

Adopted Levels, Gammas

Type	History		Literature Cutoff Date
	Author	Citation	
Full Evaluation	Jean Blachot	ENSDF	1-Jul-2006

$Q(\beta^-)=4628$ 4; $S(n)=7156$ 9; $S(p)=9795$ 10; $Q(\alpha)=-5186$ 8 [2012Wa38](#)

Note: Current evaluation has used the following Q record 4569 187070 309630 40-5109 22 [2003Au03](#).

A 1.0 min 2 activity was ascribed to ^{101}Nb by [1960Or02](#) via genetics with ^{101}Ru (307 γ). No evidence of 1.0-min activity was found by [1969Ha27](#), [1970Ei02](#) or [1972Tr08](#).

 ^{101}Nb LevelsCross Reference (XREF) Flags

A ^{101}Zr β^- decay
B ^{248}Cm SF decay
C ^{252}Cf SF decay

E(level)	J^π	$T_{1/2}$	XREF	Comments
0.0 [#]	(5/2 ⁺)	7.1 s 3	ABC	$\% \beta^- = 100$ $T_{1/2}$: via 276 γ -decay curve: 7.1 s 3 (1972Tr08), 7.2 s 3 (1970Ei02).
119.41 [@] 7	(7/2 ⁺)	84 ps 4	ABC	
205.28 ^c 7	(3/2 ⁻)	1.83 ns 3	A C	
208.36 ^{&} 8	(5/2 ⁻)	0.80 ns 5	A C	
255.24 [#] 10	(9/2 ⁺)	35 ps 5	ABC	
346.08 ^b 8	(5/2 ⁻)	24 ps 5	A C	
373.99 ^a 10	(7/2 ⁻)	19 ps 11	A C	
532.1 ^c 1	(7/2 ⁻)	13 ps 10	A C	
532.2 [@]	(11/2 ⁺)		BC	
572.8 ^{&}	(9/2 ⁻)		C	
593.4 2			A	
597.9 2			A	
673.2 3			A	
702.6 3			A	
722.2 2		25 ps 5	A	
729.3 [#]	(13/2 ⁺)		BC	
747.1 ^b	(9/2 ⁻)		C	
777.8 3			A	
783.1 5			A	
809.4 ^a	(11/2 ⁻)		C	
878.96 15			A	
899.45 15			A	
912.04 12			A	
921.60 19			A	
952.77 22			A	
1006.5 ^c	(11/2 ⁻)		C	
1061.35 15			A	
1073.2 ^{&}	(13/2 ⁻)		C	
1093.3 [@]	(15/2 ⁺)		BC	
1109.44 19			A	
1119.43 12			A	
1126.21 18			A	
1180.28 19			A	
1280.98 ^b 12	(13/2 ⁻)		C	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) ^{101}Nb Levels (continued)

E(level)	$J^\pi^\dagger$	XREF	E(level)	$J^\pi^\dagger$	XREF	E(level)	$J^\pi^\dagger$	XREF
1294.2 6		A	1924.83 ^b 14	(17/2 ⁻)	C	2118.7 4		A
1340.1 [#]	(17/2 ⁺)	C	1925.43 17		A	2288.9 ^c 10	(19/2 ⁻)	C
1373.7 ^a	(15/2 ⁻)	C	1929.53 21		A	2415.3 ^{&}	(21/2 ⁻)	C
1599.37 ^c 13	(15/2 ⁻)	C	1957.87 13		A	2547.32 [@] 15	(23/2 ⁺)	C
1620.1 4		A	2009.66 13		A	2624.13 ^b 17	(21/2 ⁻)	C
1693.3 ^{&}	(17/2 ⁻)	C	2030.80 20		A	2810.18 ^a 19	(23/2 ⁻)	C
1773.1 [@]	(19/2 ⁺)	C	2046.18 ^a 16	(19/2 ⁻)	C	2906.47 [#] 15	(25/2 ⁺)	C
1844.3 3		A	2073.1 [#]	(21/2 ⁺)	C	3206.88 ^{&} 19	(25/2 ⁻)	C
1878.12 12		A	2096.1 3		A	3396.63 [@] 18	(27/2 ⁺)	C

[†] Assuming the levels as belonging to assigned rotational bands, comparing with Nilsson-model.

[‡] From ^{101}Zr β^- decay (1991Oh03), unless otherwise noted.

[#] Band(A): 5/2[422], $\alpha=+1/2$.

[@] Band(a): 5/2[422], $\alpha=-1/2$.

[&] Band(B): 5/2[303], $\alpha=+1/2$.

^a Band(b): 5/2[303], $\alpha=-1/2$.

^b Band(C): 3/2[301], $\alpha=+1/2$.

^c Band(c): 3/2[301], $\alpha=-1/2$.

 $\gamma(^{101}\text{Nb})$

$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	I_γ	E_f	J_f^π	Mult. [†]	δ	$\alpha^\ddagger$	Comments
119.41	(7/2 ⁺)	119.3 1	100	0.0	(5/2 ⁺)	M1(+E2)	<0.33	0.162 24	B(M1)(W.u.)>0.11; B(E2)(W.u.)<8.9×10 ²
205.28	(3/2 ⁻)	205.7 1	100	0.0	(5/2 ⁺)	D			
208.36	(5/2 ⁻)	208.5 1	100	0.0	(5/2 ⁺)				
255.24	(9/2 ⁺)	135.8 1	100 8	119.41	(7/2 ⁺)	M1(+E2)	<1.05	0.17 7	B(M1)(W.u.)>0.071; B(E2)(W.u.)<5.9×10 ³
346.08	(5/2 ⁻)	255.2 3	17 5	0.0	(5/2 ⁺)				
		137.9 2	6 3	208.36	(5/2 ⁻)				
		140.6 1	100 6	205.28	(3/2 ⁻)	M1+E2	<0.25	0.096 7	B(M1)(W.u.)>0.18; B(E2)(W.u.)<8.4×10 ²
		226.8 1	3 3	119.41	(7/2 ⁺)				
		346.2 2	13 3	0.0	(5/2 ⁺)				
373.99	(7/2 ⁻)	165.7 1	83 33	208.36	(5/2 ⁻)				
		254.4 2	50 17	119.41	(7/2 ⁺)				
		373.9 2	100 17	0.0	(5/2 ⁺)				
532.1	(7/2 ⁻)	186.0 1	100 20	346.08	(5/2 ⁻)	M1,E2		0.08 4	
		327.1 5	22 8	205.28	(3/2 ⁻)				
532.2	(11/2 ⁺)	276.8 3	100	255.24	(9/2 ⁺)				
		412.8 3	13	119.41	(7/2 ⁺)				
572.8	(9/2 ⁻)	198.6		373.99	(7/2 ⁻)				
		364.2		208.36	(5/2 ⁻)				
593.4		338.2 1	73 9	255.24	(9/2 ⁺)				
		473.9 2	100 9	119.41	(7/2 ⁺)				
		593.5 5	100 36	0.0	(5/2 ⁺)				
597.9		597.8 2	100	0.0	(5/2 ⁺)				
673.2		417.5 2	8 4	255.24	(9/2 ⁺)				
		553.6 1	100 8	119.41	(7/2 ⁺)				
		673.1 3	15 8	0.0	(5/2 ⁺)				

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) $\gamma(^{101}\text{Nb})$ (continued)

$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	I_γ	E_f	J_f^π
702.6		494.3 4	13 13	208.36	(5/2 ⁻)
		497.3 2	100 13	205.28	(3/2 ⁻)
722.2		124.4 2	17 3	597.9	
		722.2 2	100 7	0.0	(5/2 ⁺)
729.3	(13/2 ⁺)	197.7 1	100	532.1	(7/2 ⁻)
		473.9 2	67	255.24	(9/2 ⁺)
747.1	(9/2 ⁻)	214.1		532.2	(11/2 ⁺)
		400.3		346.08	(5/2 ⁻)
777.8		569.7 4	33 33	208.36	(5/2 ⁻)
		572.5 2	100 33	205.28	(3/2 ⁻)
783.1		108.3 2	6 3	673.2	
		183.6 4	9 3	597.9	
		781.6 3	100 15	0.0	(5/2 ⁺)
809.4	(11/2 ⁻)	236.3 3		572.8	(9/2 ⁻)
		435.1 3		373.99	(7/2 ⁻)
878.96		759.6 2	100 10	119.41	(7/2 ⁺)
		878.9 2	75 10	0.0	(5/2 ⁺)
899.45		553.3 2	83 17	346.08	(5/2 ⁻)
		693.9 2	100 17	205.28	(3/2 ⁻)
912.04		706.3 2	5.2 17	205.28	(3/2 ⁻)
		912.2 2	100 7	0.0	(5/2 ⁺)
921.60		802.4 2	100	119.41	(7/2 ⁺)
952.77		744.9 3	33 17	208.36	(5/2 ⁻)
		747.0 3	100 17	205.28	(3/2 ⁻)
1006.5	(11/2 ⁻)	259.4 3		747.1	(9/2 ⁻)
		473.4 3		532.2	(11/2 ⁺)
1061.35		806.4 3	100 33	255.24	(9/2 ⁺)
		941.8 2	33 33	119.41	(7/2 ⁺)
1073.2	(13/2 ⁻)	263.9 3		809.4	(11/2 ⁻)
		500.4 3		572.8	(9/2 ⁻)
1093.3	(15/2 ⁺)	364.0 3	100	729.3	(13/2 ⁺)
		561.1 3	14	532.2	(11/2 ⁺)
1109.44		904.2 2	100	205.28	(3/2 ⁻)
1119.43		587.2 [#] 3	22 [#] 11	532.1	(7/2 ⁻)
		773.5 2	56 11	346.08	(5/2 ⁻)
		911.2 2	33 11	208.36	(5/2 ⁻)
		914.1 2	67 11	205.28	(3/2 ⁻)
		1119.0 3	100 44	0.0	(5/2 ⁺)
1126.21		920.7 2	100	205.28	(3/2 ⁻)
1180.28		587.2 [#] 3	100 [#] 23	593.4	
		971.5 4	15 8	208.36	(5/2 ⁻)
		1060.9 3	54 15	119.41	(7/2 ⁺)
		1180.0 5	77 15	0.0	(5/2 ⁺)
1280.98	(13/2 ⁻)	275.2 1	62	1006.5	(11/2 ⁻)
		534.6 1	100	747.1	(9/2 ⁻)
1294.2		1085.8 6	100	208.36	(5/2 ⁻)
1340.1	(17/2 ⁺)	246.9 3		1093.3	(15/2 ⁺)
		611.0 3		729.3	(13/2 ⁺)
1373.7	(15/2 ⁻)	300.5 3		1073.2	(13/2 ⁻)
		564.4 3		809.4	(11/2 ⁻)
1599.37	(15/2 ⁻)	318.4 1	1.9	1280.98	(13/2 ⁻)
		593.5 1	3.6	1006.5	(11/2 ⁻)
1620.1		1364.9 3	100	255.24	(9/2 ⁺)
1693.3	(17/2 ⁻)	319.6 3		1373.7	(15/2 ⁻)
		620.1 3		1073.2	(13/2 ⁻)

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) $\gamma(^{101}\text{Nb})$ (continued)

$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	I_γ	E_f	J_f^π
1773.1	(19/2 ⁺)	433.0 3		1340.1	(17/2 ⁺)
		680.0 3		1093.3	(15/2 ⁺)
1844.3		1635.9 3	100	208.36	(5/2 ⁻)
1878.12		751.4 3	41 6	1126.21	
		966.0 1	65 12	912.04	
		1095.8 4	47 18	783.1	
		1156.0 2	100 18	722.2	
		1280.6 4	41 12	597.9	
		1673.1 3	18 6	205.28	(3/2 ⁻)
1924.83	(17/2 ⁻)	325.4 1	52	1599.37	(15/2 ⁻)
		643.9 1	100	1280.98	(13/2 ⁻)
1925.43		816.1 3	16 5	1109.44	
		1143.0 3	63 16	783.1	
		1327.6 3	53 11	597.9	
		1924.5 3	100 16	0.0	(5/2 ⁺)
1929.53		1810.1 2	100	119.41	(7/2 ⁺)
1957.87		896.5 2	11 4	1061.35	
		1037.1 4	6 2	921.60	
		1838.5 2	46 6	119.41	(7/2 ⁺)
		1957.6 2	100 11	0.0	(5/2 ⁺)
2009.66		1337.1 3	14 4	673.2	
		1801.1 2	25 4	208.36	(5/2 ⁻)
		1890.6 6	5.3 18	119.41	(7/2 ⁺)
		2009.5 2	100 12	0.0	(5/2 ⁺)
2030.80		1131.0 2	63 13	899.45	
		1249.0 4	100 63	783.1	
		1825.5 4	100 13	205.28	(3/2 ⁻)
2046.18	(19/2 ⁻)	353.2 [@]		1693.3	(17/2 ⁻)
		672.5 1	100	1373.7	(15/2 ⁻)
2073.1	(21/2 ⁺)	733.0 3	100	1340.1	(17/2 ⁺)
2096.1		1750.0 3	100	346.08	(5/2 ⁻)
2118.7		1910.3 4	100 25	208.36	(5/2 ⁻)
		1999.3 5	100 25	119.41	(7/2 ⁺)
2288.9	(19/2 ⁻)	364.2 3		1924.83	(17/2 ⁻)
		689.5 3		1599.37	(15/2 ⁻)
2415.3	(21/2 ⁻)	721.8 2	100	1693.3	(17/2 ⁻)
2547.32	(23/2 ⁺)	474.7 1	100	2073.1	(21/2 ⁺)
		774.4 1	100	1773.1	(19/2 ⁺)
2624.13	(21/2 ⁻)	335.0 [@] 2		2288.9	(19/2 ⁻)
		699.3 1		1924.83	(17/2 ⁻)
2810.18	(23/2 ⁻)	764.0 1	100	2046.18	(19/2 ⁻)
2906.47	(25/2 ⁺)	359.1 1		2547.32	(23/2 ⁺)
		833.9 1	100	2073.1	(21/2 ⁺)
3206.88	(25/2 ⁻)	792.1 1	100	2415.3	(21/2 ⁻)
3396.63	(27/2 ⁺)	490.3 [@] 2		2906.47	(25/2 ⁺)
		849.3 1	100	2547.32	(23/2 ⁺)

[†] From ^{101}Zr β^- decay.[‡] 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.

Multiply placed with intensity suitably divided.

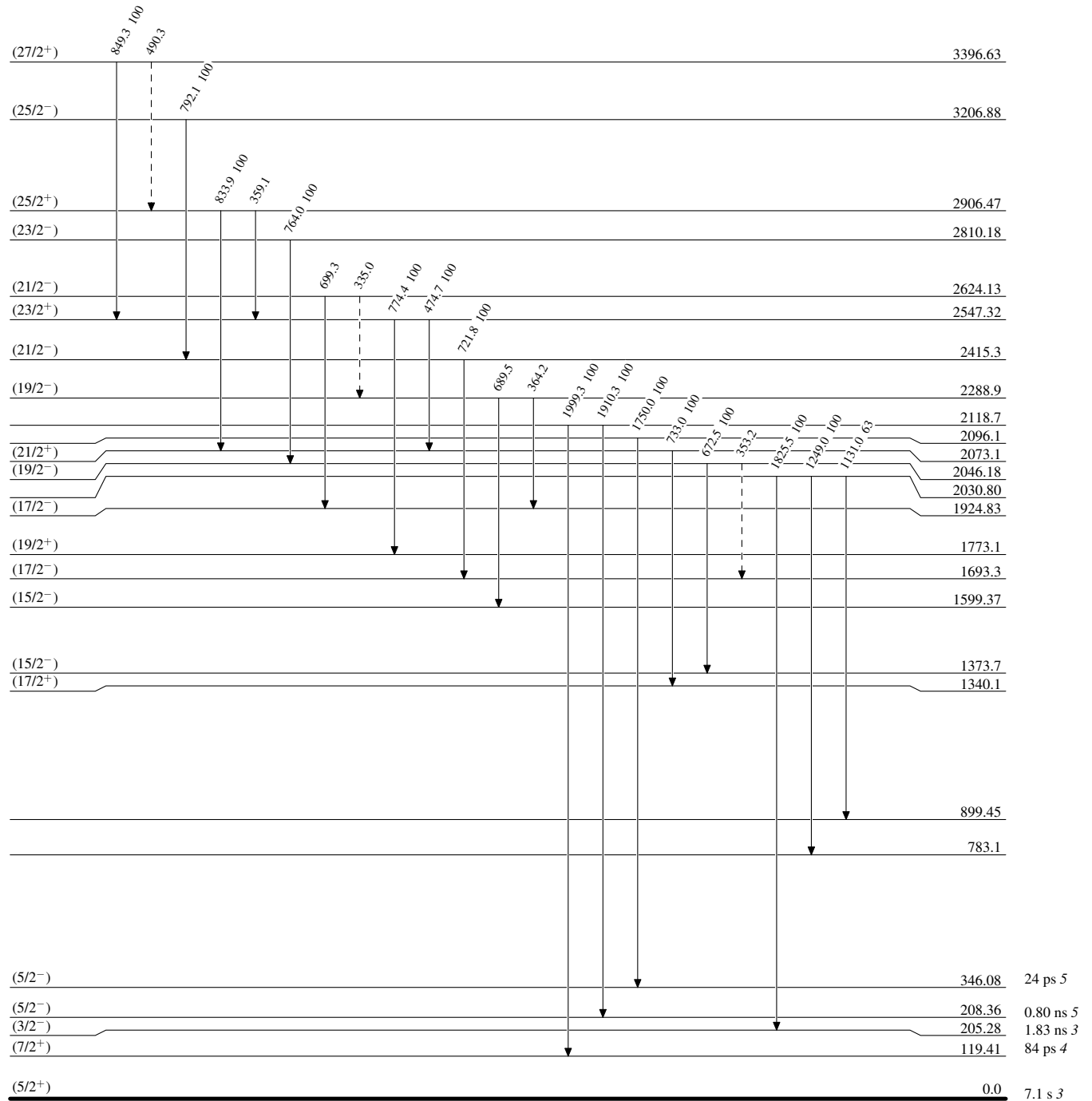
[@] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Legend

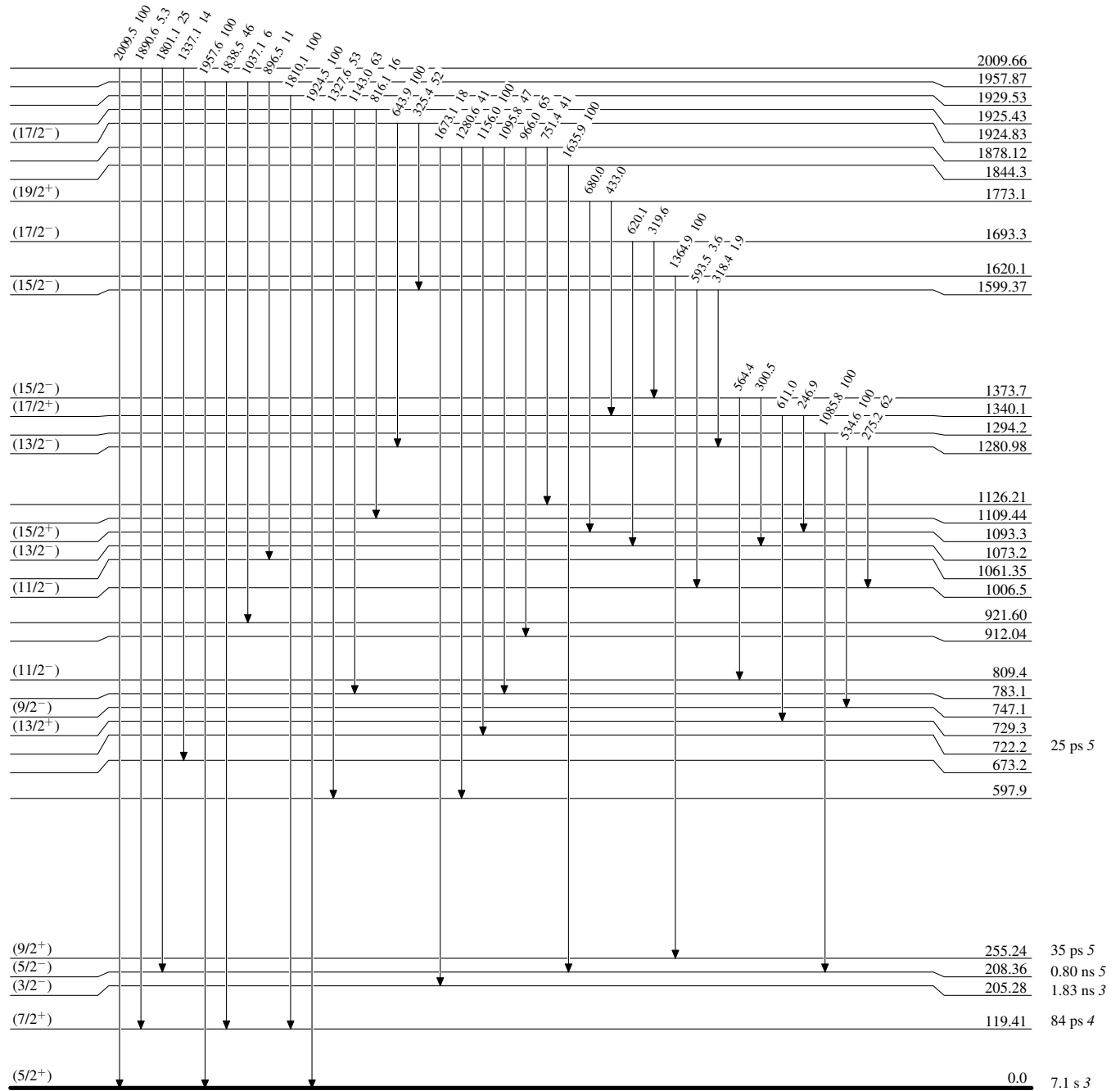
Level Scheme

Intensities: Relative photon branching from each level

-----> γ Decay (Uncertain)

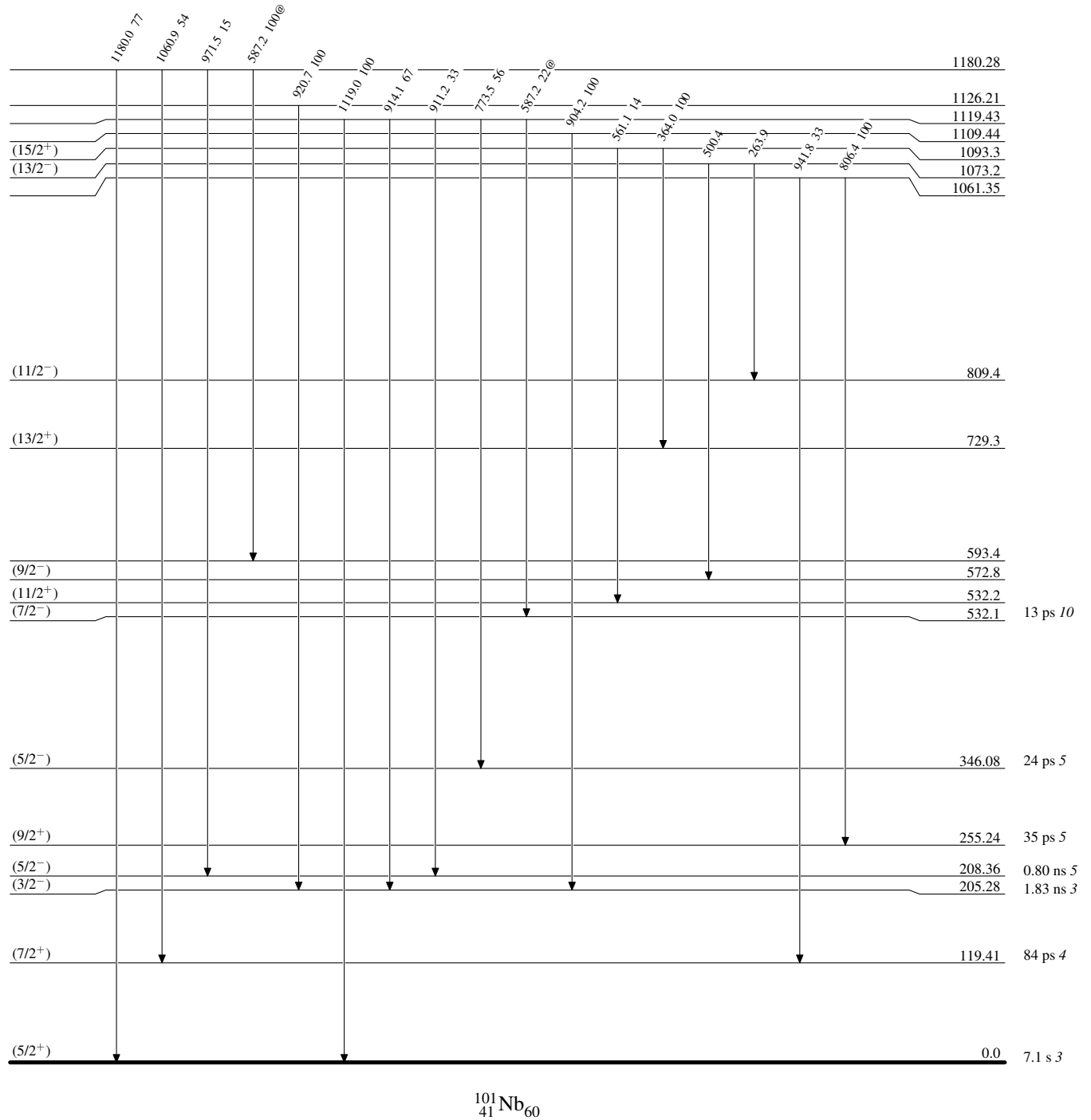
Adopted Levels, Gammas**Level Scheme (continued)**

Intensities: Relative photon branching from each level



Adopted Levels, GammasLevel Scheme (continued)

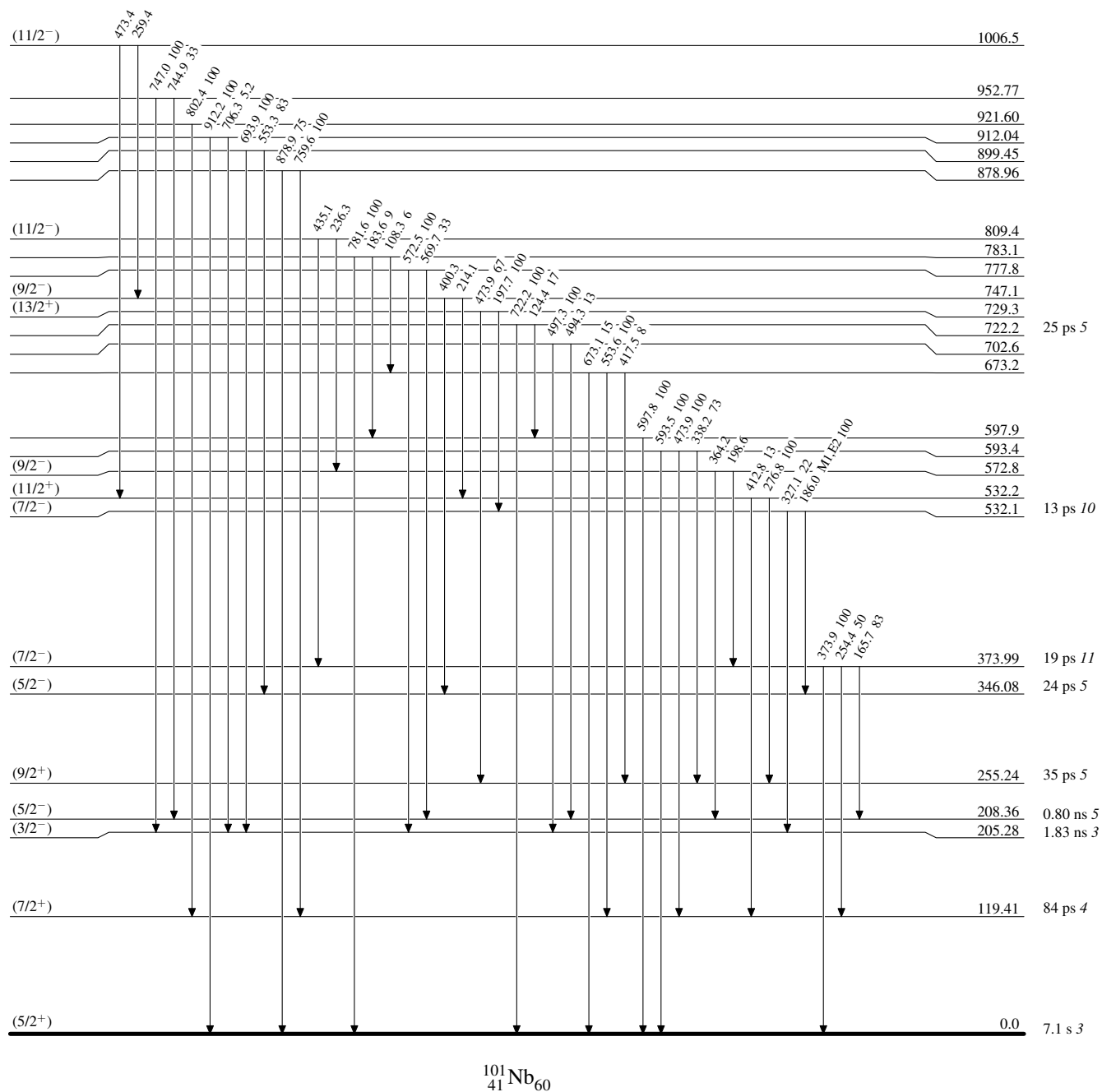
Intensities: Relative photon branching from each level
 @ Multiplied: intensity suitably divided



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

Intensities: Relative photon branching from each level

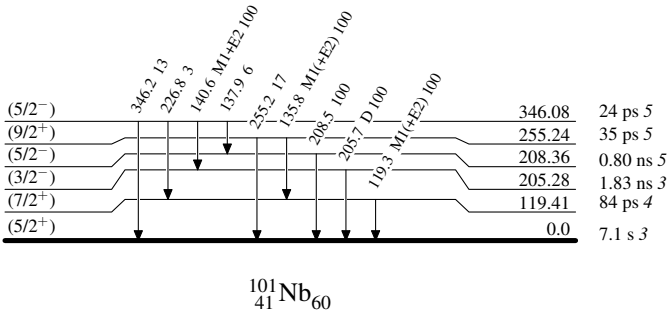
@ Multiply placed: intensity suitably divided

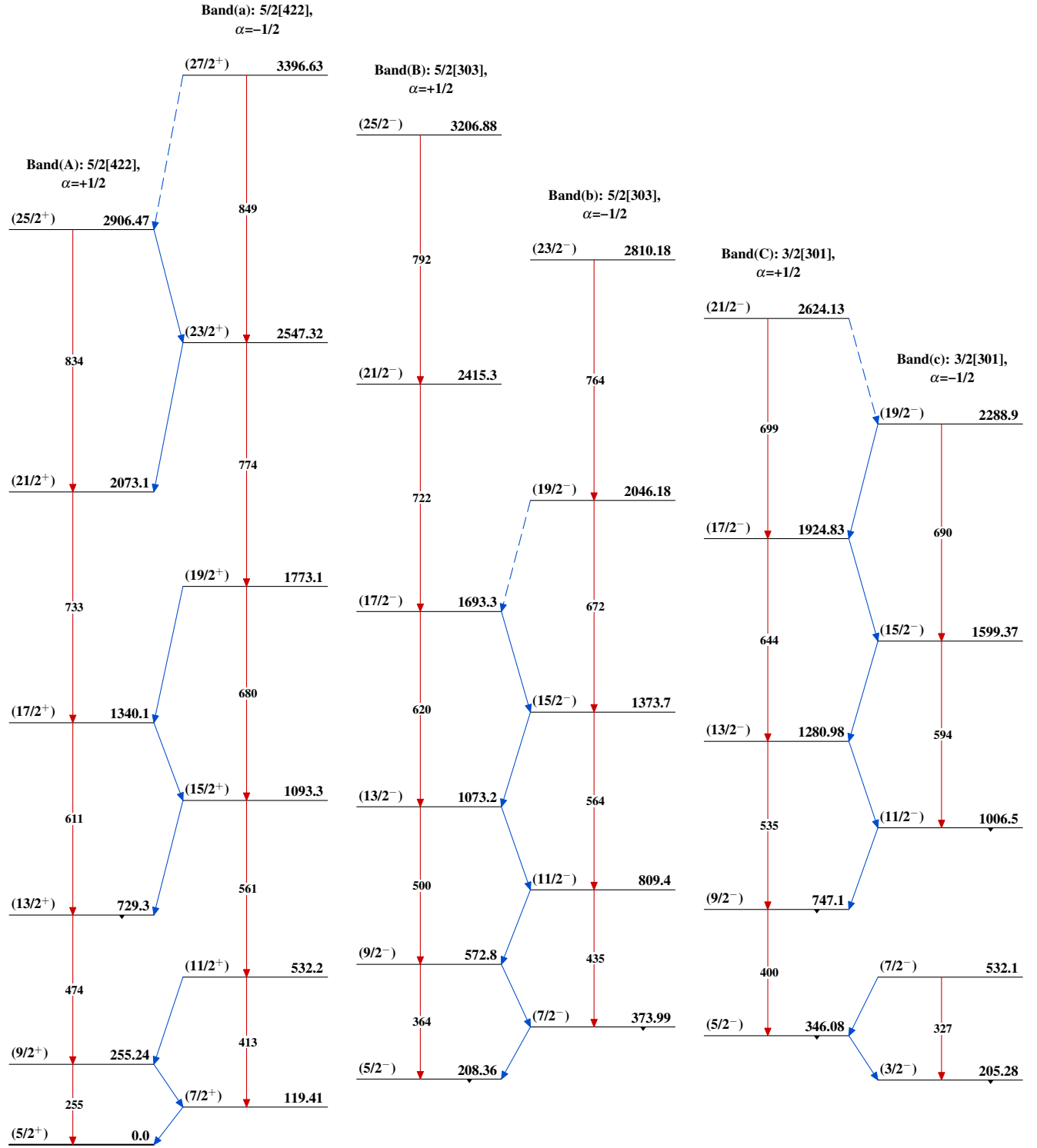


Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



Adopted Levels, Gammas $^{101}_{41}\text{Nb}_{60}$