Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	S. Ohya	NDS 111,1619 (2010)	20-Jan-2009

Q(β^-)=−8.5×10^3 *syst*; S(n)=9.9×10^3 *4*; S(p)=4.15×10^3 *15*; Q(α)=1.02×10^3 *15* 2012Wa38
Note: Current evaluation has used the following Q record −8342 SY993E+1 *33* 4140 *140* 1020 *140* 2009AuZZ.
ΔQ(β^-)=523 (syst,2009AuZZ).
Q(εp)=4141 *142* (2009AuZZ).

^{121}Ba Levels

Cross Reference (XREF) Flags

A ^{121}La ε decay
B ^{92}Mo(^{32}S,2pnγ)

E(level)[@]	J$^\pi$[&]	T$_{1/2}$	XREF	Comments
0.0[†]	5/2$^{(+)}$	29.7 s *15*	AB	%ε+%β^+=100 μ=+0.660 *1*; Q=+1.79 *12* J$^\pi$: from hyperfine splitting in atomic fluorescence; π from the positive magnetic moment (1998We14). T$_{1/2}$: from delayed proton counting (1978Bo20). μ: csbcf (2005St24); relative to μ for ^{135}Ba, ^{137}Ba. Q: csbcf (2005St24); relative to Q for ^{135}Ba, ^{137}Ba Sternheimer or other polarization correction included.
134.42[†] *21*	(7/2$^+$)		AB	
139.36[‡] *23*	(5/2$^-$)		AB	
176.0[‡] *3*	(7/2$^-$)		B	
213.3 *4*			A	
236.6 *5*			A	
274.0[‡] *4*	(9/2$^-$)		B	
303.87[†] *23*	(9/2$^+$)		AB	
372.2[‡] *4*	(11/2$^-$)		B	
379.40[#] *22*	(3/2$^+$)		AB	
502.7[†] *3*	(11/2$^+$)		B	
558.9[#] *3*	(5/2$^+$)		B	
617.6[‡] *4*	(13/2$^-$)		B	
733.9[†] *3*	(13/2$^+$)		B	
747.2[‡] *4*	(15/2$^-$)		B	
774.6[#] *3*	(7/2$^+$)		B	
990.5[†] *4*	(15/2$^+$)		B	
1024.1[#] *5*	(9/2$^+$)		B	
1133.8[‡] *5*	(17/2$^-$)		B	
1270.2[‡] *5*	(19/2$^-$)		B	
1274.1[†] *4*	(17/2$^+$)		B	
1289.9[#] *5*	(11/2$^+$)		B	
1581.7[†] *5*	(19/2$^+$)		B	
1598.0[#] *6*	(13/2$^+$)		B	
1783.7[‡] *5*	(21/2$^-$)		B	

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Adopted Levels, Gammas (continued)

^{121}Ba Levels (continued)

E(level)[@]	J$^\pi$[&]	XREF	E(level)[@]	J$^\pi$[&]	XREF	E(level)[@]	J$^\pi$[&]	XREF
1890.7[#] *6*	(15/2$^+$)	B	3322.4[†] *8*	(29/2$^+$)	B	5260.6[†] *12*	(39/2$^+$)	B
1904.6[†] *5*	(21/2$^+$)	B	3413.9[‡] *8*	(31/2$^-$)	B	5525.1[‡] *11*	(41/2$^-$)	B
1912.4[‡] *6*	(23/2$^-$)	B	3725.0[†] *10*	(31/2$^+$)	B	5690.7[†] *11*	(41/2$^+$)	B
2248.3[#] *6*	(17/2$^+$)	B	3752.2[#] *10*	(27/2$^+$)	B	5932.5[‡] *9*	(43/2$^-$)	B
2254.1[†] *7*	(23/2$^+$)	B	3919.5[‡] *8*	(33/2$^-$)	B	6136.1[†] *12*	(43/2$^+$)	B
2519.9[‡] *6*	(25/2$^-$)	B	4049.8[†] *9*	(33/2$^+$)	B	6497.9[‡] *11*	(45/2$^-$)	B
2534.9[#] *7*	(19/2$^+$)	B	4209.4[‡] *8*	(35/2$^-$)	B	6654.5[†] *12*	(45/2$^+$)	B
2600.0[†] *6*	(25/2$^+$)	B	4471.0[#] *11*	(31/2$^+$)	B	6895.9[‡] *11*	(47/2$^-$)	B
2640.2[‡] *7*	(27/2$^-$)	B	4471.1[†] *11*	(35/2$^+$)	B	7114.2[†] *13*	(47/2$^+$)	B
2978.9[†] *9*	(27/2$^+$)	B	4664.1[‡] *9*	(37/2$^-$)	B	7719.8[†] *13*	(49/2$^+$)	B
3127.6[#] *9*	(23/2$^+$)	B	4826.9[†] *10*	(37/2$^+$)	B	7938.9[‡] *12*	(51/2$^-$)	B
3246.4[‡] *7*	(29/2$^-$)	B	5041.7[‡] *9*	(39/2$^-$)	B	9064.9[‡] *13*	(55/2$^-$)	B

[†] Band(A): 5/2$^+$[413]. Cascade−1 monotonically increasing J sequence is suggested by cascade of coincident D+Q, Q γ's forming bands built on 5/2$^+$[413] Nilsson orbital in ^{92}Mo(^{32}S,2pnγ).

[‡] Band(B): 5/2$^-$[532]. Cascade−2 monotonically increasing J sequence is suggested by cascade of coincident D+Q, Q γ's forming bands built on 5/2$^-$[532] Nilsson orbital in ^{92}Mo(^{32}S,2pnγ).

[#] Band(C): 3/2$^+$[411]. Cascade−3 monotonically increasing J sequence is suggested by cascade of coincident D+Q, Q γ's forming bands built on 3/2$^+$[411] Nilsson orbital in ^{92}Mo(^{32}S,2pnγ).

[@] E(levels) are based on a least-squares fit to E(γ's).

[&] From ^{92}Mo(^{32}S,2pnγ) based on band assignments.

γ(^{121}Ba)

From ^{92}Mo(^{32}S,2pnγ), unless noted otherwise; upper limits are given for undivided multiply placed γ's.

E$_i$(level)	J$_i^\pi$	E$_\gamma$	I$_\gamma$	E$_f$	J$_f^\pi$	Mult.[‡]
134.42	(7/2$^+$)	134.0[†] *2*	100 *4*	0.0	5/2$^{(+)}$	D
139.36	(5/2$^-$)	138.7[†] *2*	100 *10*	0.0	5/2$^{(+)}$	
176.0	(7/2$^-$)	176.0 *3*		0.0	5/2$^{(+)}$	
213.3		213.3[†] *4*	100 *6*	0.0	5/2$^{(+)}$	
236.6		97.8[†] *4*	100 *6*	139.36	(5/2$^-$)	
274.0	(9/2$^-$)	98.0[@] *3*	<100[@]	176.0	(7/2$^-$)	(D)
		134.6 *5*		139.36	(5/2$^-$)	
303.87	(9/2$^+$)	169.5[†] *3*	23 *2*	134.42	(7/2$^+$)	
		303.7[†] *3*	100 *7*	0.0	5/2$^{(+)}$	(Q)
372.2	(11/2$^-$)	98.4[@] *3*	<100[@]	274.0	(9/2$^-$)	(D)
		196.2 *3*	74 *3*	176.0	(7/2$^-$)	
379.40	(3/2$^+$)	239.8[†] *4*	100 *8*	139.36	(5/2$^-$)	D
		244.3 *5*		134.42	(7/2$^+$)	
		379.1[†] *3*	92 *17*	0.0	5/2$^{(+)}$	D
502.7	(11/2$^+$)	199.2 *3*	16 *3*	303.87	(9/2$^+$)	
		368.2 *3*	100 *5*	134.42	(7/2$^+$)	(Q)
558.9	(5/2$^+$)	179.3 *3*	100 *40*	379.40	(3/2$^+$)	

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Adopted Levels, Gammas (continued)

γ(^{121}Ba) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.‡
558.9	(5/2$^+$)	424.5& *5*		134.42	(7/2$^+$)	
		425.5 *5*				
617.6	(13/2$^-$)	245.5 *3*	100 *8*	372.2	(11/2$^-$)	D
		343.6 *3*	80 *8*	274.0	(9/2$^-$)	Q
733.9	(13/2$^+$)	231.4 *3*	11 *2*	502.7	(11/2$^+$)	
		429.7 *3*	100 *7*	303.87	(9/2$^+$)	Q
747.2	(15/2$^-$)	129.8 *3*	14 *1*	617.6	(13/2$^-$)	D
		374.9 *3*	100 *4*	372.2	(11/2$^-$)	(Q)
774.6	(7/2$^+$)	215.8 *3*	53 *7*	558.9	(5/2$^+$)	D
		395.0 *3*	100 *27*	379.40	(3/2$^+$)	Q
990.5	(15/2$^+$)	256.4 *3*	8.6 *30*	733.9	(13/2$^+$)	
		487.9 *3*	100 *6*	502.7	(11/2$^+$)	Q
1024.1	(9/2$^+$)	249.2 *5*		774.6	(7/2$^+$)	
		465.5 *5*		558.9	(5/2$^+$)	
1133.8	(17/2$^-$)	386.7 *3*	100 *21*	747.2	(15/2$^-$)	D
		516.1 *5*		617.6	(13/2$^-$)	
1270.2	(19/2$^-$)	523.0 *3*	100	747.2	(15/2$^-$)	Q
1274.1	(17/2$^+$)	283.4 *3*	13 *9*	990.5	(15/2$^+$)	
		540.4 *3*	100 *7*	733.9	(13/2$^+$)	Q
1289.9	(11/2$^+$)	265.9 *5*		1024.1	(9/2$^+$)	
		515.3 *5*		774.6	(7/2$^+$)	
1581.7	(19/2$^+$)	591.2 *3*	100 *12*	990.5	(15/2$^+$)	Q
1598.0	(13/2$^+$)	307.8 *5*		1289.9	(11/2$^+$)	
		574.0 *5*		1024.1	(9/2$^+$)	
1783.7	(21/2$^-$)	513.3 *5*		1270.2	(19/2$^-$)	
		649.9 *3*	100 *9*	1133.8	(17/2$^-$)	Q
1890.7	(15/2$^+$)	292.5 *5*		1598.0	(13/2$^+$)	
		601.0 *5*		1289.9	(11/2$^+$)	
1904.6	(21/2$^+$)	630.5 *3*	100 *7*	1274.1	(17/2$^+$)	Q
1912.4	(23/2$^-$)	642.2 *3*	100 *6*	1270.2	(19/2$^-$)	Q
2248.3	(17/2$^+$)	357.9 *5*		1890.7	(15/2$^+$)	
		650.1 *5*		1598.0	(13/2$^+$)	
2254.1	(23/2$^+$)	672.4 *5*		1581.7	(19/2$^+$)	
2519.9	(25/2$^-$)	607.5 *5*		1912.4	(23/2$^-$)	
		736.1 *5*		1783.7	(21/2$^-$)	
2534.9	(19/2$^+$)	286.7 *5*		2248.3	(17/2$^+$)	
		644.1 *5*		1890.7	(15/2$^+$)	
2600.0	(25/2$^+$)	695.4 *3*	100 *10*	1904.6	(21/2$^+$)	Q
2640.2	(27/2$^-$)	727.7 *5*		1912.4	(23/2$^-$)	
2978.9	(27/2$^+$)	724.7 *5*		2254.1	(23/2$^+$)	
3127.6	(23/2$^+$)	592.7 *5*		2534.9	(19/2$^+$)	
3246.4	(29/2$^-$)	606.2 *5*		2640.2	(27/2$^-$)	
		726.5 *5*		2519.9	(25/2$^-$)	
3322.4	(29/2$^+$)	722.4 *5*		2600.0	(25/2$^+$)	
3413.9	(31/2$^-$)	773.7 *5*		2640.2	(27/2$^-$)	Q
3725.0	(31/2$^+$)	746.1# *5*		2978.9	(27/2$^+$)	
3752.2	(27/2$^+$)	624.6 *5*		3127.6	(23/2$^+$)	
3919.5	(33/2$^-$)	505.7 *3*	100 *7*	3413.9	(31/2$^-$)	
		673.1 *5*		3246.4	(29/2$^-$)	
4049.8	(33/2$^+$)	727.4 *5*		3322.4	(29/2$^+$)	
4209.4	(35/2$^-$)	795.5 *3*	100 *13*	3413.9	(31/2$^-$)	Q
4471.0	(31/2$^+$)	718.9 *5*		3752.2	(27/2$^+$)	
4471.1	(35/2$^+$)	746.1# *5*		3725.0	(31/2$^+$)	
4664.1	(37/2$^-$)	744.6 *5*		3919.5	(33/2$^-$)	
4826.9	(37/2$^+$)	777.1 *3*	100 *40*	4049.8	(33/2$^+$)	

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Adopted Levels, Gammas (continued)

$\gamma(^{121}Ba)$ (continued)

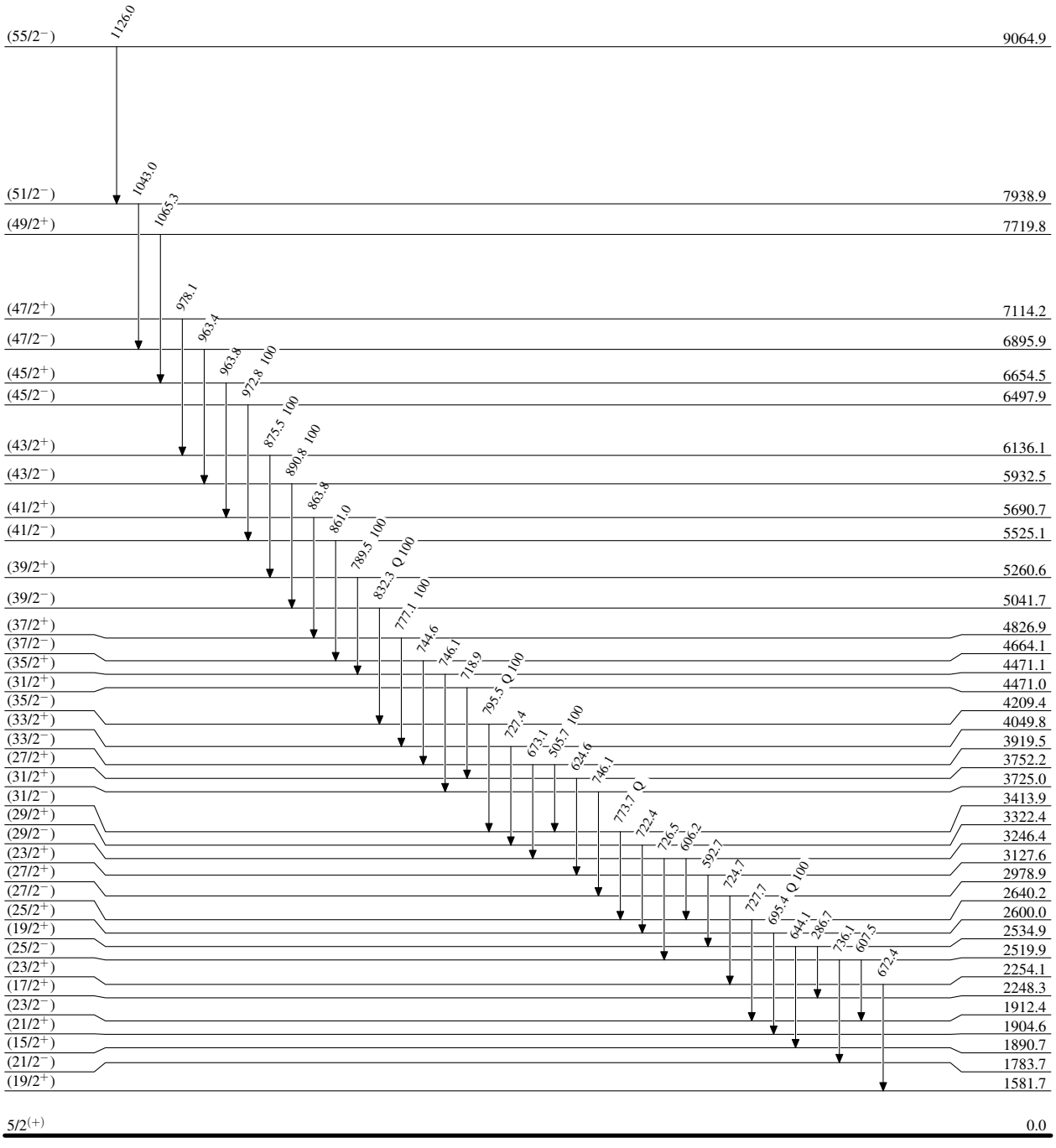
E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.‡
5041.7	$(39/2^-)$	832.3 *3*	100 *21*	4209.4	$(35/2^-)$	Q
5260.6	$(39/2^+)$	789.5 *3*	100 *40*	4471.1	$(35/2^+)$	
5525.1	$(41/2^-)$	861.0 *5*		4664.1	$(37/2^-)$	
5690.7	$(41/2^+)$	863.8 *5*		4826.9	$(37/2^+)$	
5932.5	$(43/2^-)$	890.8 *3*	100 *15*	5041.7	$(39/2^-)$	
6136.1	$(43/2^+)$	875.5 *3*	100 *20*	5260.6	$(39/2^+)$	
6497.9	$(45/2^-)$	972.8 *3*	100 *15*	5525.1	$(41/2^-)$	
6654.5	$(45/2^+)$	963.8 *5*		5690.7	$(41/2^+)$	
6895.9	$(47/2^-)$	963.4 *5*		5932.5	$(43/2^-)$	
7114.2	$(47/2^+)$	978.1 *5*		6136.1	$(43/2^+)$	
7719.8	$(49/2^+)$	1065.3 *5*		6654.5	$(45/2^+)$	
7938.9	$(51/2^-)$	1043.0 *5*		6895.9	$(47/2^-)$	
9064.9	$(55/2^-)$	1126.0 *5*		7938.9	$(51/2^-)$	

† From ^{121}La $\varepsilon+\beta^+$ decay.
‡ From $\gamma(\theta)$ in ^{92}Mo(^{32}S,2pnγ).
# Multiply placed.
@ Multiply placed with undivided intensity.
& Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{121}_{56}Ba_{65}$

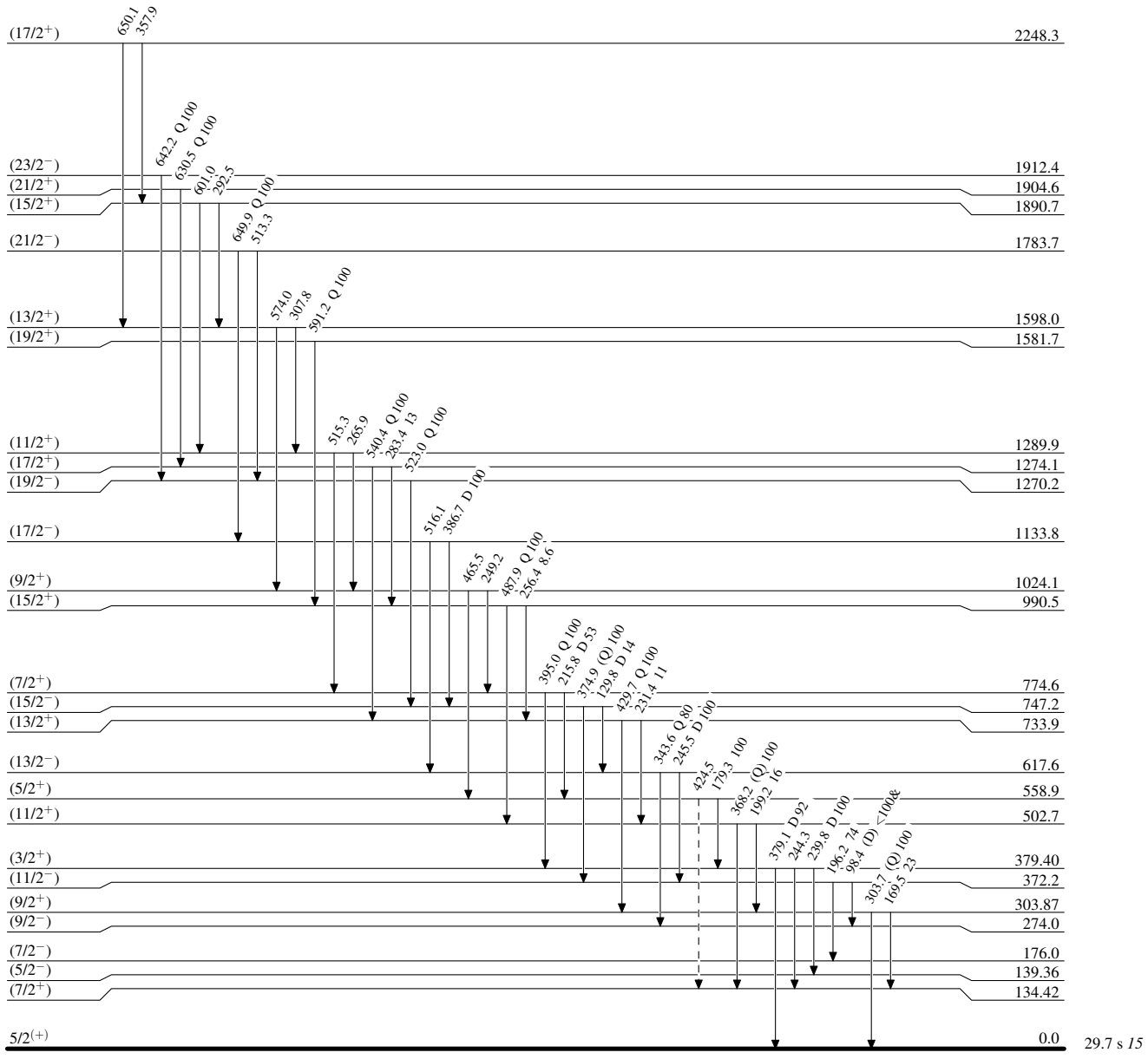
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

– – – – – – ► γ Decay (Uncertain)

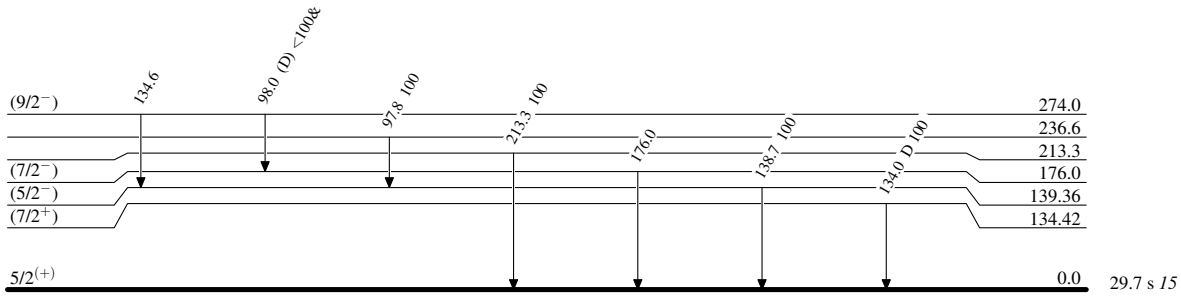


$^{121}_{56}Ba_{65}$

Adopted Levels, Gammas

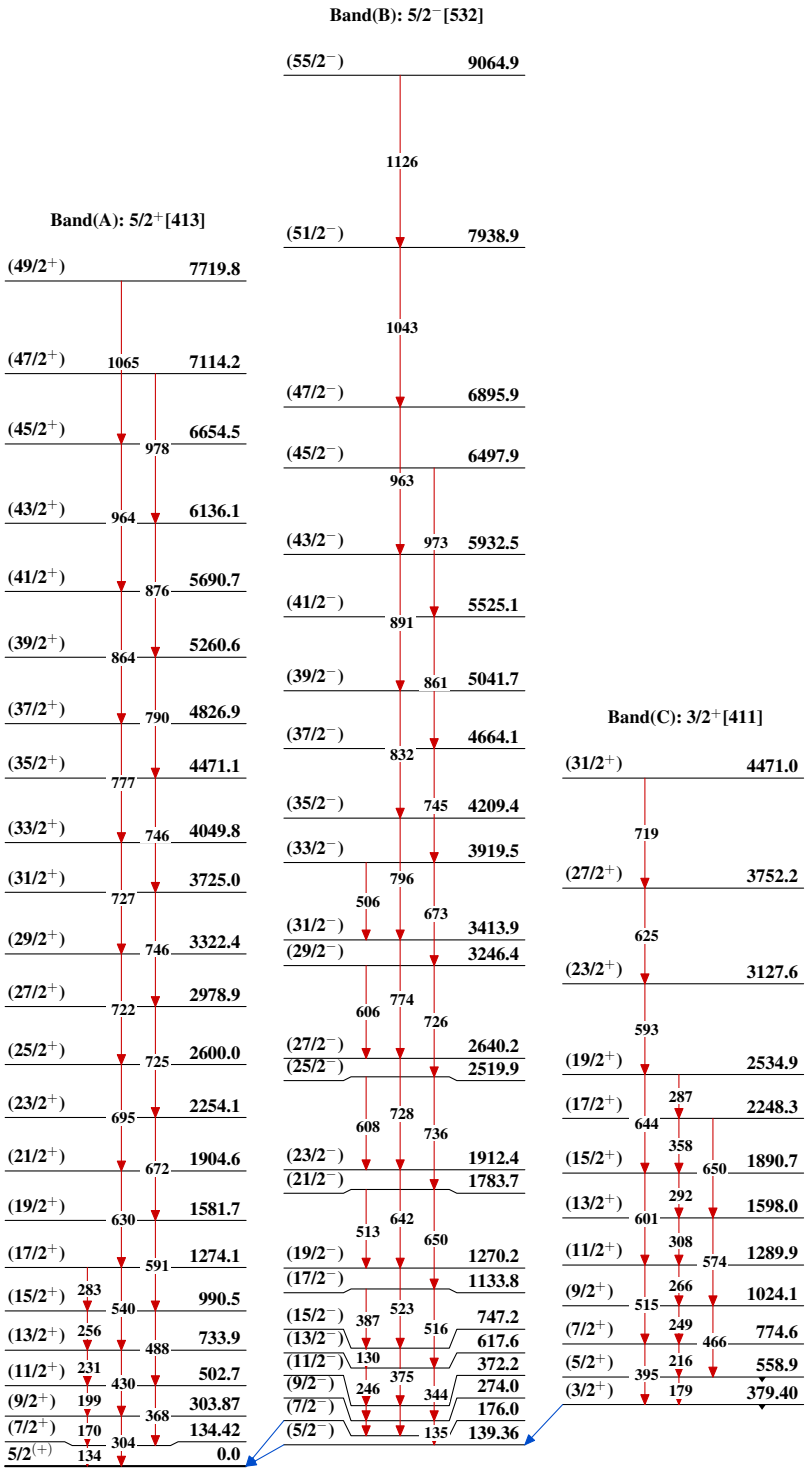
Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



$^{121}_{56}Ba_{65}$

Adopted Levels, Gammas



$^{121}_{56}Ba_{65}$