

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(β ⁻)=-8.83×10 ³ 6; S(n)=11506 18; S(p)=5335 18; Q(α)=658 18 2012Wa38 Note: Current evaluation has used the following Q record. Q _{-exp} =8930 110 (1998Ko66). Q(β ⁻)=-8.83×10 ³ 6; S(n)=11506 17; S(p)=5335 17; Q(α)=658 17 2003Au03				

¹²⁴Ba Levels

Nomenclature for quasiparticle orbitals:

Neutrons: 1/2[411] from s_{1/2}, d_{3/2} orbitals; 5/2[402] and 5/2[413] from d_{5/2}, g_{7/2} orbitals; 7/2[523] and 5/2[532] from h_{11/2} orbital.

Protons: 3/2[422] and 1/2[420] from d_{5/2}, g_{7/2} orbitals; 9/2[404] from g_{9/2} orbital; 1/2[550] and 3/2[541] from h_{11/2} orbital.

- A: ν1/2[411], α=+1/2.
- B: ν1/2[411], α=-1/2.
- C: ν5/2[402], α=+1/2.
- D: ν5/2[402], α=-1/2.
- α': ν5/2[413], α=+1/2.
- B': ν5/2[413], α=-1/2.
- E: ν7/2[523], α=-1/2.
- F: ν7/2[523], α=+1/2.
- G: ν5/2[532], α=-1/2.
- H: ν5/2[532], α=+1/2.
- a: π3/2[422], α=+1/2.
- b: π3/2[422], α=-1/2.
- c: π1/2[420], α=+1/2.
- d: π1/2[422], α=-1/2.
- a': π9/2[404], α=+1/2.
- b': π9/2[404], α=-1/2.
- e: π1/2[550], α=-1/2.
- f: π1/2[550], α=+1/2.
- g: π3/2[541], α=-1/2.
- h: π3/2[541], α=+1/2.

Cross Reference (XREF) Flags

- A ¹²⁴La ε decay
- B (HI,xnγ)
- C ¹²⁵Ce εp decay
- D ⁶⁴Ni(⁶⁴Ni,4nγ)

E(level) [†]	J ^π ^l	T _{1/2}	XREF	Comments
0.0 [#]	0 ⁺	11.0 min 5	ABCD	%ε+%β ⁺ =100 T _{1/2} : weighted average of 11.9 min 10 (γ(t)) (1972Dr06), 10.5 min 5 (β(t)) (1975Ra03), 12.0 min 15 (γ(t)) (1967DaZY). <r ² > ^{1/2} =4.819 fm 5 (2004An14 , evaluation).
229.91 [#] 10	2 ⁺	191 ps 8	ABCD	J ^π : E2 γ to 0 ⁺ . T _{1/2} : From recoil-distance Doppler shift (RDDS) method (1998Uc01). Other: 0.297 ns 26 from βγ(t) (1992Mo13). 2001Ra27 evaluation gives 191 ps 8.

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Adopted Levels, Gammas (continued) ^{124}Ba Levels (continued)

E(level) [†]	J^π ^l	XREF	Comments
651.66 [#] 13	4 ⁺	ABCD	J^π : stretched E2 γ to 2 ⁺ .
873.20 [@] 12	2 ⁺	AB D	J^π : M1 γ to 2 ⁺ . E2 γ to 0 ⁺ .
898.0? 10	0 ⁺		
1071.3 10	0 ⁺	A	J^π : from $\gamma\gamma(\theta)$ in ^{124}La ε decay.
1162.04 [@] 14	(3 ⁺)	AB D	J^π : (3 ⁺) member of γ band.
1228.39 [#] 14	6 ⁺	ABCD	J^π : E2 γ to 4 ⁺ .
1324.78 [@] 13	4 ⁺	AB D	J^π : M1(+E2) γ to 4 ⁺ . E2 γ to 2 ⁺ .
1353.3 10	(2 ⁺)	A	J^π : γ to 0 ⁺ .
1356.9 10	0 ⁺	A	J^π : from $\gamma\gamma(\theta)$ in ^{124}La ε decay.
1672.25 [@] 16	(5 ⁺)	AB D	J^π : M1,E2 γ to 4 ⁺ . γ 's to (3 ⁺) and 6 ⁺ .
1722.1 8	(3 ⁻)	B D	
1858.14 [@] 15	(6 ⁺)	AB D	J^π : E2 γ to 4 ⁺ .
1912.92 ^b 20	5 ⁻	AB D	J^π : E1 γ 's to 4 ⁺ and 6 ⁺ .
1923.25 [#] 16	8 ⁺	AB D	J^π : stretched E2 γ to 6 ⁺ .
2034.2 ^c 3	(4 ⁻)	AB D	
2261.79 ^b 16	(7 ⁻)	AB D	J^π : E1 γ to 6 ⁺ . M1,E2 γ to 5 ⁻ .
2267.08 19	5 ⁻	AB D	J^π : E1 γ to 6 ⁺ . E1 γ to 4 ⁺ .
2285.31 [@] 19	(7 ⁺)	B D	J^π : Q γ to (5 ⁺). D γ to 6 ⁺ .
2359.46 ^c 18	(6 ⁻)	AB D	J^π : E1 γ to 6 ⁺ . M1(+E2) γ to 5 ⁻ .
2479.03 [@] 18	(8 ⁺)	AB D	J^π : Q γ to (6 ⁺); (8 ⁺) member of γ band.
2497.6 ^e 3	(6 ⁻)	B D	
2647.47 24	(7 ⁻)	AB D	
2687.50 [#] 20	(10 ⁺)	B D	
2690.8 ^d 3	(7 ⁻)	B D	
2704.91 ^c 18	(8 ⁻)	AB D	
2721.65 ^b 18	(9 ⁻)	AB D	J^π : E1 γ to 8 ⁺ . Q γ to (7 ⁻).
2906.5 ^e 3	(8 ⁻)	B D	
2975.18 [@] 21	(9 ⁺)	B D	J^π : (9 ⁺) member of γ band.
3095.8 4	(7 ⁻)	A	J^π : (E1) γ to 8 ⁺ . γ to 6 ⁺ .
3109.8 ^d 3	(9 ⁻)	B D	
3156.76 ^c 24	(10 ⁻)	B D	
3177.1 [@] 5	(10 ⁺)	B D	J^π : Q γ to (8 ⁺) member of γ band.
3286.91 ^b 19	(11 ⁻)	B D	
3335.5 ^e 4	(10 ⁻)	B D	
3436.2 ^{&} 3	(12 ⁺)	B D	
3591.6 ^d 4	(11 ⁻)	B D	
3691.8 ^a 4	(12 ⁺)	B D	
3694.0 [@] 3	(11 ⁺)	B D	J^π : (11 ⁺) member of γ band.
3772.6 ^c 4	(12 ⁻)	B D	
3829.5 11	(11)	D	
3891.5 ^e 5	(12 ⁻)	B D	
3968.21 ^b 22	(13 ⁻)	B D	
4125.9 ^{&} 4	(14 ⁺)	B D	
4228.0 ^d 5	(13 ⁻)	B D	
4381.8 ^h 8	(11 ⁺)	D	
4407.3 ^a 4	(14 ⁺)	B D	
4534.3 ^c 6	(14 ⁻)	B D	
4551.5 ⁱ 10	(12 ⁺)	D	

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Adopted Levels, Gammas (continued) ^{124}Ba Levels (continued)

E(level) [†]	J ^π ^l	XREF	E(level) [†]	J ^π ^l	XREF	E(level) [†]	J ^π ^l	XREF
4603.8 ^e 5	(14 ⁻)	B D	8408.2 ^e 10	(22 ⁻)	D	13348.3 ^k 13	(30)	D
4761.8 ^b 3	(15 ⁻)	B D	8483.5 ^f 5	(23 ⁺)	D	13406.5 ^f 13	31 ⁺	D
4766.3 ^h 10	(13 ⁺)	D	8512.4 ^b 9	(23 ⁻)	B D	13491.8 ^h 19	(31 ⁺)	D
4892.5 ^{&} 6	(16 ⁺)	B D	8794.4 ^{&} 10	(24 ⁺)	B D	13517.2 ^b 13	(31 ⁻)	D
5009.7 ^d 5	(15 ⁻)	B D	8904.4 ^h 15	(23 ⁺)	D	13590.3 ^j 13	(31)	D
5027.3 ⁱ 10	(14 ⁺)	D	8910.4 ^d 12	(23 ⁻)	D	13880.4 ^{&} 13	(32 ⁺)	B D
5215.8 ^a 6	(16 ⁺)	B D	9053.4 ^a 10	(24 ⁺)	B D	14057.6 ^a 12	(32 ⁺)	D
5329.1 ^h 10	(15 ⁺)	D	9176.9 ^g 7	(24 ⁺)	D	14184.1 ^c 15	(32 ⁻)	D
5392.4 ^c 7	(16 ⁻)	B D	9380.1 ^c 9	(24 ⁻)	D	14190.5 ^g 14	(32 ⁺)	D
5446.0 ^e 6	(16 ⁻)	B D	9427.7 ⁱ 16	(24 ⁺)	D	14755.2 ^k 14	(32)	D
5638.9 ^b 5	(17 ⁻)	B D	9525.3 ^e 12	(24 ⁻)	D	14832.4 ^h 20	(33 ⁺)	D
5668.0 ⁱ 11	(16 ⁺)	D	9561.8 ^f 8	(25 ⁺)	D	14881.2 ^f 15	(33 ⁺)	D
5725.0 ^f 7	(17 ⁺)	B D	9613.1 ^b 10	(25 ⁻)	B D	14979.4 ^j 15	(33)	D
5763.2 ^{&} 7	(18 ⁺)	B D	9916.4 ^j 8	(25)	D	15003.7 ^b 15	(33 ⁻)	D
5905.8 ^d 7	(17 ⁻)	B D	9950.7 ^{&} 10	(26 ⁺)	B D	15335.4 ^{&} 13	(34 ⁺)	B D
6044.8 ^h 11	(17 ⁺)	D	9975.0 ^h 16	(25 ⁺)	D	15459.2 ^a 14	(34 ⁺)	D
6080.4 ^a 7	(18 ⁺)	B D	9981.2 ^d 13	(25 ⁻)	D	15475.0 ^c 17	(34 ⁻)	D
6189.6 ^g 6	(18 ⁺)	D	10220.0 ^a 7	(26 ⁺)	D	15618.0 ^g 15	(34 ⁺)	D
6290.4 ^c 8	(18 ⁻)	B D	10308.3 ^g 9	(26 ⁺)	D	16029.2 ^k 15	(34)	D
6383.0 ^e 7	(18 ⁻)	B D	10519.6 ⁱ 17	(26 ⁺)	D	16280.4 ^h 21	(35 ⁺)	D
6452.9 ⁱ 11	(18 ⁺)	D	10561.3 ^c 11	(26 ⁻)	D	16425.4 ^f 16	(35 ⁺)	D
6556.0 ^b 7	(19 ⁻)	B D	10703.7 ^e 13	(26 ⁻)	D	16461.2 ^j 16	(35)	D
6581.3 ^f 4	(19 ⁺)	D	10746.6 ^f 10	(27 ⁺)	D	16775.3 ^{&} 13	(36 ⁺)	D
6704.0 7	(18)	D	10811.9 ^b 11	(27 ⁻)	D	16914.4 [‡] 13	(36 ⁺)	D
6711.1 ^{&} 8	(20 ⁺)	B D	11067.7 ^j 10	(27)	D	16943.5 ^a 15	(36 ⁺)	D
6870.8 ^d 8	(19 ⁻)	B D	11077.4 ^h 17	(27 ⁺)	D	17111.3 ^g 17	(36 ⁺)	D
6896.9 ^h 12	(19 ⁺)	D	11115.4 11	(26)	D	17435.2 ^k 16	(36)	D
6999.4 ^a 8	(20 ⁺)	B D	11182.5 ^{&} 11	(28 ⁺)	B D	18040.9 ^j 17	(37)	D
7081.5 ^g 6	(20 ⁺)	D	11471.8 ^a 9	(28 ⁺)	D	18045.0 ^f 17	(37 ⁺)	D
7229.9 ^c 9	(20 ⁻)	B D	11522.5 ^g 11	(28 ⁺)	D	18069.7 [‡] 14	(38 ⁺)	D
7362.9 ⁱ 13	(20 ⁺)	D	11648.9 ⁱ 18	(28 ⁺)	D	18143.7 [‡] 14	(38 ⁺)	D
7366.0 ^e 8	(20 ⁻)	B D	11753.3 ^c 13	(28 ⁻)	D	18525.3 [‡] 14	(38 ⁺)	D
7499.9 ^f 5	(21 ⁺)	D	12029.5 ^f 12	(29 ⁺)	D	18649.1 ^g 18	(38 ⁺)	D
7502.6 ^b 8	(21 ⁻)	B D	12116.4 ^{ab} 12	(29 ⁻)	D	18909.2 ^k 17	(38)	D
7716.4 ^{&} 9	(22 ⁺)	B D	12242.3 ^h 18	(29 ⁺)	D	19720.6 ^j 18	(39)	D
7863.8 ^h 13	(21 ⁺)	D	12288.9 ^j 12	(29)	D	20483.3 ^k 18	(40)	D
7876.4 ^d 10	(21 ⁻)	D	12491.3 ^{&} 12	(30 ⁺)	B D	21501.5 ^j 19	(41)	D
7983.4 ^a 9	(22 ⁺)	B D	12733.0 ^a 11	(30 ⁺)	D	22150.1 ^k 19	(42)	D
8098.3 ^g 6	(22 ⁺)	D	12820.4 ^g 13	(30 ⁺)	D	23384.7 ^j 20	(43)	D
8262.5 ^c 7	(22 ⁻)	D	12859.8 ⁱ 19	(30 ⁺)	D	25371.1 ^j 21	(45)	D
8369.2 ⁱ 14	(22 ⁺)	D	12959.8 ^c 14	(30 ⁻)	D			

[†] From a least-squares fit to adopted gammas.[‡] Level related to band #1 in figure 1 of [2006AI15](#) or to band with configuration=efEF.

Band(A): g.s. Band.

@ Band(B): γ Band.

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Adopted Levels, Gammas (continued) ^{124}Ba Levels (continued)

- [&] Band(C): 0-qp to ef to efEF, $\alpha=0$ Configuration=ef after first crossing at $\hbar\omega=0.37$ MeV, and efEF above second crossing at $\hbar\omega=0.49$ MeV.
- ^a Band(D): 0-qp to EF to EFef, $\alpha=0$ Configuration=EF after first crossing at $\hbar\omega=0.41$ MeV, and EFef above second crossing at $\hbar\omega=0.44$ MeV.
- ^b Band(e): eb to ebEF, $\alpha=1$ Configuration=ebEF after crossing at $\hbar\omega=0.46$ MeV.
- ^c Band(E): ea to eaGH to eaGHEF, $\alpha=0$ Configuration=eaGH after first crossing at $\hbar\omega=0.44$ MeV, and eaGHEF above second crossing at $\hbar\omega=0.59$ MeV.
- ^d Band(f): eb' to eb'EF, $\alpha=1$ Configuration=eb'EF after crossing at $\hbar\omega=0.44$ MeV.
- ^e Band(F): ea' to ea'EF, $\alpha=0$ Configuration=ea'EF after crossing at $\hbar\omega=0.44$ MeV.
- ^f Band(G): efGH, $\alpha=1$.
- ^g Band(H): efFH, $\alpha=0$.
- ^h Band(I): eb'EA' to eb'EA'GH, $\alpha=1$ Configuration=eb'Ea'GH after crossing at $\hbar\omega=0.52$ MeV.
- ⁱ Band(i): eb'FA' to eb'FA'GH, $\alpha=0$ Configuration=eb'FA'GH after crossing at $\hbar\omega=0.52$ MeV.
- ^j Band(J): Band based on (25), $\alpha=1$. Possible configuration= $\pi h_{11/2}^2 \otimes \nu(h_{11/2}^5 i_{13/2})$; Decay to ef band suggests $\pi h_{11/2}^2 \otimes \nu h_{11/2}^6$.
- ^k Band(K): Band based on (30), $\alpha=0$. Possibly a six-quasiparticle configuration.
- ^l From DCO and angular correlation ratios in $^{64}\text{Ni}(^{64}\text{Ni}, 4n\gamma)$, unless otherwise noted.

Adopted Levels, Gammas (continued)

$\gamma(^{124}\text{Ba})$									
$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult. @	δ^a	α^b	Comments
229.91	2 ⁺	229.7 1	100 [‡]	0.0	0 ⁺	E2		0.1080	B(E2)(W.u.)=113 5 $\alpha(\text{K})=0.0854$ 12; $\alpha(\text{L})=0.0179$ 3; $\alpha(\text{M})=0.00380$ 6; $\alpha(\text{N}+..)=0.000919$ 13 $\alpha(\text{N})=0.000801$ 12; $\alpha(\text{O})=0.0001129$ 16; $\alpha(\text{P})=4.64\times 10^{-6}$ 7
651.66	4 ⁺	421.1 1	100 [‡]	229.91	2 ⁺	E2		0.01604	$\alpha(\text{K})=0.01336$ 19; $\alpha(\text{L})=0.00212$ 3; $\alpha(\text{M})=0.000444$ 7; $\alpha(\text{N}+..)=0.0001092$ 16 $\alpha(\text{N})=9.45\times 10^{-5}$ 14; $\alpha(\text{O})=1.388\times 10^{-5}$ 20; $\alpha(\text{P})=7.91\times 10^{-7}$ 11
873.20	2 ⁺	643.4 6	100 [‡] 8	229.91	2 ⁺	M1		0.00709	$\alpha(\text{K})=0.00611$ 9; $\alpha(\text{L})=0.000779$ 11; $\alpha(\text{M})=0.0001600$ 23; $\alpha(\text{N}+..)=4.02\times 10^{-5}$ 6 $\alpha(\text{N})=3.45\times 10^{-5}$ 5; $\alpha(\text{O})=5.31\times 10^{-6}$ 8; $\alpha(\text{P})=3.94\times 10^{-7}$ 6
		873.3 6	79 [‡] 16	0.0	0 ⁺	E2		0.00244	$\alpha(\text{K})=0.00209$ 3; $\alpha(\text{L})=0.000280$ 4; $\alpha(\text{M})=5.76\times 10^{-5}$ 9; $\alpha(\text{N}+..)=1.439\times 10^{-5}$ 21 $\alpha(\text{N})=1.238\times 10^{-5}$ 18; $\alpha(\text{O})=1.88\times 10^{-6}$ 3; $\alpha(\text{P})=1.293\times 10^{-7}$ 19
898.0?	0 ⁺	668 ^c 5 898 ^c	≈100	229.91	2 ⁺ 0.0	2 ⁺ 0 ⁺		E0	See ¹²⁴ La ϵ decay. $q_K^2(\text{E0/E2})=1.4$ 7, $X(\text{E0/E2})=0.09$ 5, (2005Ki02, evaluation).
1071.3	0 ⁺	841.4 [‡]	[‡]	229.91	2 ⁺				
1162.04	(3 ⁺)	510.0 6	25	651.66	4 ⁺	D			I_γ : composite line (1990Pi11).
		932.8 6	100 [‡] 9	229.91	2 ⁺	D			
1228.39	6 ⁺	576.5 1	100	651.66	4 ⁺	E2		0.00672	$\alpha(\text{K})=0.00568$ 8; $\alpha(\text{L})=0.000824$ 12; $\alpha(\text{M})=0.0001711$ 24; $\alpha(\text{N}+..)=4.24\times 10^{-5}$ 6 $\alpha(\text{N})=3.66\times 10^{-5}$ 6; $\alpha(\text{O})=5.46\times 10^{-6}$ 8; $\alpha(\text{P})=3.45\times 10^{-7}$ 5 Mult.: from $\gamma(\theta)$ and linear polarization in (HI,xny).
1324.78	4 ⁺	451.7 6	47 [‡] 5	873.20	2 ⁺	M1,E2		0.0150 20	$\alpha(\text{K})=0.0128$ 19; $\alpha(\text{L})=0.00179$ 10; $\alpha(\text{M})=0.000371$ 17; $\alpha(\text{N}+..)=9.2\times 10^{-5}$ 6 $\alpha(\text{N})=8.0\times 10^{-5}$ 5; $\alpha(\text{O})=1.20\times 10^{-5}$ 9; $\alpha(\text{P})=8.0\times 10^{-7}$ 15
		673.1 6	100 [‡] 11	651.66	4 ⁺	M1(+E2)	-0.15 +25-20	0.00631 19	$\alpha(\text{K})=0.00544$ 17; $\alpha(\text{L})=0.000694$ 17; $\alpha(\text{M})=0.000143$ 4; $\alpha(\text{N}+..)=3.59\times 10^{-5}$ 9 $\alpha(\text{N})=3.08\times 10^{-5}$ 8; $\alpha(\text{O})=4.73\times 10^{-6}$ 13; $\alpha(\text{P})=3.51\times 10^{-7}$ 12
		1094.5 6	20 [‡] 7	229.91	2 ⁺	E2		1.49×10^{-3}	$\alpha(\text{K})=0.001284$ 18; $\alpha(\text{L})=0.0001664$ 24; $\alpha(\text{M})=3.42\times 10^{-5}$ 5; $\alpha(\text{N}+..)=8.56\times 10^{-6}$ 12 $\alpha(\text{N})=7.36\times 10^{-6}$ 11; $\alpha(\text{O})=1.122\times 10^{-6}$ 16; $\alpha(\text{P})=7.97\times 10^{-8}$ 12
1353.3	(2 ⁺)	1353.3 [‡]	[‡]	0.0	0 ⁺				
1356.9	0 ⁺	1127 [‡]	[‡]	229.91	2 ⁺				

Adopted Levels, Gammas (continued)

$\gamma(^{124}\text{Ba})$ (continued)									
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. [@]	α^b	Comments	
1672.25	(5) ⁺	444.4 6 510.0 6 1020.8 6	30 37 100 12	1228.39 1162.04 651.66	6 ⁺ (3) ⁺ 4 ⁺	D Q M1,E2	0.0021 4	$\alpha(\text{K})=0.0018$ 3; $\alpha(\text{L})=0.00023$ 4; $\alpha(\text{M})=4.6\times 10^{-5}$ 7; $\alpha(\text{N}+..)=1.17\times 10^{-5}$ 17 $\alpha(\text{N})=1.00\times 10^{-5}$ 15; $\alpha(\text{O})=1.53\times 10^{-6}$ 23; $\alpha(\text{P})=1.12\times 10^{-7}$ 20	
1722.1	(3) ⁻	1492.6 6		229.91	2 ⁺	D			
1858.14	(6) ⁺	533.4 6 629.7 6	100 \ddagger 11 69 \ddagger 11	1324.78 1228.39	4 ⁺ 6 ⁺	E2 M1+E2	0.00826 0.0064 11	$\alpha(\text{K})=0.00696$ 10; $\alpha(\text{L})=0.001031$ 15; $\alpha(\text{M})=0.000214$ 3; $\alpha(\text{N}+..)=5.30\times 10^{-5}$ 8 $\alpha(\text{N})=4.58\times 10^{-5}$ 7; $\alpha(\text{O})=6.81\times 10^{-6}$ 10; $\alpha(\text{P})=4.21\times 10^{-7}$ 6 $\alpha(\text{K})=0.0055$ 10; $\alpha(\text{L})=0.00073$ 9; $\alpha(\text{M})=0.000151$ 18; $\alpha(\text{N}+..)=3.8\times 10^{-5}$ 5 $\alpha(\text{N})=3.3\times 10^{-5}$ 4; $\alpha(\text{O})=4.9\times 10^{-6}$ 7; $\alpha(\text{P})=3.5\times 10^{-7}$ 7	
1912.92	5 ⁻	684.9 6 1260.8 3	18 \ddagger 4 100 \ddagger 5	1228.39 651.66	6 ⁺ 4 ⁺	E1 E1	1.62 $\times 10^{-3}$ 5.59 $\times 10^{-4}$	$\alpha(\text{K})=0.001404$ 20; $\alpha(\text{L})=0.0001745$ 25; $\alpha(\text{M})=3.57\times 10^{-5}$ 5; $\alpha(\text{N}+..)=8.94\times 10^{-6}$ 13 $\alpha(\text{N})=7.68\times 10^{-6}$ 11; $\alpha(\text{O})=1.173\times 10^{-6}$ 17; $\alpha(\text{P})=8.49\times 10^{-8}$ 12 $\alpha(\text{K})=0.000432$ 6; $\alpha(\text{L})=5.27\times 10^{-5}$ 8; $\alpha(\text{M})=1.075\times 10^{-5}$ 15; $\alpha(\text{N}+..)=6.29\times 10^{-5}$ 9 $\alpha(\text{N})=2.32\times 10^{-6}$ 4; $\alpha(\text{O})=3.56\times 10^{-7}$ 5; $\alpha(\text{P})=2.64\times 10^{-8}$ 4; $\alpha(\text{IPF})=6.02\times 10^{-5}$ 9	
1923.25	8 ⁺	694.7 1	100	1228.39	6 ⁺	E2	0.00419	$\alpha(\text{K})=0.00356$ 5; $\alpha(\text{L})=0.000496$ 7; $\alpha(\text{M})=0.0001026$ 15; $\alpha(\text{N}+..)=2.55\times 10^{-5}$ 4 $\alpha(\text{N})=2.20\times 10^{-5}$ 3; $\alpha(\text{O})=3.31\times 10^{-6}$ 5; $\alpha(\text{P})=2.19\times 10^{-7}$ 3	
2034.2	(4) ⁻	312.0 6		1722.1	(3) ⁻	D			
2261.79	(7) ⁻	1381.9 6 338.4 6 348.4 6	100 \ddagger 20 3.0 15 9.0 \ddagger 15	651.66 1923.25 1912.92	4 ⁺ 8 ⁺ 5 ⁻	D D M1,E2	0.0306 24	$\alpha(\text{K})=0.026$ 3; $\alpha(\text{L})=0.00382$ 16; $\alpha(\text{M})=0.00079$ 4; $\alpha(\text{N}+..)=0.000197$ 8 $\alpha(\text{N})=0.000170$ 8; $\alpha(\text{O})=2.54\times 10^{-5}$ 5; $\alpha(\text{P})=1.59\times 10^{-6}$ 25	
		1033.7 1	100 \ddagger 23	1228.39	6 ⁺	E1	7.16 $\times 10^{-4}$	$\alpha(\text{K})=0.000620$ 9; $\alpha(\text{L})=7.60\times 10^{-5}$ 11; $\alpha(\text{M})=1.552\times 10^{-5}$ 22; $\alpha(\text{N}+..)=3.90\times 10^{-6}$ 6 $\alpha(\text{N})=3.35\times 10^{-6}$ 5; $\alpha(\text{O})=5.13\times 10^{-7}$ 8; $\alpha(\text{P})=3.78\times 10^{-8}$ 6	
2267.08	5 ⁻	354.0 6 942.4 6		1912.92 1324.78	5 ⁻ 4 ⁺	D E1	8.53 $\times 10^{-4}$	$\alpha(\text{K})=0.000739$ 11; $\alpha(\text{L})=9.08\times 10^{-5}$ 13; $\alpha(\text{M})=1.85\times 10^{-5}$ 3; $\alpha(\text{N}+..)=4.65\times 10^{-6}$ 7 $\alpha(\text{N})=4.00\times 10^{-6}$ 6; $\alpha(\text{O})=6.12\times 10^{-7}$ 9; $\alpha(\text{P})=4.50\times 10^{-8}$ 7	
		1038.6 6	1.0 $\times 10^2$ \ddagger 3	1228.39	6 ⁺	E1	7.09 $\times 10^{-4}$	$\alpha(\text{K})=0.000615$ 9; $\alpha(\text{L})=7.53\times 10^{-5}$ 11; $\alpha(\text{M})=1.538\times 10^{-5}$ 22; $\alpha(\text{N}+..)=3.86\times 10^{-6}$ 6 $\alpha(\text{N})=3.32\times 10^{-6}$ 5; $\alpha(\text{O})=5.08\times 10^{-7}$ 8; $\alpha(\text{P})=3.75\times 10^{-8}$ 6	
		1615.3 6	83 \ddagger 17	651.66	4 ⁺	D			

Adopted Levels, Gammas (continued)

$\gamma(^{124}\text{Ba})$ (continued)									
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. @	δ^a	α^b	Comments
2285.31	(7 ⁺)	612.7 6	100	1672.25	(5) ⁺	Q			
		1057.0 6	40	1228.39	6 ⁺	D			
2359.46	(6) ⁻	325.5 3	42 6	2034.2	(4) ⁻	Q			
		446.3 3	71 13	1912.92	5 ⁻	M1		0.01749	$\alpha(\text{K})=0.01505$ 22; $\alpha(\text{L})=0.00194$ 3; $\alpha(\text{M})=0.000399$ 6; $\alpha(\text{N}+..)=0.0001004$ 15
		1130.0 2	100 22	1228.39	6 ⁺	E1		6.14×10^{-4}	$\alpha(\text{N})=8.62 \times 10^{-5}$ 13; $\alpha(\text{O})=1.324 \times 10^{-5}$ 19; $\alpha(\text{P})=9.76 \times 10^{-7}$ 14
									$\alpha(\text{K})=0.000526$ 8; $\alpha(\text{L})=6.43 \times 10^{-5}$ 9; $\alpha(\text{M})=1.313 \times 10^{-5}$ 19; $\alpha(\text{N}+..)=1.013 \times 10^{-5}$ 15
									$\alpha(\text{N})=2.83 \times 10^{-6}$ 4; $\alpha(\text{O})=4.34 \times 10^{-7}$ 6; $\alpha(\text{P})=3.21 \times 10^{-8}$ 5; $\alpha(\text{IPF})=6.84 \times 10^{-6}$ 11
2479.03	(8 ⁺)	555.7 6	$2.4 \times 10^{2\#}$	1923.25	8 ⁺	D			I_γ : intensity undivided (1990Pi11).
		620.9 6	100 [#]	1858.14	(6) ⁺	Q			
2497.6	(6) ⁻	230.5 1	100 19	2267.08	5 ⁻				I_γ : composite line (1990Pi11).
		824.9 6	6 [#]	1672.25	(5) ⁺				
2647.47	(7) ⁻	288.0 6	25 13	2359.46	(6) ⁻	D			
		380.4 6	63 25	2267.08	5 ⁻	Q			
		385.7 6	88 25	2261.79	(7) ⁻	D+Q			
		789.3 6	100 40	1858.14	(6) ⁺	D			
2687.50	(10 ⁺)	764.4 1	100	1923.25	8 ⁺	Q			
2690.8	(7) ⁻	193.0 3	100	2497.6	(6) ⁻	D			
2704.91	(8) ⁻	345.2 3	100 17	2359.46	(6) ⁻	E2		0.0291	$\alpha(\text{K})=0.0240$ 4; $\alpha(\text{L})=0.00409$ 6; $\alpha(\text{M})=0.000860$ 13; $\alpha(\text{N}+..)=0.000210$ 3
		443.0 4	13 7	2261.79	(7) ⁻	M1		0.0178	$\alpha(\text{N})=0.000183$ 3; $\alpha(\text{O})=2.65 \times 10^{-5}$ 4; $\alpha(\text{P})=1.385 \times 10^{-6}$ 20
									$\alpha(\text{K})=0.01533$ 22; $\alpha(\text{L})=0.00198$ 3; $\alpha(\text{M})=0.000407$ 6; $\alpha(\text{N}+..)=0.0001024$ 15
									$\alpha(\text{N})=8.79 \times 10^{-5}$ 13; $\alpha(\text{O})=1.349 \times 10^{-5}$ 20; $\alpha(\text{P})=9.95 \times 10^{-7}$ 15
		781.8 2	63 13	1923.25	8 ⁺				
2721.65	(9) ⁻	459.8 3	57 12	2261.79	(7) ⁻	Q			
		798.0 1	100 11	1923.25	8 ⁺	E1		1.18×10^{-3}	$\alpha(\text{K})=0.001024$ 15; $\alpha(\text{L})=0.0001266$ 18; $\alpha(\text{M})=2.59 \times 10^{-5}$ 4; $\alpha(\text{N}+..)=6.49 \times 10^{-6}$ 9
									$\alpha(\text{N})=5.58 \times 10^{-6}$ 8; $\alpha(\text{O})=8.53 \times 10^{-7}$ 12; $\alpha(\text{P})=6.22 \times 10^{-8}$ 9
2906.5	(8) ⁻	215.9 3	100 50	2690.8	(7) ⁻	D(+Q)	-0.21 +25-15		
		408.7 6	26 17	2497.6	(6) ⁻	Q			
2975.18	(9 ⁺)	689.8 6		2285.31	(7 ⁺)				
		1053.0 6		1923.25	8 ⁺				
3095.8	(7) ⁻	834.0 [‡] 4	100 [‡] 10	2261.79	(7) ⁻	M1		0.00381	$\alpha(\text{K})=0.00329$ 5; $\alpha(\text{L})=0.000416$ 6; $\alpha(\text{M})=8.54 \times 10^{-5}$ 12; $\alpha(\text{N}+..)=2.15 \times 10^{-5}$ 3

Adopted Levels, Gammas (continued)

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

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. @	α^b	Comments
3095.8	(7 ⁻)	1173 [‡] 1	>69 [‡]	1923.25	8 ⁺	(E1)	5.86×10 ⁻⁴	$\alpha(\text{N})=1.84\times 10^{-5}$ 3; $\alpha(\text{O})=2.83\times 10^{-6}$ 4; $\alpha(\text{P})=2.11\times 10^{-7}$ 3 $\alpha(\text{K})=0.000492$ 7; $\alpha(\text{L})=6.00\times 10^{-5}$ 9; $\alpha(\text{M})=1.226\times 10^{-5}$ 18; $\alpha(\text{N+..})=2.18\times 10^{-5}$ 5 $\alpha(\text{N})=2.64\times 10^{-6}$ 4; $\alpha(\text{O})=4.05\times 10^{-7}$ 6; $\alpha(\text{P})=3.00\times 10^{-8}$ 5; $\alpha(\text{IPF})=1.87\times 10^{-5}$ 5
3109.8	(9 ⁻)	1867 [‡] 1 203.2 6 404.9 6 419.2 3 462.0 6	98 [‡] 20 40 13 100 20	1228.39 2906.5 2704.91 2690.8 2647.47	6 ⁺ (8 ⁻) (8 ⁻) (7 ⁻) (7 ⁻)	D D Q Q		
3156.76	(10 ⁻)	434.7 6 452.0 1	4.9 16 100 30	2721.65 2704.91	(9 ⁻) (8 ⁻)	D Q		I_γ : composite line (1990Pi11).
3177.1	(10 ⁺)	698.7 6	100	2479.03	(8 ⁺)	Q		
3286.91	(11 ⁻)	564.9 1	100 22	2721.65	(9 ⁻)	E2	0.00709	$\alpha(\text{K})=0.00599$ 9; $\alpha(\text{L})=0.000873$ 13; $\alpha(\text{M})=0.000181$ 3; $\alpha(\text{N+..})=4.50\times 10^{-5}$ 7 $\alpha(\text{N})=3.88\times 10^{-5}$ 6; $\alpha(\text{O})=5.79\times 10^{-6}$ 9; $\alpha(\text{P})=3.63\times 10^{-7}$ 5
3335.5	(10 ⁻)	599.8 6 225.8 3 429.4 3	19 [#] 46 11 100 21	2687.50 3109.8 2906.5	(10 ⁺) (9 ⁻) (8 ⁻)	D D Q		
3436.2	(12 ⁺)	748.3 1	100	2687.50	(10 ⁺)	Q		
3591.6	(11 ⁻)	256.0 3 482.2 3	33 13 100 21	3335.5 3109.8	(10 ⁻) (9 ⁻)	D Q		I_γ : composite line (1990Pi11).
3691.8	(12 ⁺)	255.6 6 1004.0 3	38 19 100 30	3436.2 2687.50	(12 ⁺) (10 ⁺)	D Q		
3694.0	(11 ⁺)	718.8 6	100	2975.18	(9 ⁺)	Q		
3772.6	(12 ⁻)	486.1 6 615.5 1	15 [#] 100 30	3286.91 3156.76	(11 ⁻) (10 ⁻)	D Q		
3891.5	(12 ⁻)	299.9 3 556.4 3	100 25 81 [#] 30	3591.6 3335.5	(11 ⁻) (10 ⁻)	D		
3968.21	(13 ⁻)	681.0 1	100	3286.91	(11 ⁻)	E2	0.00440	$\alpha(\text{K})=0.00374$ 6; $\alpha(\text{L})=0.000523$ 8; $\alpha(\text{M})=0.0001081$ 16; $\alpha(\text{N+..})=2.69\times 10^{-5}$ 4 $\alpha(\text{N})=2.32\times 10^{-5}$ 4; $\alpha(\text{O})=3.48\times 10^{-6}$ 5; $\alpha(\text{P})=2.29\times 10^{-7}$ 4
4125.9	(14 ⁺)	434.2 6 689.4 1	100 8	3691.8 3436.2	(12 ⁺) (12 ⁺)	Q E2	0.00427	$\alpha(\text{K})=0.00363$ 5; $\alpha(\text{L})=0.000506$ 7; $\alpha(\text{M})=0.0001047$ 15; $\alpha(\text{N+..})=2.60\times 10^{-5}$ 4 $\alpha(\text{N})=2.24\times 10^{-5}$ 4; $\alpha(\text{O})=3.37\times 10^{-6}$ 5; $\alpha(\text{P})=2.23\times 10^{-7}$ 4
4228.0	(13 ⁻)	336.6 6 636.3 4	35 10 100 20	3891.5 3591.6	(12 ⁻) (11 ⁻)	D Q		
4381.8	(11 ⁺)	689.9 ^c 6 945.4 ^c 6 1407.0 6		3691.8 3436.2 2975.18	(12 ⁺) (12 ⁺) (9 ⁺)	D D Q		

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Adopted Levels, Gammas (continued)

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

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. @	α^b	Comments
4407.3	(14 ⁺)	281.3 6	13 4	4125.9	(14 ⁺)	D		
		715.5 3	58 17	3691.8	(12 ⁺)	Q		
		971.1 3	100 25	3436.2	(12 ⁺)	Q		
4534.3	(14 ⁻)	566.2 6		3968.21	(13 ⁻)	D		
		762.1 3	100 33	3772.6	(12 ⁻)	Q		
4551.5	(12 ⁺)	170.0 6		4381.8	(11 ⁺)	D		
		722.0 6		3829.5	(11)			
		858.2 ^c 6		3694.0	(11 ⁺)	D		
4603.8	(14 ⁻)	375.6 6	38 15	4228.0	(13 ⁻)	D		
		711.3 4	100 50	3891.5	(12 ⁻)	Q		
4761.8	(15 ⁻)	793.8 1	100	3968.21	(13 ⁻)	Q		
4766.3	(13 ⁺)	215.0 6		4551.5	(12 ⁺)	D		
		384.2 6		4381.8	(11 ⁺)	Q		
		1073.2 ^c 6		3694.0	(11 ⁺)	Q		
4892.5	(16 ⁺)	766.1 1	100	4125.9	(14 ⁺)	Q		
5009.7	(15 ⁻)	405.6 6	15 5	4603.8	(14 ⁻)			
		780.9 3	100 15	4228.0	(13 ⁻)	Q		I_γ : see comment for 781.3 γ .
5027.3	(14 ⁺)	261.0 6		4766.3	(13 ⁺)	D		
		476.0 6		4551.5	(12 ⁺)	Q		
5215.8	(16 ⁺)	323.2 6	7 5	4892.5	(16 ⁺)	D&		
		808.5 3	100 19	4407.3	(14 ⁺)	Q		
		1090.0 3	26 12	4125.9	(14 ⁺)	Q		
5329.1	(15 ⁺)	302.0 6		5027.3	(14 ⁺)	D		
		562.5 6		4766.3	(13 ⁺)	Q		
		1203.7 ^c 6		4125.9	(14 ⁺)	D		
5392.4	(16 ⁻)	630.7 6		4761.8	(15 ⁻)	D		
		858.3 3	100 40	4534.3	(14 ⁻)	Q		
5446.0	(16 ⁻)	436.3 4	22 11	5009.7	(15 ⁻)	D		
		842.6 6	100 22	4603.8	(14 ⁻)	Q		
5638.9	(17 ⁻)	878.0 4	100	4761.8	(15 ⁻)	Q		
5668.0	(16 ⁺)	339.0 6		5329.1	(15 ⁺)	D		
		640.9 6		5027.3	(14 ⁺)	Q		
5725.0	(17 ⁺)	832.0 3	100	4892.5	(16 ⁺)	(M1)	0.00383	$\alpha(\text{K})=0.00331$ 5; $\alpha(\text{L})=0.000418$ 6; $\alpha(\text{M})=8.58\times 10^{-5}$ 12; $\alpha(\text{N+..})=2.16\times 10^{-5}$ 3 $\alpha(\text{N})=1.85\times 10^{-5}$ 3; $\alpha(\text{O})=2.85\times 10^{-6}$ 4; $\alpha(\text{P})=2.13\times 10^{-7}$ 3
5763.2	(18 ⁺)	871.6 1	100	4892.5	(16 ⁺)	Q		
5905.8	(17 ⁻)	459.8 6		5446.0	(16 ⁻)	D		
		895.7 3	100 17	5009.7	(15 ⁻)	Q		
6044.8	(17 ⁺)	377.0 6		5668.0	(16 ⁺)	D		
		715.5 6		5329.1	(15 ⁺)	Q		
6080.4	(18 ⁺)	317.2 6		5763.2	(18 ⁺)	D		
		864.7 3	100 24	5215.8	(16 ⁺)	Q		
6189.6	(18 ⁺)	1299.0 6		4892.5	(16 ⁺)	Q		
6290.4	(18 ⁻)	896.6 3	100	5392.4	(16 ⁻)	Q		

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

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. @	Comments
6383.0	(18 ⁻)	477.2 6		5905.8	(17 ⁻)	D	
		938.1 6	100 22	5446.0	(16 ⁻)	Q	
6452.9	(18 ⁺)	408.0 6		6044.8	(17 ⁺)	D	
		784.9 6		5668.0	(16 ⁺)	Q	
6556.0	(19 ⁻)	917.3 3	100	5638.9	(17 ⁻)	Q	
6581.3	(19 ⁺)	819.1 6	32 9	5763.2	(18 ⁺)	D	
		857.7 3	100 40	5725.0	(17 ⁺)	Q	
6704.0	(18)	1066.0 6		5638.9	(17 ⁻)		
6711.1	(20 ⁺)	948.6 1	100	5763.2	(18 ⁺)	Q	
6870.8	(19 ⁻)	487.8 6		6383.0	(18 ⁻)	D	
		965.0 6	100 30	5905.8	(17 ⁻)	Q	
6896.9	(19 ⁺)	444.0 6		6452.9	(18 ⁺)	D	
		852.0 6		6044.8	(17 ⁺)	Q	
6999.4	(20 ⁺)	919.4 3	100 24	6080.4	(18 ⁺)	Q	
		1236.2 6		5763.2	(18 ⁺)	Q	
7081.5	(20 ⁺)	891.9 3	100 50	6189.6	(18 ⁺)	Q	
		1319.7 6		5763.2	(18 ⁺)	Q	
7229.9	(20 ⁻)	940.5 3	100	6290.4	(18 ⁻)	Q	
7362.9	(20 ⁺)	910.0 6		6452.9	(18 ⁺)	Q	
7366.0	(20 ⁻)	495.2 6		6870.8	(19 ⁻)	D	
		982.6 4	100 50	6383.0	(18 ⁻)	Q	
7499.9	(21 ⁺)	791.3 6		6711.1	(20 ⁺)	D	
		918.0 3	100 33	6581.3	(19 ⁺)	Q	
7502.6	(21 ⁻)	945.3 3	100	6556.0	(19 ⁻)	Q	
7716.4	(22 ⁺)	1004.9 3	100	6711.1	(20 ⁺)	Q	
7863.8	(21 ⁺)	966.9 6		6896.9	(19 ⁺)	Q	
7876.4	(21 ⁻)	1007.4 6		6870.8	(19 ⁻)	Q	
7983.4	(22 ⁺)	983.7 3	100 22	6999.4	(20 ⁺)	Q	
		1272.3 6		6711.1	(20 ⁺)	Q	
8098.3	(22 ⁺)	1016.8 3	100 50	7081.5	(20 ⁺)	Q	
		1389.0 ^c 6		6711.1	(20 ⁺)	Q	
8262.5	(22 ⁻)	1034.4 3	100 50	7229.9	(20 ⁻)	Q	DCO=0.91
8369.2	(22 ⁺)	1006.3 6		7362.9	(20 ⁺)	Q	
8408.2	(22 ⁻)	1044.0 6		7366.0	(20 ⁻)	Q	
8483.5	(23 ⁺)	769.2 6		7716.4	(22 ⁺)	D	
		983.4 3	100 40	7499.9	(21 ⁺)	Q	
8512.4	(23 ⁻)	1009.7 3	100	7502.6	(21 ⁻)	Q	
8794.4	(24 ⁺)	1077.1 3	100	7716.4	(22 ⁺)	Q	
8904.4	(23 ⁺)	1040.6 6		7863.8	(21 ⁺)	Q	
8910.4	(23 ⁻)	1034.0 6		7876.4	(21 ⁻)	Q	
9053.4	(24 ⁺)	1069.2 3	100	7983.4	(22 ⁺)	Q	
9176.9	(24 ⁺)	1078.6 3	100 50	8098.3	(22 ⁺)	Q	
		1462.3 ^c 6		7716.4	(22 ⁺)	Q	

Adopted Levels, Gammas (continued)

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

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. @	$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. @
9380.1	(24 ⁻)	1117.6 6	100	8262.5 (22 ⁻)	Q		13590.3	(31)	1301.4 6		12288.9 (29)	Q	
9427.7	(24 ⁺)	1058.5 6		8369.2 (22 ⁺)	Q		13880.4	(32 ⁺)	1388.6 6	100	12491.3 (30 ⁺)	Q	
9525.3	(24 ⁻)	1117.1 6		8408.2 (22 ⁻)	Q		14057.6	(32 ⁺)	1324.5 6	100	12733.0 (30 ⁺)	Q	
9561.8	(25 ⁺)	1078.2 6	100	8483.5 (23 ⁺)	Q		14184.1	(32 ⁻)	1224.3 6		12959.8 (30 ⁻)	Q	
9613.1	(25 ⁻)	1100.1 6	100	8512.4 (23 ⁻)	Q		14190.5	(32 ⁺)	1370.1 6		12820.4 (30 ⁺)	Q	
9916.4	(25)	1124.1 ^c 6		8794.4 (24 ⁺)			14755.2	(32)	1238.0 6		13517.2 (31 ⁻)		
9950.7	(26 ⁺)	1154.5 3	100	8794.4 (24 ⁺)	Q				1406.9 6		13348.3 (30)	Q	
9975.0	(25 ⁺)	1070.6 6		8904.4 (23 ⁺)	Q		14832.4	(33 ⁺)	1340.6 6		13491.8 (31 ⁺)	Q	
9981.2	(25 ⁻)	1070.7 ^c 6		8910.4 (23 ⁻)	Q		14881.2	(33 ⁺)	1474.7 6		13406.5 31 ⁺	Q	
10220.0	(26 ⁺)	1168.6 3	100	9053.4 (24 ⁺)	Q		14979.4	(33)	1389.1 6		13590.3 (31)	Q	
10308.3	(26 ⁺)	1131.4 6	100	9176.9 (24 ⁺)	Q		15003.7	(33 ⁻)	1486.5 6		13517.2 (31 ⁻)	Q	
		1516.9 ^c 6		8794.4 (24 ⁺)	Q		15335.4	(34 ⁺)	1454.8 6	100	13880.4 (32 ⁺)	Q	
10519.6	(26 ⁺)	1091.9 6		9427.7 (24 ⁺)	Q		15459.2	(34 ⁺)	1401.6 6		14057.6 (32 ⁺)	Q	
10561.3	(26 ⁻)	1181.2 6	100	9380.1 (24 ⁻)	Q		15475.0	(34 ⁻)	1290.9 ^c 6		14184.1 (32 ⁻)	Q	
10703.7	(26 ⁻)	1178.4 ^c 6		9525.3 (24 ⁻)	Q		15618.0	(34 ⁺)	1427.5 6		14190.5 (32 ⁺)	Q	
10746.6	(27 ⁺)	1184.8 6	100	9561.8 (25 ⁺)	Q		16029.2	(34)	1274.0 6		14755.2 (32)	Q	
10811.9	(27 ⁻)	1201.5 6	100	9613.1 (25 ⁻)	Q		16280.4	(35 ⁺)	1448.0 6		14832.4 (33 ⁺)	Q	
11067.7	(27)	1151.3 6		9916.4 (25)	Q		16425.4	(35 ⁺)	1544.2 6		14881.2 (33 ⁺)	Q	
11077.4	(27 ⁺)	1102.4 6		9975.0 (25 ⁺)	Q		16461.2	(35)	1481.8 6		14979.4 (33)	Q	
11115.4	(26)	1505.0 6		9613.1 (25 ⁻)			16775.3	(36 ⁺)	1444.3 6	100	15335.4 (34 ⁺)	Q	
11182.5	(28 ⁺)	1231.2 3	100	9950.7 (26 ⁺)	Q		16914.4	(36 ⁺)	1583.4 6		15335.4 (34 ⁺)	Q	
11471.8	(28 ⁺)	1251.8 6	100	10220.0 (26 ⁺)	Q		16943.5	(36 ⁺)	1484.3 6		15459.2 (34 ⁺)	Q	
11522.5	(28 ⁺)	1214.2 6	100	10308.3 (26 ⁺)	Q		17111.3	(36 ⁺)	1493.3 ^c 6		15618.0 (34 ⁺)	Q	
11648.9	(28 ⁺)	1129.3 6		10519.6 (26 ⁺)	Q		17435.2	(36)	1406.0 6		16029.2 (34)	Q	
11753.3	(28 ⁻)	1192.0 6	100	10561.3 (26 ⁻)	Q		18040.9	(37)	1579.7 6		16461.2 (35)	Q	
12029.5	(29 ⁺)	1282.9 6		10746.6 (27 ⁺)	Q		18045.0	(37 ⁺)	1619.6 6		16425.4 (35 ⁺)	Q	
12116.4	(29 ⁻)	1304.4 6	100	10811.9 (27 ⁻)	Q		18069.7	(38 ⁺)	1294.4 6		16775.3 (36 ⁺)	Q	
12242.3	(29 ⁺)	1164.9 6		11077.4 (27 ⁺)	Q		18143.7	(38 ⁺)	1368.4 6		16775.3 (36 ⁺)	Q	
12288.9	(29)	1221.2 6		11067.7 (27)	Q		18525.3	(38 ⁺)	1610.9 6		16914.4 (36 ⁺)	Q	
12491.3	(30 ⁺)	1309.6 3	100	11182.5 (28 ⁺)	Q		18649.1	(38 ⁺)	1537.7 ^c 6		17111.3 (36 ⁺)	Q	
12733.0	(30 ⁺)	1261.2 6	100	11471.8 (28 ⁺)	Q		18909.2	(38)	1474.0 6		17435.2 (36)	Q	
12820.4	(30 ⁺)	1297.9 6		11522.5 (28 ⁺)	Q		19720.6	(39)	1679.7 6		18040.9 (37)	Q	
12859.8	(30 ⁺)	1210.9 6		11648.9 (28 ⁺)	Q		20483.3	(40)	1574.0 6		18909.2 (38)	Q	
12959.8	(30 ⁻)	1206.5 6		11753.3 (28 ⁻)	Q		21501.5	(41)	1780.9 6		19720.6 (39)	Q	
13348.3	(30)	1232.0 6		12116.4 (29 ⁻)			22150.1	(42)	1666.8 6		20483.3 (40)	Q	
13406.5	31 ⁺	1377.0 6		12029.5 (29 ⁺)	Q		23384.7	(43)	1883.2 6		21501.5 (41)	Q	
13491.8	(31 ⁺)	1249.5 6		12242.3 (29 ⁺)	Q		25371.1	(45)	1986.3 6		23384.7 (43)	Q	
13517.2	(31 ⁻)	1400.8 6	100	12116.4 (29 ⁻)	Q								

† From $^{64}\text{Ni}(^{64}\text{Ni},4n\gamma)$, unless otherwise noted.‡ From ^{124}La ε decay.

Adopted Levels, Gammas (continued)

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

From (HI,xn γ).

@ From $\alpha(\text{K})\text{exp}$ in ^{124}La ε decay, and $\gamma(\theta)$, DCO and linear polarization in (HI,xn γ) and $^{64}\text{Ni}(^{64}\text{Ni},4n\gamma)$.

& $\Delta J=0$ transition.

^a From $\gamma(\theta)$, DCO and linear polarization in (HI,xn γ).

^b 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.

^c Placement of transition in the level scheme is uncertain.

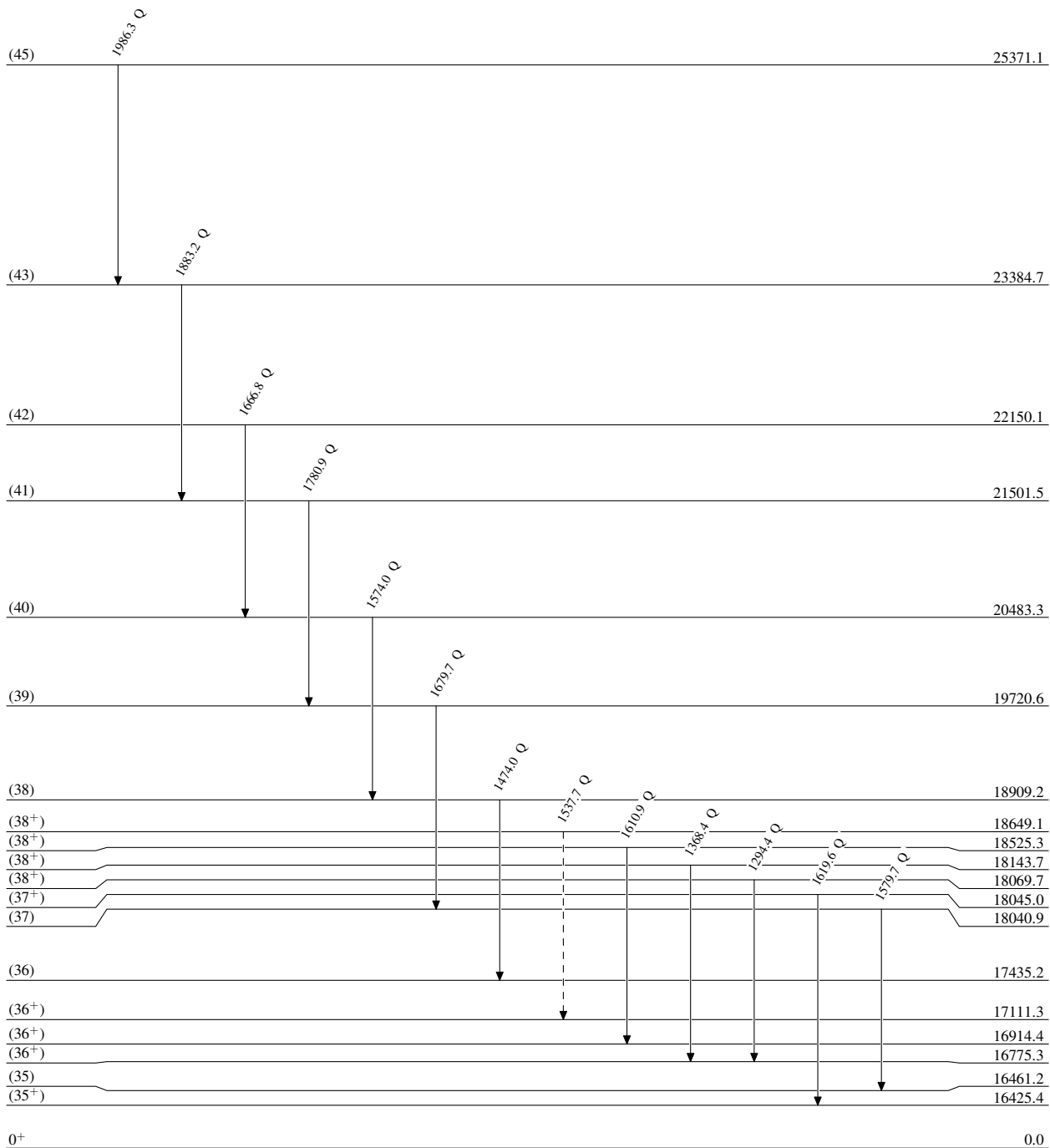
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

-----> γ Decay (Uncertain)



¹²⁴Ba₆₈

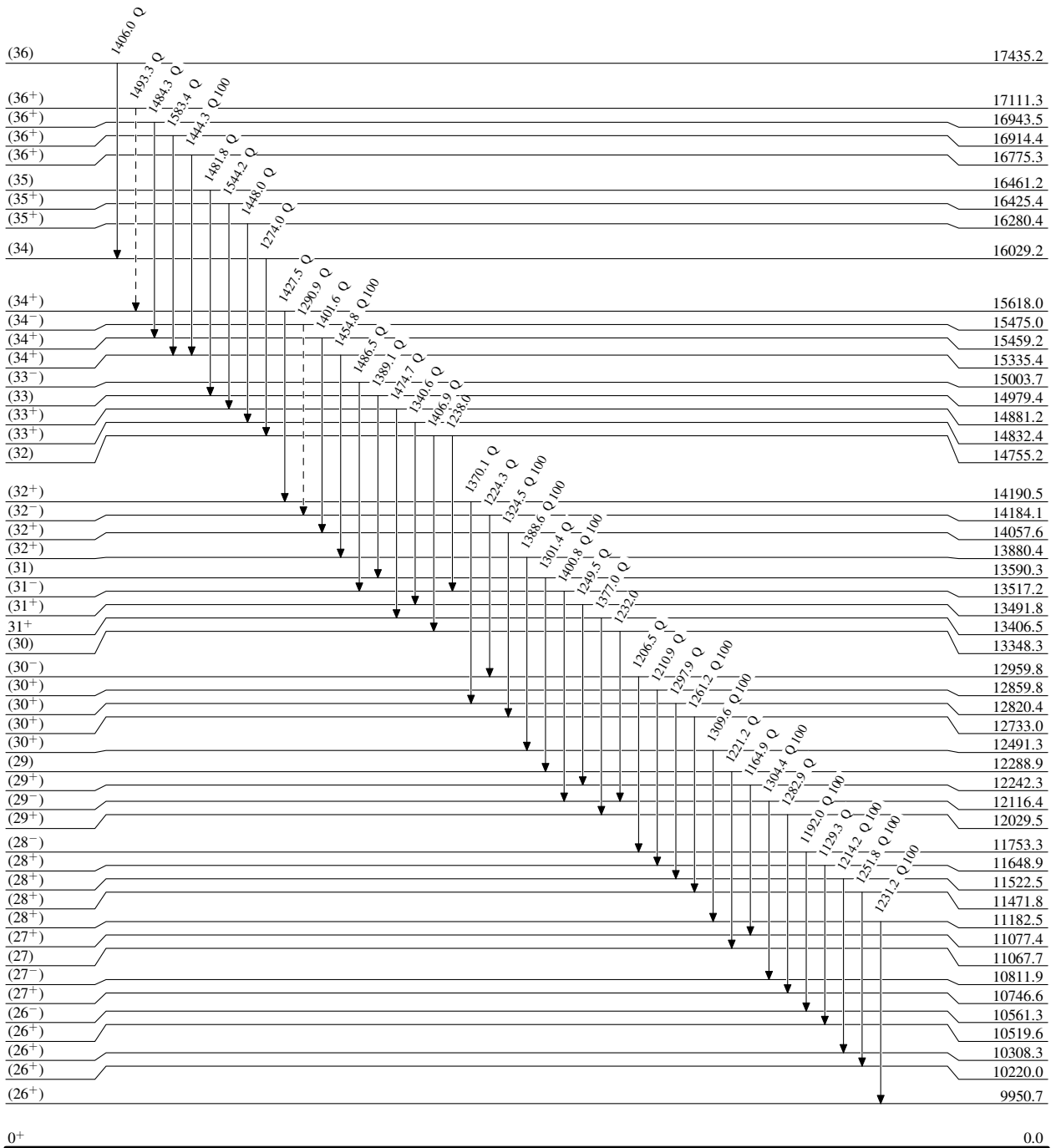
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

-----> γ Decay (Uncertain)

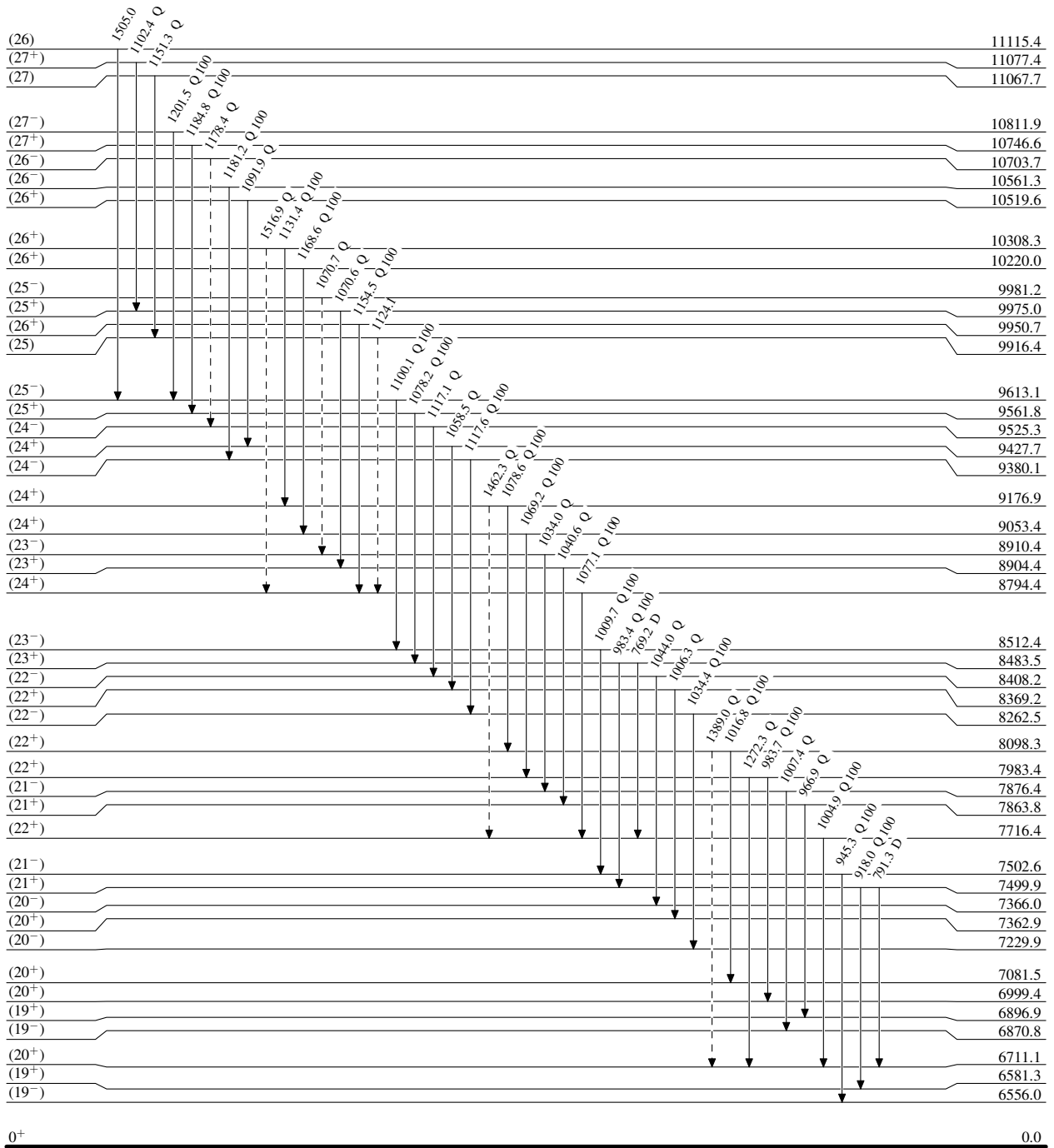


Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain) 0^+

0.0

11.0 min 5

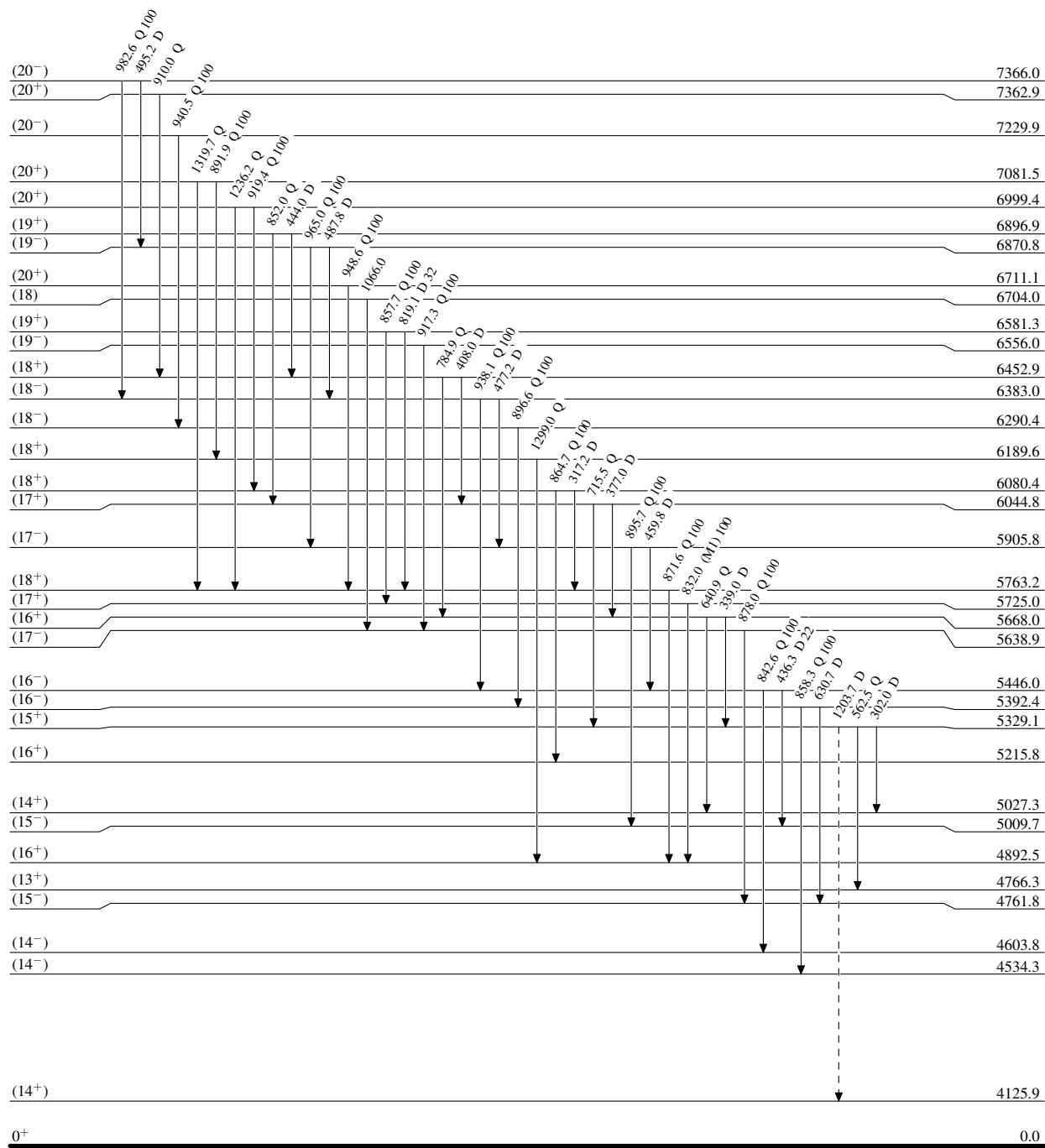
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain)



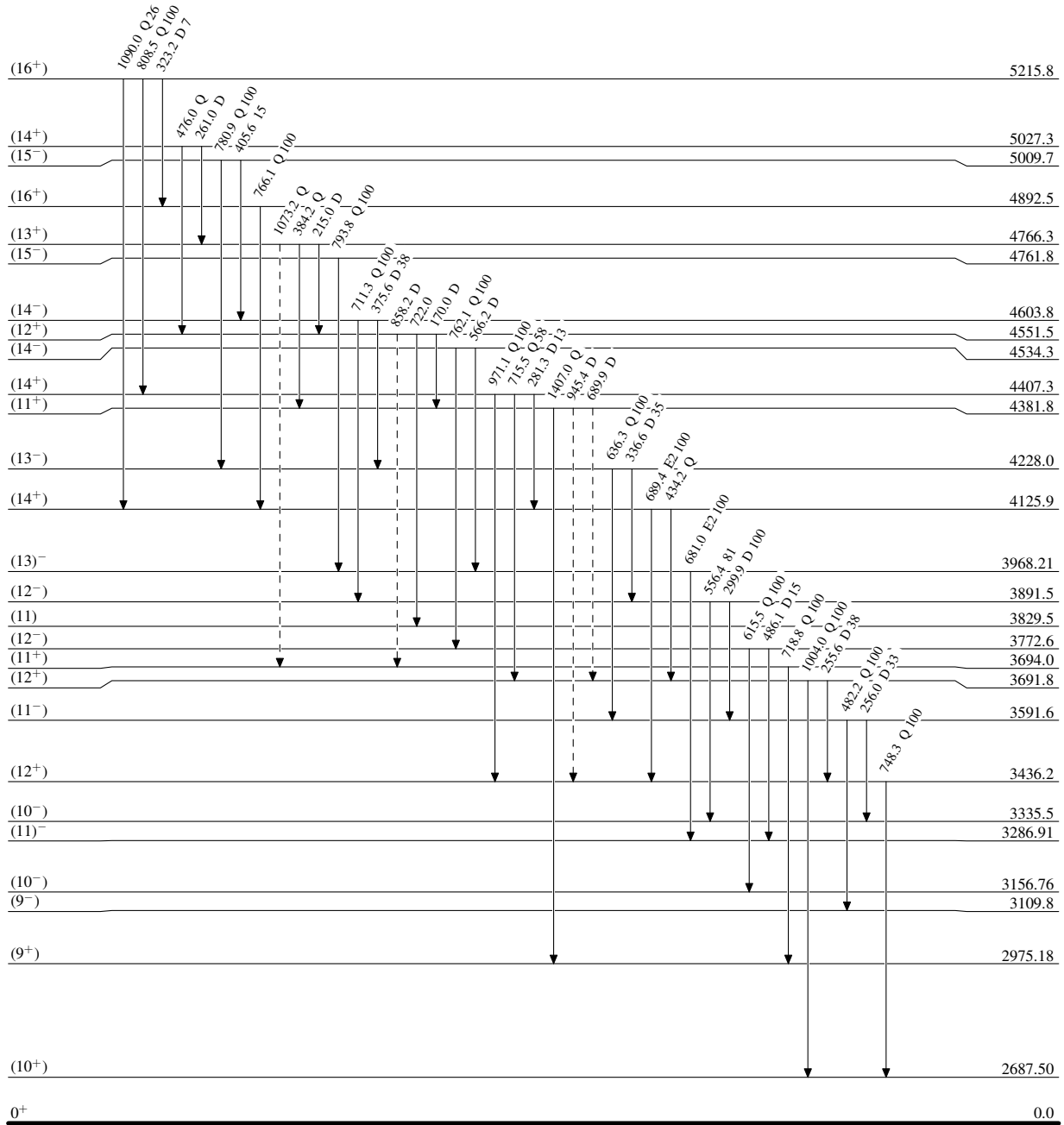
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain)

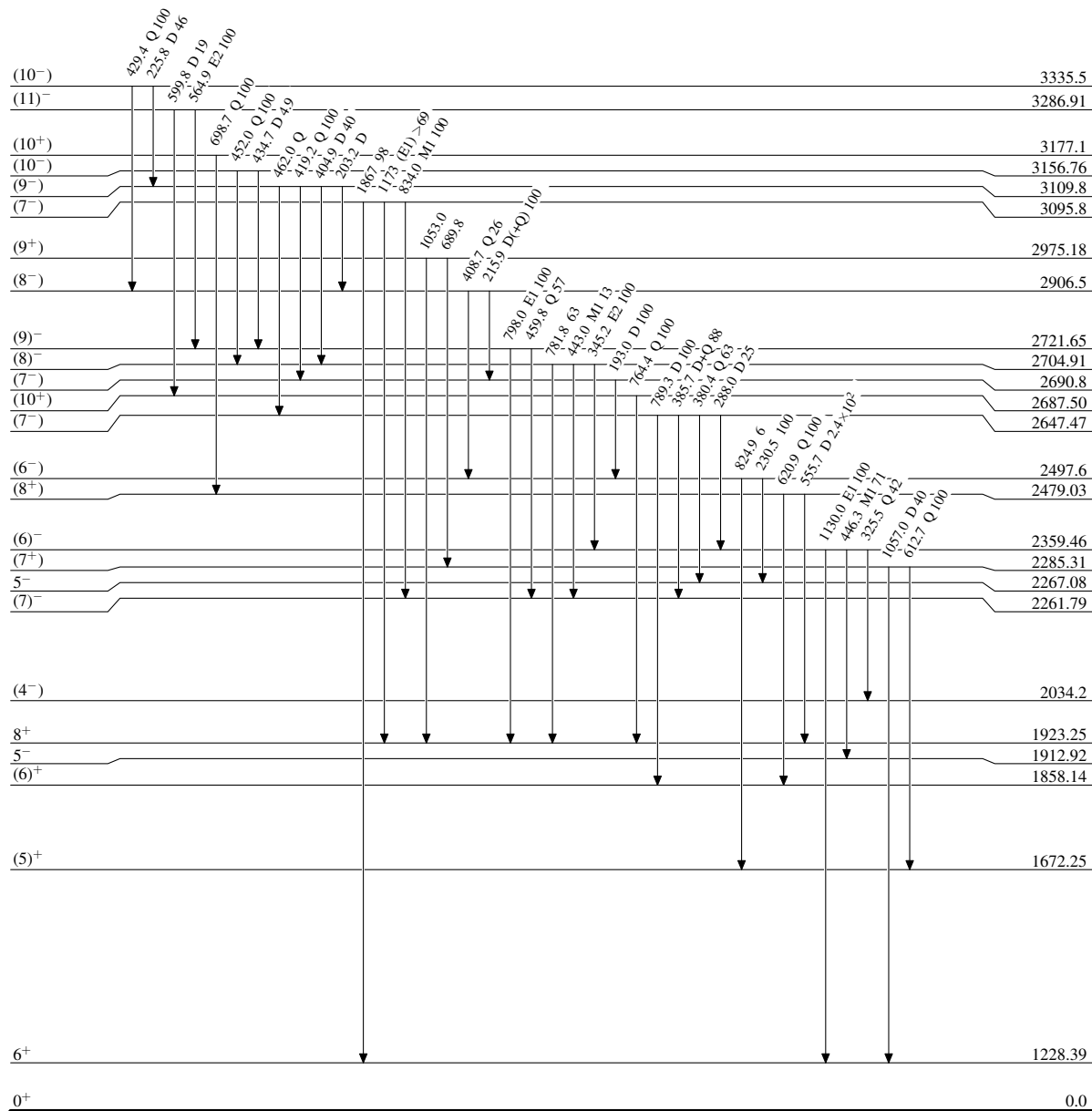


$^{124}_{56}\text{Ba}_{68}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



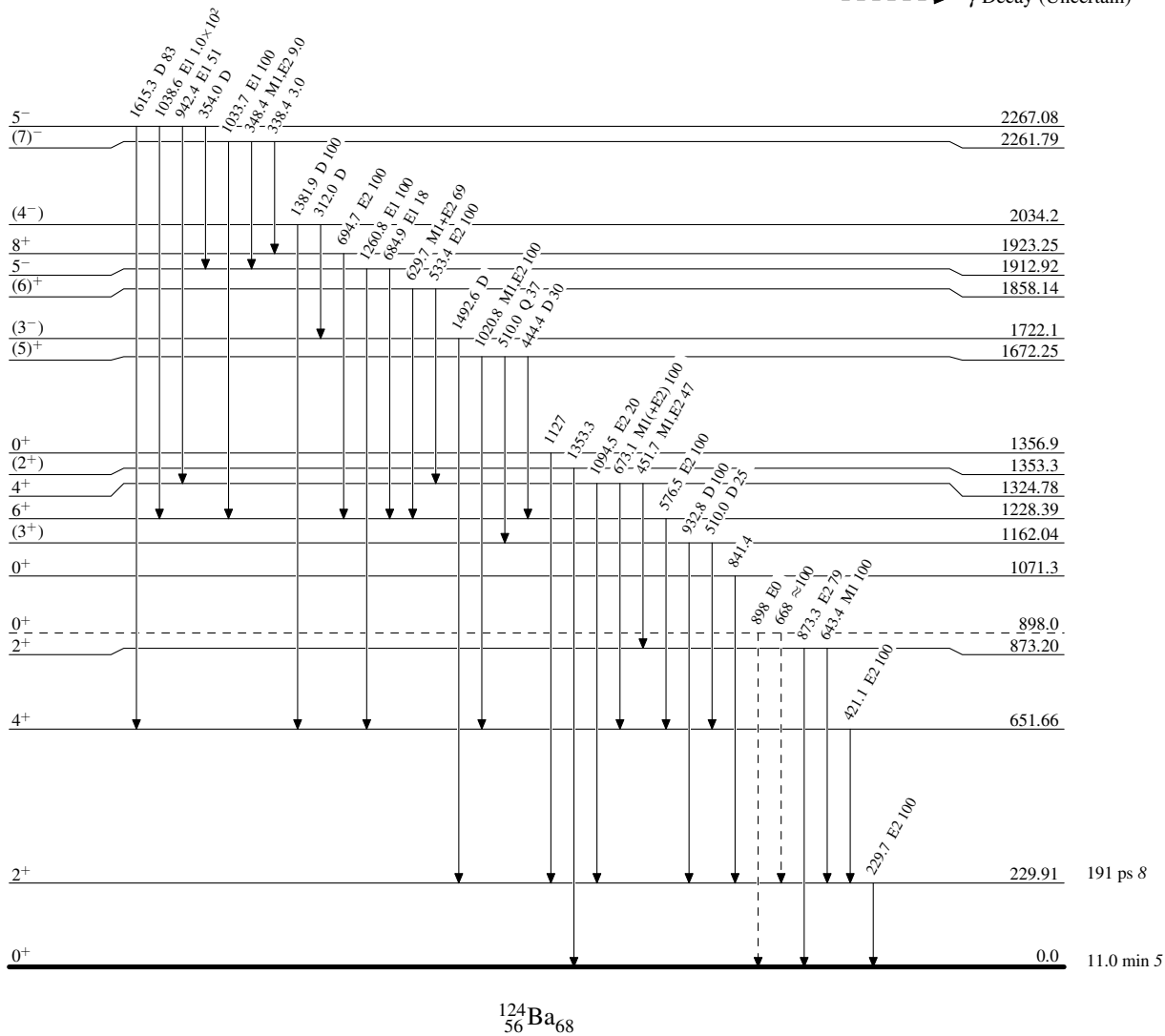
Adopted Levels, Gammas

Legend

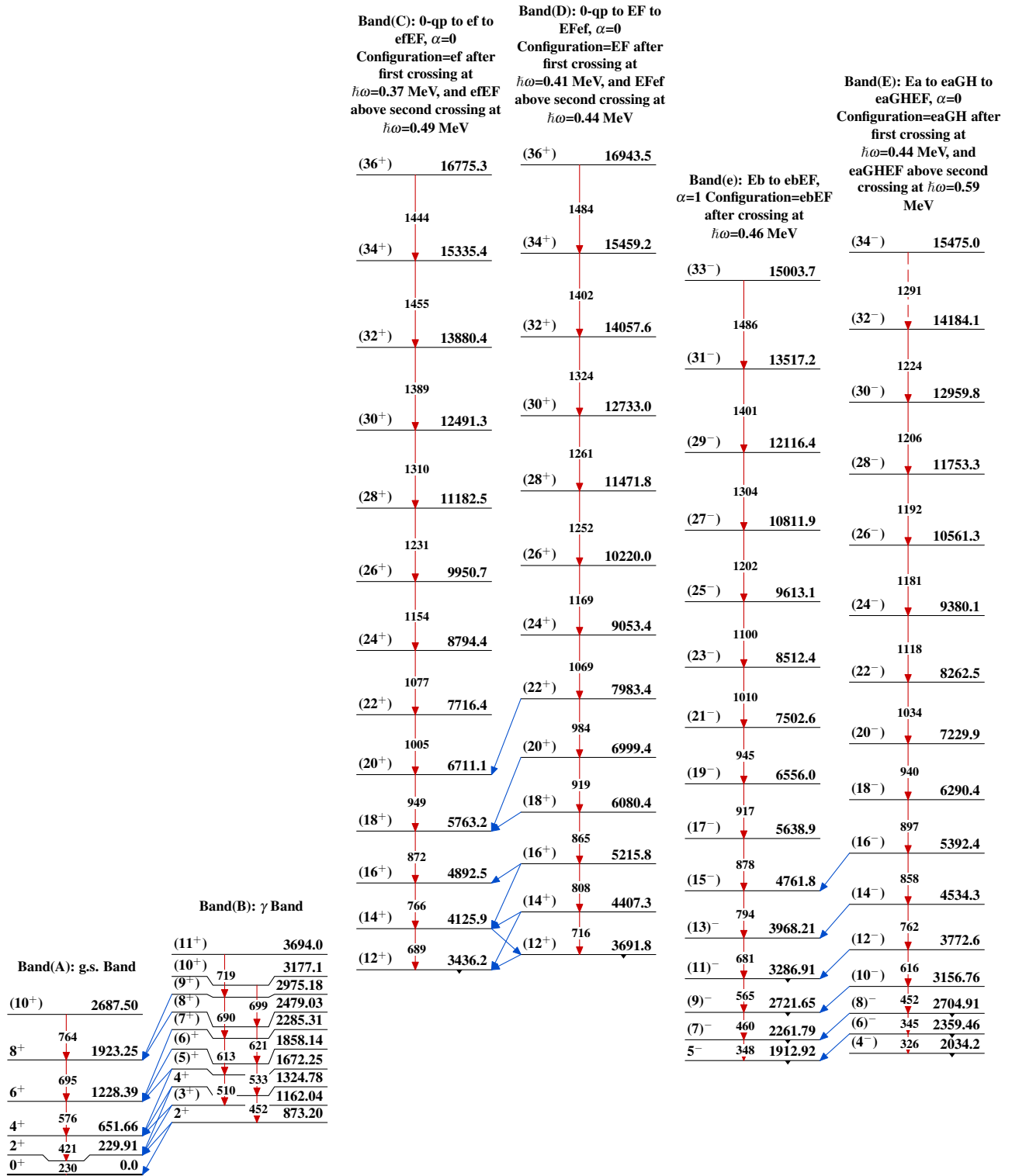
Level Scheme (continued)

Intensities: Relative photon branching from each level

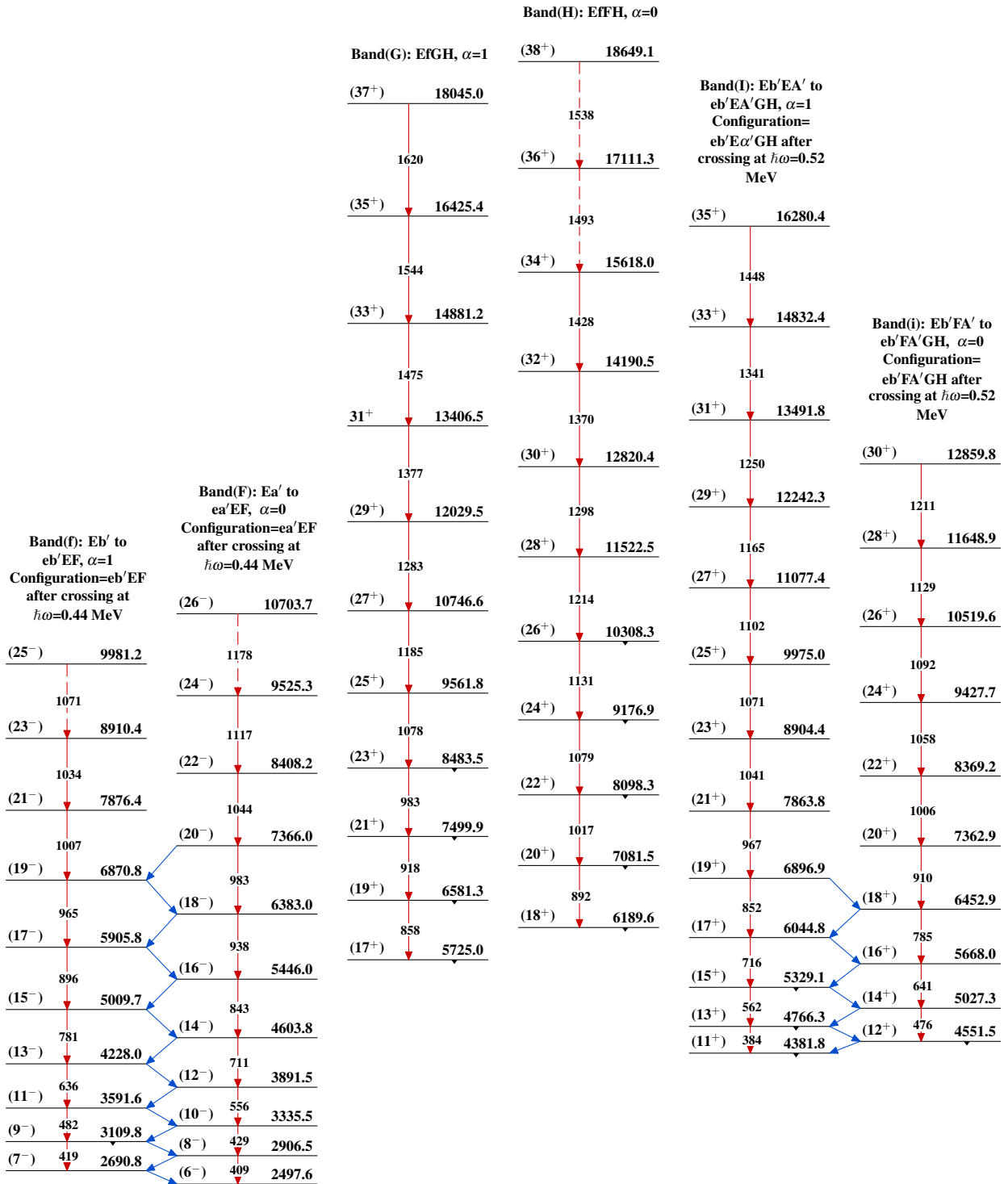
-----► γ Decay (Uncertain)

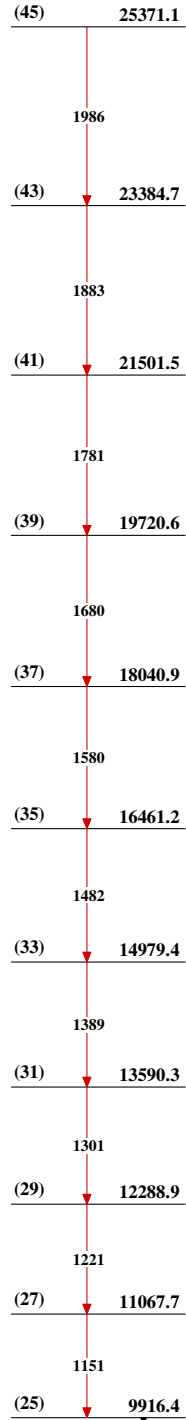
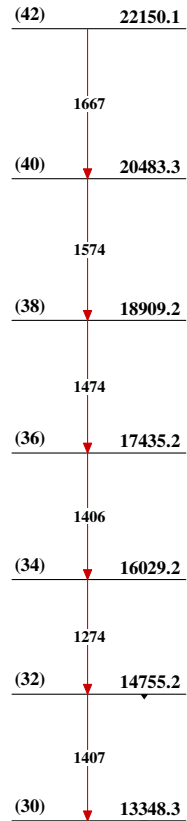


Adopted Levels, Gammas



Adopted Levels, Gammas (continued)



Adopted Levels, Gammas (continued)Band(J): Band based on
(25), $\alpha=1$ Band(K): Band based on
(30), $\alpha=0$  $^{124}_{56}\text{Ba}_{68}$