9 3	33.2 18	1510.3+x	(13 <sup>-</sup> )	D+Q	
		651.8 3	100 5	1185.6+x	(12 <sup>-</sup> )	Q	
		767.1 6	23.6 23	1070.1+x	(13 <sup>+</sup> )	D	
1967.2+x	(14 <sup>+</sup> )	242.6 6	32 3	1724.1+x	(13 <sup>+</sup> )	D+Q	
		576.9 3	100 5	1390.5+x	(12 <sup>+</sup> )	Q	
		897.3 3	64 3	1070.1+x	(13 <sup>+</sup> )		
		1217.4 6	37 4	750.2+x	(12 <sup>+</sup> )		
2054.4+x	(15 <sup>-</sup> )	651.1 3	100 5	1403.3+x	(13 <sup>-</sup> )	Q	
2059.6+y	(14 <sup>-</sup> )	381.6 6	10.5 12	1677.8+y	(13 <sup>-</sup> )		
		757.4 3	100 5	1302.1+y	(12 <sup>-</sup> )	Q	
2094.2+x	(16 <sup>+</sup> )	354.1 3	21.1 11	1740.3+x	(15 <sup>+</sup> )	D+Q	
		750.3 3	100 5	1344.1+x	(14 <sup>+</sup> )	Q	
2210.9+x	(15 <sup>-</sup> )	373.7 3	49 3	1837.4+x	(14 <sup>-</sup> )	D+Q	
		700.6 3	100 5	1510.3+x	(13 <sup>-</sup> )	Q	
		867.3 6	26 3	1344.1+x	(14 <sup>+</sup> )		
2252.1+y		950 1	100	1302.1+y	(12 <sup>-</sup> )		
2329.2+x	(15 <sup>+</sup> )	362.4 6	58 6	1967.2+x	(14 <sup>+</sup> )	D+Q	
		605.1 3	100 5	1724.1+x	(13 <sup>+</sup> )	Q	
		985 1	75 7	1344.1+x	(14 <sup>+</sup> )		
		1257.5 6	25.6 25	1070.1+x	(13 <sup>+</sup> )		
2429.1+y	(15 <sup>-</sup> )	369.3 6	11.7 14	2059.6+y	(14 <sup>-</sup> )		
		751.4 3	100 5	1677.8+y	(13 <sup>-</sup> )	Q	
2544.1+x	(17 <sup>+</sup> )	449.9 3	41.4 21	2094.2+x	(16 <sup>+</sup> )	D+Q	
		803.8 3	100 5	1740.3+x	(15 <sup>+</sup> )	Q	
2585.6+x	(16 <sup>-</sup> )	375.2 6	26 3	2210.9+x	(15 <sup>-</sup> )	D+Q	
		748.0 3	100 5	1837.4+x	(14 <sup>-</sup> )	Q	
		845.4 6	22.7 24	1740.3+x	(15 <sup>+</sup> )	D+Q	
2647.2+x	(16 <sup>+</sup> )	318.2 6	30 3	2329.2+x	(15 <sup>+</sup> )		
		680.3 3	100 5	1967.2+x	(14 <sup>+</sup> )	Q	
		905.3 6	30 3	1740.3+x	(15 <sup>+</sup> )		
		1302.5 6	17.0 17	1344.1+x	(14 <sup>+</sup> )		
2769.8+y	(16 <sup>-</sup> )	341.2 6	5.7 8	2429.1+y	(15 <sup>-</sup> )		
		710.1 3	100 5	2059.6+y	(14 <sup>-</sup> )	Q	
2800.1+y		548 1	100	2252.1+y			
2803.6+x	(17 <sup>-</sup> )	749.2 3	100 5	2054.4+x	(15 <sup>-</sup> )	Q	
2986.6+x	(18 <sup>+</sup> )	442.8 6	7.8 7	2544.1+x	(17 <sup>+</sup> )	D+Q	
		892.3 3	100 6	2094.2+x	(16 <sup>+</sup> )	Q	
2992.1+x	(17 <sup>-</sup> )	406.1 6	21.6 23	2585.6+x	(16 <sup>-</sup> )		
		781.2 3	100 5	2210.9+x	(15 <sup>-</sup> )	Q	
3045.6+x	(17 <sup>+</sup> )	398.6 6	52 5	2647.2+x	(16 <sup>+</sup> )		
		716.1 3	100 5	2329.2+x	(15 <sup>+</sup> )		
3099.7+y	(17 <sup>-</sup> )	329.8 6	9.3 12	2769.8+y	(16 <sup>-</sup> )		
		670.7 3	100 5	2429.1+y	(15 <sup>-</sup> )	Q	
3128.6+y		1069 1	100	2059.6+y	(14 <sup>-</sup> )		
3387.1+x		843 1	100	2544.1+x	(17 <sup>+</sup> )		
3431.2+y	(18 <sup>-</sup> )	661.4 3	100 5	2769.8+y	(16 <sup>-</sup> )	Q	
3436.9+x	(18 <sup>-</sup> )	851.3 3	100 5	2585.6+x	(16 <sup>-</sup> )	Q	
3441.7+x	(18 <sup>+</sup> )	394.8 6	19.1 20	3045.6+x	(17 <sup>+</sup> )		

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)**

γ(<sup>124</sup>La) (continued)

<u>E<sub>i</sub>(level)</u>	<u>J<sub>i</sub><sup>π</sup></u>	<u>E<sub>γ</sub><sup>†</sup></u>	<u>I<sub>γ</sub><sup>†</sup></u>	<u>E<sub>f</sub></u>	<u>J<sub>f</sub><sup>π</sup></u>	<u>Mult.<sup>‡</sup></u>
3441.7+x	(18 <sup>+</sup> )	794.2 3	100 5	2647.2+x	(16 <sup>+</sup> )	Q
		1349.5 6	10.2 12	2094.2+x	(16 <sup>+</sup> )	
3463.1+x	(19 <sup>+</sup> )	476.6 6	25.5 25	2986.6+x	(18 <sup>+</sup> )	
		919.0 3	100 5	2544.1+x	(17 <sup>+</sup> )	Q
3641.4+x	(19 <sup>-</sup> )	837.8 3	100 5	2803.6+x	(17 <sup>-</sup> )	Q
3802.2+y	(19 <sup>-</sup> )	702.5 3	100 5	3099.7+y	(17 <sup>-</sup> )	Q
3869.0+x	(19 <sup>-</sup> )	877.0 6	100 10	2992.1+x	(17 <sup>-</sup> )	(Q)
3870.1+x	(19 <sup>+</sup> )	427.9 6	70 7	3441.7+x	(18 <sup>+</sup> )	
		824.7 3	100 5	3045.6+x	(17 <sup>+</sup> )	
3987.6+y		859 1	100	3128.6+y		
4000.4+x	(20 <sup>+</sup> )	538.0 6	5.6 4	3463.1+x	(19 <sup>+</sup> )	
		1013.9 3	100 5	2986.6+x	(18 <sup>+</sup> )	Q
4176.1+x		789 1	100	3387.1+x		
4203.3+y	(20 <sup>-</sup> )	772.1 6	100 10	3431.2+y	(18 <sup>-</sup> )	
4350.9+x	(20 <sup>+</sup> )	909.2 3	100 5	3441.7+x	(18 <sup>+</sup> )	Q
4354.6+x	(20 <sup>-</sup> )	917.7 3	100 5	3436.9+x	(18 <sup>-</sup> )	Q
4473.3+x	(21 <sup>+</sup> )	473.4 6	9.9 11	4000.4+x	(20 <sup>+</sup> )	
		1010.0 3	100 5	3463.1+x	(19 <sup>+</sup> )	Q
4555.5+x	(21 <sup>-</sup> )	914.1 3	100 5	3641.4+x	(19 <sup>-</sup> )	Q
4638.9+y	(21 <sup>-</sup> )	836.7 6	100 10	3802.2+y	(19 <sup>-</sup> )	
4796.9+x	(21 <sup>+</sup> )	926.8 6	100 10	3870.1+x	(19 <sup>+</sup> )	
4844.7+x	(21 <sup>-</sup> )	975.6 6	100 12	3869.0+x	(19 <sup>-</sup> )	Q
4929.6+y		942 1	100	3987.6+y		
5096.5+x	(22 <sup>+</sup> )	622.2 6	10.1 9	4473.3+x	(21 <sup>+</sup> )	
		1096.1 3	100 5	4000.4+x	(20 <sup>+</sup> )	Q
5107.7+y	(22 <sup>-</sup> )	904.4 6	100 10	4203.3+y	(20 <sup>-</sup> )	
5345.0+x	(22 <sup>-</sup> )	990.4 6	100 10	4354.6+x	(20 <sup>-</sup> )	Q
5357.8+x	(22 <sup>+</sup> )	1006.9 3	100 5	4350.9+x	(20 <sup>+</sup> )	Q
5531.1+x	(23 <sup>-</sup> )	975.6 3	100 5	4555.5+x	(21 <sup>-</sup> )	Q
5550.6+x	(23 <sup>+</sup> )	453.4 6	4.1 6	5096.5+x	(22 <sup>+</sup> )	D+Q
		1077.5 3	100 5	4473.3+x	(21 <sup>+</sup> )	
5615.1+y	(23 <sup>-</sup> )	976.2 6	100 8	4638.9+y	(21 <sup>-</sup> )	
5826.0+x	(23 <sup>+</sup> )	1029.1 3	100 5	4796.9+x	(21 <sup>+</sup> )	
5917.8+x	(23 <sup>-</sup> )	1073.1 6	100 8	4844.7+x	(21 <sup>-</sup> )	
6149.3+y	(24 <sup>-</sup> )	1041.5 6	100 10	5107.7+y	(22 <sup>-</sup> )	
6236.5+x	(24 <sup>+</sup> )	1140.0 6	100 11	5096.5+x	(22 <sup>+</sup> )	
6340.0+x	(24 <sup>+</sup> )	982.2 6	100 10	5357.8+x	(22 <sup>+</sup> )	
6409.8+x	(24 <sup>-</sup> )	1064.8 6	100 9	5345.0+x	(22 <sup>-</sup> )	
6592.8+x	(25 <sup>-</sup> )	1061.7 6	100 9	5531.1+x	(23 <sup>-</sup> )	
6686.2+x	(25 <sup>+</sup> )	1135.6 6	100 11	5550.6+x	(23 <sup>+</sup> )	
6724.5+y	(25 <sup>-</sup> )	1109.3 6	100 11	5615.1+y	(23 <sup>-</sup> )	
6900.5+x	(25 <sup>+</sup> )	1074.5 6	100 9	5826.0+x	(23 <sup>+</sup> )	
7317.9+y	(26 <sup>-</sup> )	1168.6 6	100 12	6149.3+y	(24 <sup>-</sup> )	
7389.2+x	(26 <sup>+</sup> )	1049.2 6	100 12	6340.0+x	(24 <sup>+</sup> )	
7436.4+x	(26 <sup>+</sup> )	1199.9 6	100 7	6236.5+x	(24 <sup>+</sup> )	
7538.3+x	(26 <sup>-</sup> )	1128.5 6	100 7	6409.8+x	(24 <sup>-</sup> )	
7734.4+x	(27 <sup>-</sup> )	1141.6 6	100 10	6592.8+x	(25 <sup>-</sup> )	
7900.1+x	(27 <sup>+</sup> )	1213.9 6	100 9	6686.2+x	(25 <sup>+</sup> )	
8044.4+x	(27 <sup>+</sup> )	1143.8 6	100 12	6900.5+x	(25 <sup>+</sup> )	
8529.3+x	(28 <sup>+</sup> )	1140.1 6	100 9	7389.2+x	(26 <sup>+</sup> )	
8584.7+y	(28 <sup>-</sup> )	1266.8 6	100 11	7317.9+y	(26 <sup>-</sup> )	
8687.5+x	(28 <sup>+</sup> )	1251.1 6	100 13	7436.4+x	(26 <sup>+</sup> )	
8732.7+x	(28 <sup>-</sup> )	1194.4 6	100 17	7538.3+x	(26 <sup>-</sup> )	
8925.0+x	(29 <sup>-</sup> )	1190.6 6	100 10	7734.4+x	(27 <sup>-</sup> )	
9193.4+x	(29 <sup>+</sup> )	1293.3 6	100 9	7900.1+x	(27 <sup>+</sup> )	

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)** $\gamma(^{124}\text{La})$  (continued)

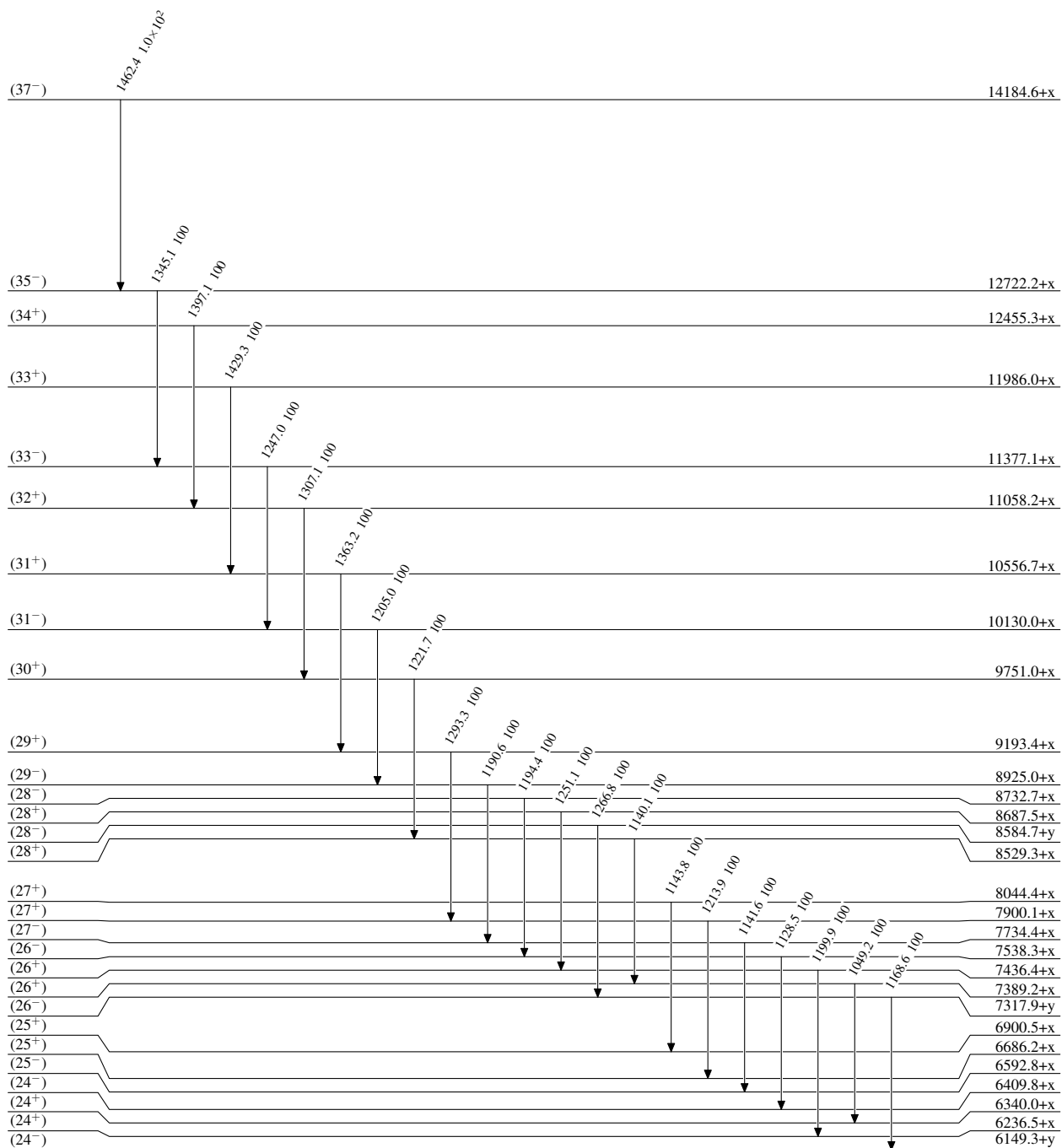
$E_i(\text{level})$	$J_i^\pi$	$E_\gamma^\dagger$	$I_\gamma^\dagger$	$E_f$	$J_f^\pi$
9751.0+x	(30 <sup>+</sup> )	1221.7 6	100 9	8529.3+x	(28 <sup>+</sup> )
10130.0+x	(31 <sup>-</sup> )	1205.0 6	100 13	8925.0+x	(29 <sup>-</sup> )
10556.7+x	(31 <sup>+</sup> )	1363.2 6	100 11	9193.4+x	(29 <sup>+</sup> )
11058.2+x	(32 <sup>+</sup> )	1307.1 6	100 8	9751.0+x	(30 <sup>+</sup> )
11377.1+x	(33 <sup>-</sup> )	1247.0 6	100 8	10130.0+x	(31 <sup>-</sup> )
11986.0+x	(33 <sup>+</sup> )	1429.3 6	100 50	10556.7+x	(31 <sup>+</sup> )
12455.3+x	(34 <sup>+</sup> )	1397.1 6	100 11	11058.2+x	(32 <sup>+</sup> )
12722.2+x	(35 <sup>-</sup> )	1345.1 6	100 14	11377.1+x	(33 <sup>-</sup> )
14184.6+x	(37 <sup>-</sup> )	1462.4 6	1.0×10 <sup>2</sup> 10	12722.2+x	(35 <sup>-</sup> )

<sup>†</sup> From (HL,xn $\gamma$ ).

<sup>‡</sup> From  $\gamma(\theta)$  and/or angular-correlation value R in (HL,xn $\gamma$ ).

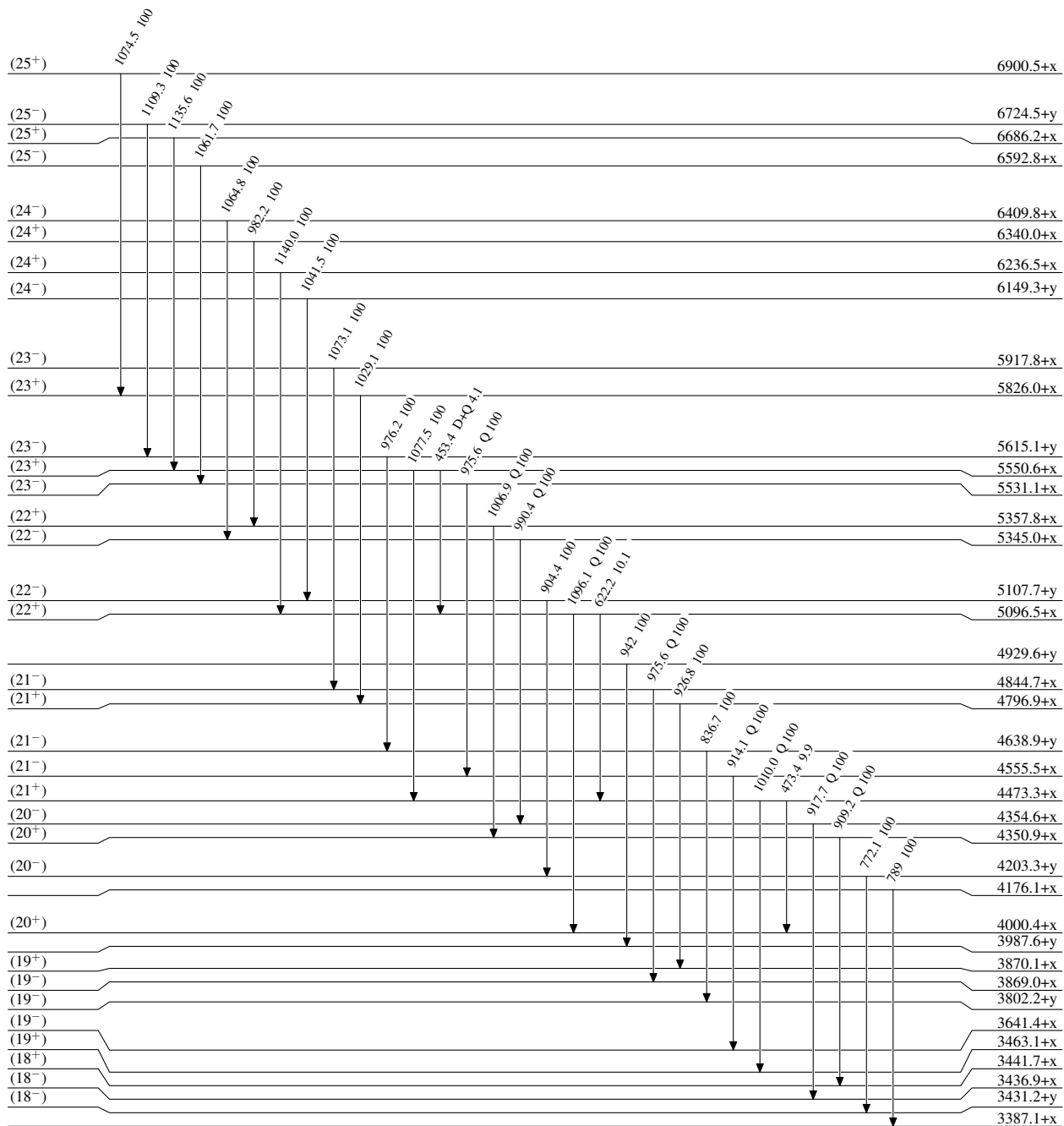
**Adopted Levels, Gammas**Level Scheme

Intensities: Relative photon branching from each level

 $^{124}_{57}\text{La}_{67}$

**Adopted Levels, Gammas****Level Scheme (continued)**

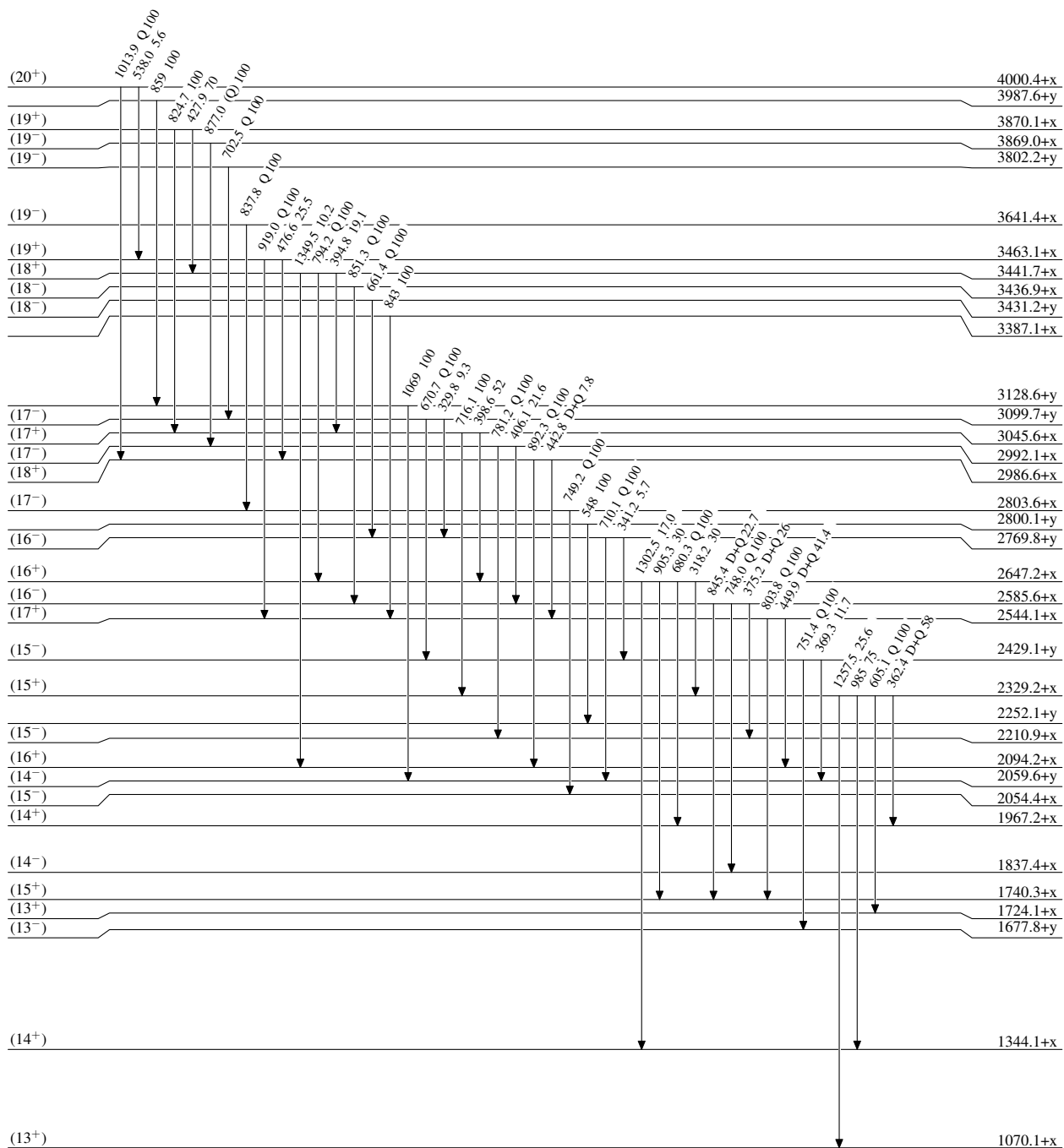
Intensities: Relative photon branching from each level

 $^{124}_{57}\text{La}_{67}$



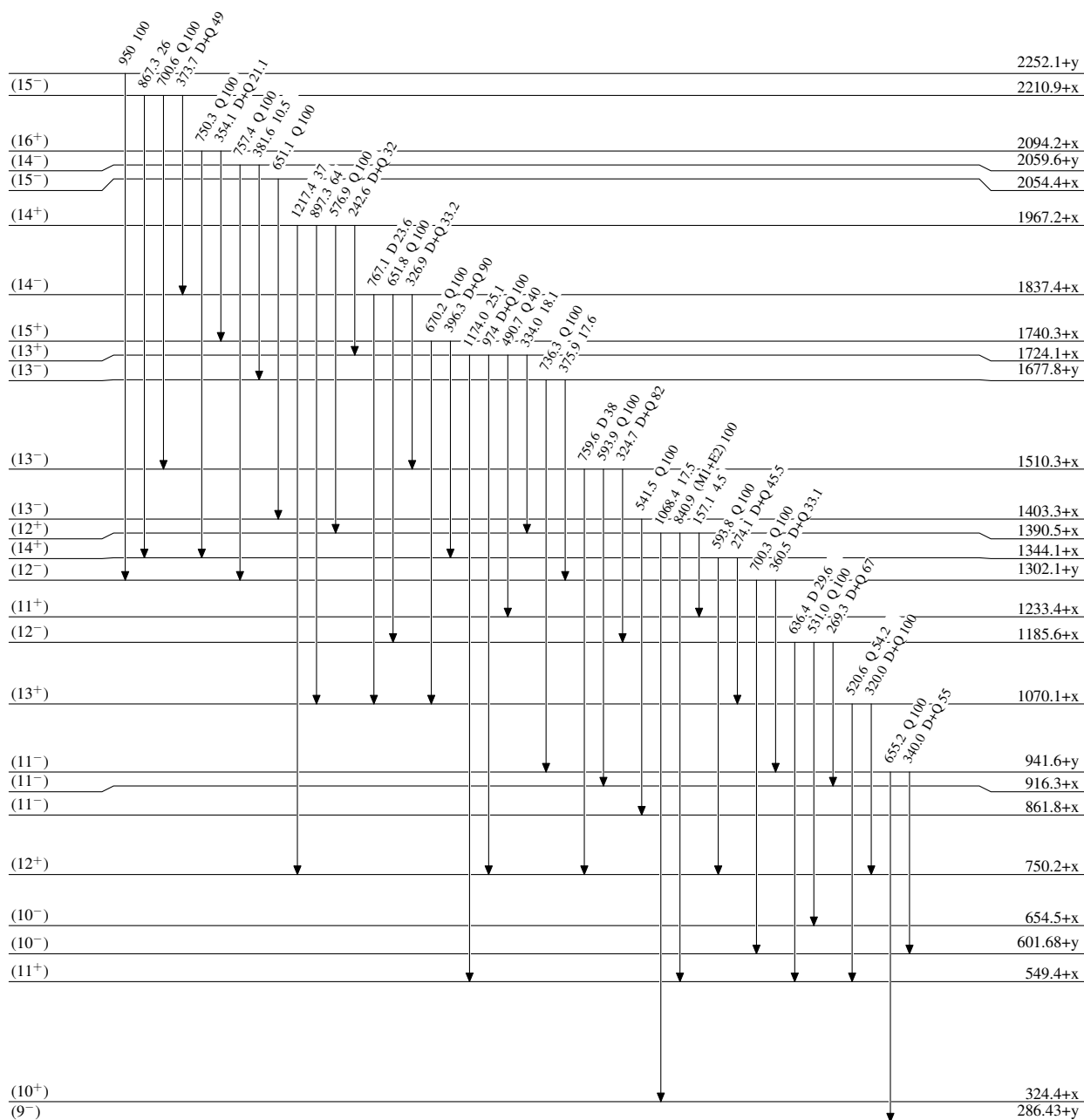
**Adopted Levels, Gammas****Level Scheme (continued)**

Intensities: Relative photon branching from each level

 $^{124}_{57}\text{La}_{67}$

**Adopted Levels, Gammas****Level Scheme (continued)**

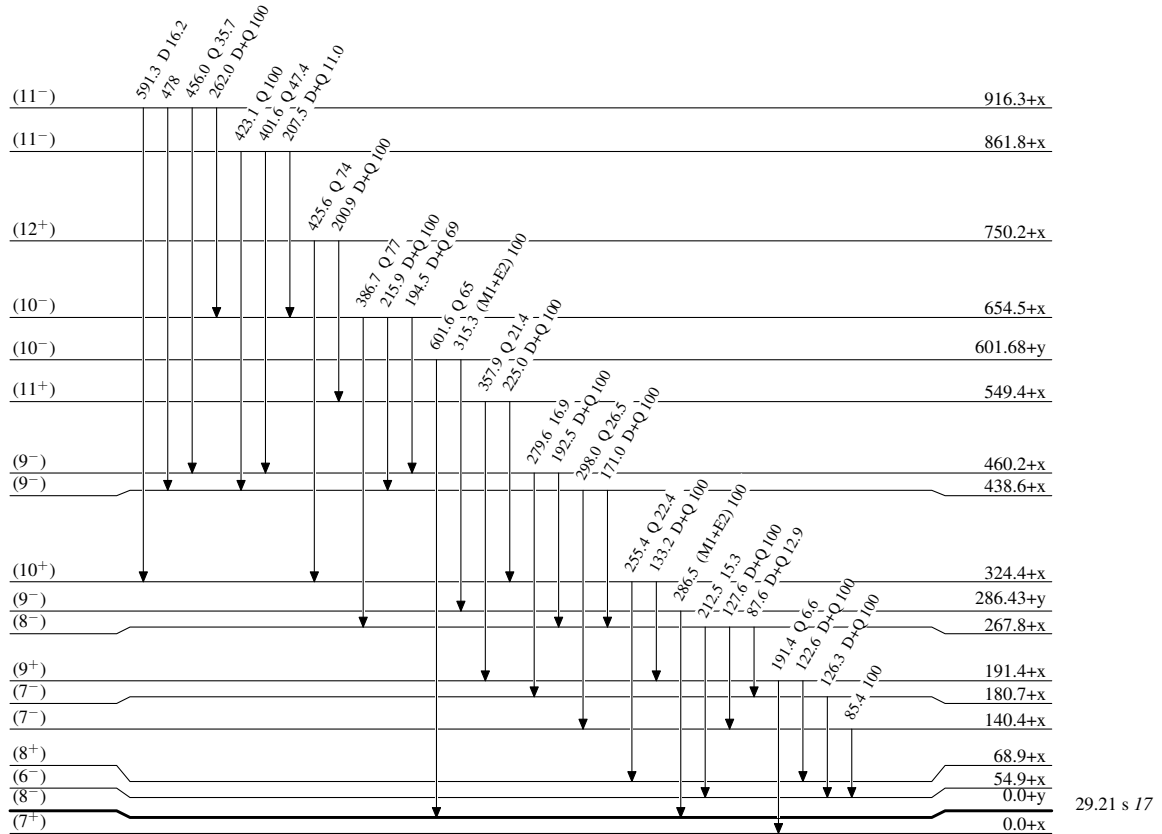
Intensities: Relative photon branching from each level

 $^{124}_{57}\text{La}_{67}$

**Adopted Levels, Gammas**

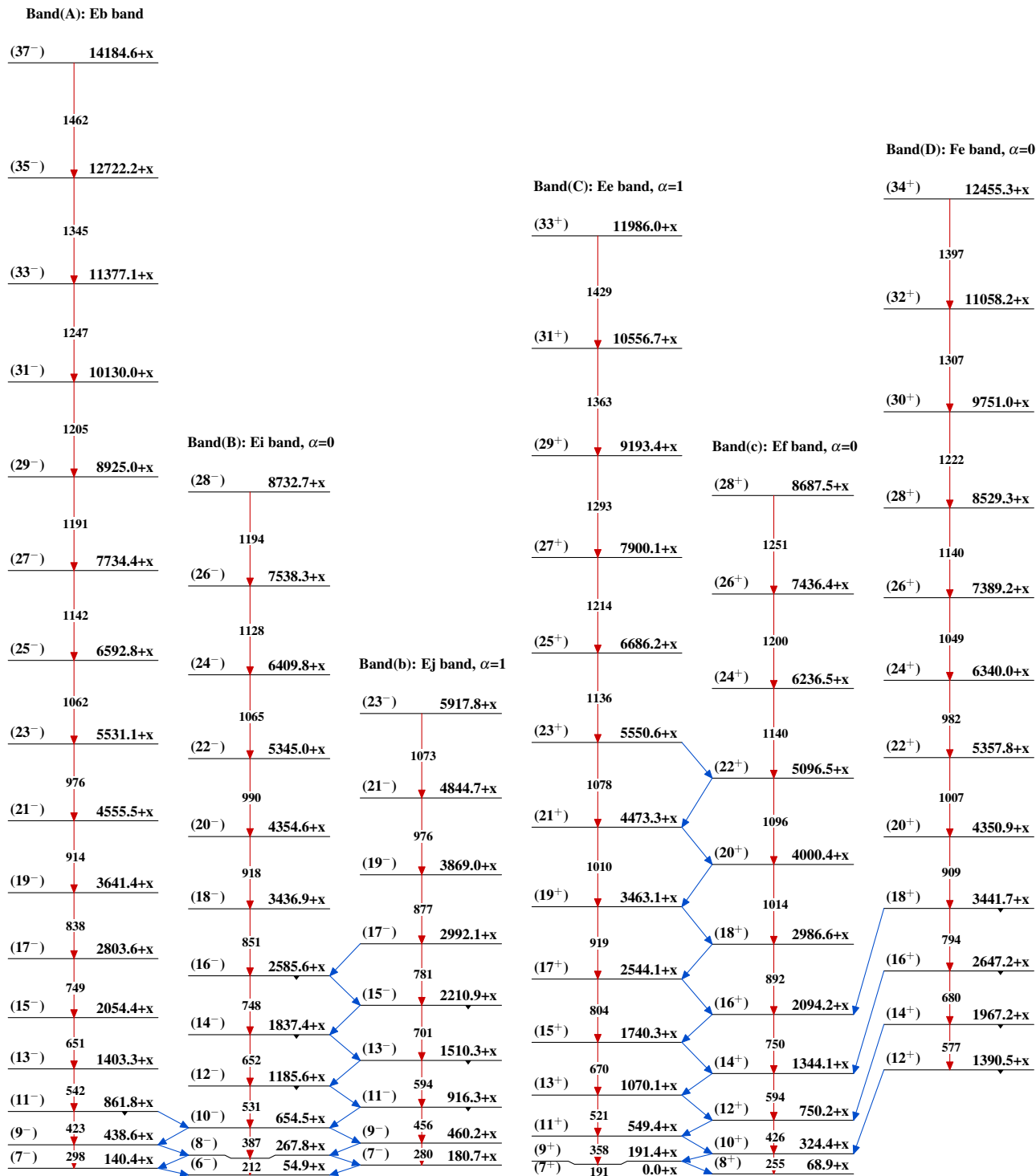
**Level Scheme (continued)**

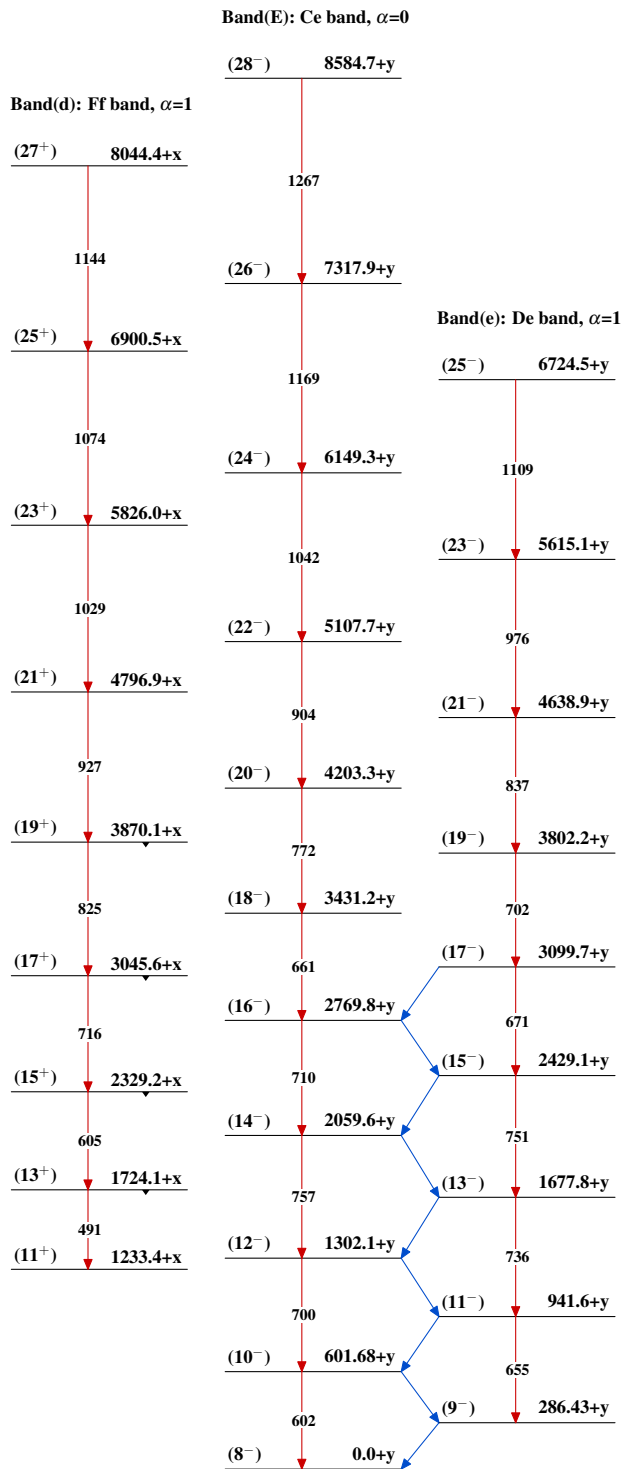
Intensities: Relative photon branching from each level



$^{124}_{57}\text{La}_{67}$

29.21 s 17

Adopted Levels, Gammas $^{124}_{57}\text{La}_{67}$

**Adopted Levels, Gammas (continued)** $^{124}_{57}\text{La}_{67}$