Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. Abriola(a), A. A. Sonzogni	NDS 107,2423 (2006)	1-Jan-2006

Q(β^-)=2043.6 *18*; S(n)=7227.54 *8*; S(p)=6535.5 *16*; Q(α)=−2299.3 *23* 2012Wa38
Note: Current evaluation has used the following Q record 2045.2 207227.54 *8* 6536.4 *16*−2302.0 *23* 2003Au03.

^{94}Nb Levels

Cross Reference (XREF) Flags

A	^{93}Nb(n,γ) E=thermal:primary	F	^{93}Nb(^{16}O,^{15}O)
B	^{93}Nb(n,γ) E=resonance	G	^{94}Nb IT decay (6.263 min)
C	^{93}Nb(n,γ) E=thermal:secondary	H	^{92}Zr(α,d)
D	^{93}Nb(d,p)	I	^{82}Se(^{19}F,α3nγ)
E	^{94}Zr(p,nγ)		

E(level)[†]	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0[‡]	6$^+$[@]	2.03×10^4 y *16*	ABCDEFGHI	%β^-=100 J$^\pi$: L(d,p)=2 on 9/2$^+$ target. M3 γ from 3$^+$. Beta decays only to 4$^+$ with log *ft*=12.0. T$_{1/2}$: from 1959Sc35. Others: 1.8×10^4 y *4* (1955Ro21), 2.2×10^4 y *5* (1953Do18).
40.892 *12*	3$^+$[@]	6.263 min *4*	ABCDE G	%IT=99.50 *6*; %β^-=0.50 *6* J$^\pi$: L(d,p)=2 on 9/2$^+$ target. log *ft*=6.5 to 2$^+$; log *ft*=7.4 to 4$^+$ (log $f^{1u}t$<8.5 for both transitions). T$_{1/2}$: from 1990Ab06. Other: 6.26 min *1* (1968Re04), 6.29 min *5* (1962Ki08). %IT,%β^- from ^{94}Nb IT decay (1962Ki08).
58.708 *10*	(4)$^+$[@]		ABCDEF	J$^\pi$: L(d,p)=2. Primary γ from 5$^-$ resonance. (M1) to 3$^+$.
78.6683[‡] *8*	(7)$^+$[@]		A CD HI	J$^\pi$: M1 to 6$^+$ g.s. J=(7) was suggested by 1965Sh03, 1968Ju01 on the basis of shell-model expectation (only J=7 candidate of the multiplet) and lack of primary feeding. Feeding from (4$^+$,5$^-$) 1230 level argues against J=(7). Not observed in (p,nγ) suggests J>6. In 2000Ma63 it is suggested that the cascade seen represents the yrast positive-parity sequence therefore J=(7).
113.4009 *8*	(5)$^+$[@]	<5 ns	ABCDE	J$^\pi$: M1 γ to (6)$^+$. L(d,p)=0+2. T$_{1/2}$: from $\gamma\gamma$(t) in (n,γ) (1971Gu05).
140.298 *12*	(2)$^-$	30 ns *5*	A C E	J$^\pi$: E1 γ to 3$^+$. 2$^-$ from Hauser-Feshbach calculations in (p,nγ) (1977Fe14). T$_{1/2}$: from $\gamma\gamma$(t) in (n,γ) (1971Gu05).
301.558 *12*	(2)$^-$		A C E	J$^\pi$: M1+E2 γ to (2)$^-$. 2$^-$ from Hauser-Feshbach calculations in (p,nγ) (1977Fe14).
311.821 *10*	(4,5)$^+$		ABCDE	J$^\pi$: L(d,p)=2. M1,E2 γ to (4)$^+$. Primary γ from 5$^-$ resonance.
334.102 *12*	(3)$^+$		A CDE	J$^\pi$: L(d,p)=2. M1 γ to 3$^+$. 3$^+$ from Hauser-Feshbach calculations in (p,nγ) (1977Fe14,1976Ha04). 1985Bo48 suggest it to be the 2$^+$ member of multiplet with configuration=$((\pi\ 1g_{9/2})^{+1}(\nu\ 1d_{5/2})^{-1})$.
396.227 *12*	(3)$^-$	<5 ns	ABC E	J$^\pi$: E1 γ to (4)$^+$. M1+E2 γ to (2)$^-$. T$_{1/2}$: from $\gamma\gamma$(t) in (n,γ) (1971Gu05).
450.204 *14*	(3)$^-$		A C E	J$^\pi$: M1 γ to (2)$^-$. J=3 from Hauser-Feshbach (1976Ha04,1977Fe14). 1976Ha04 and 1977Fe14 suggest π=+.
631.533 *13*	(4)$^+$		ABCDE	J$^\pi$: L(d,p)=2. M1 γ to (5)$^+$. γ to 3$^+$. γ from (3)$^-$.
640.988 *10*	(5)$^+$		ABCD	J$^\pi$: L(d,p)=2. γ's to (7)$^+$ and (5)$^+$. Fed by 4$^-$ res (1971Ch16).
666.10 *3*	(3)$^+$		A C E	J$^\pi$: E1 γ to (2)$^-$. 3$^+$ from Hauser-Feshbach (1977Fe14). J^π=2$^-$,(3$^-$) (1985Bo48).

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Adopted Levels, Gammas (continued)

^{94}Nb Levels (continued)

E(level)[†]	Jπ	XREF	Comments
785.657 *25*	$(3)^+$	A C E	Jπ: E1 γ to $(2)^-$. 3^+ from Hauser-Feshbach (1977Fe14).
792.595 *16*	$(3,4)^+$	ABCDE	XREF: B(794.5). Jπ: L(d,p)=2. M1 γ to $(3)^+$. 3^+,4^+ from Hauser-Feshbach (1977Fe14).
816.83 *3*	$(3)^-$	ABCDE	Jπ: E1 γ to $(3)^+$. 3 from Hauser-Feshbach (1977Fe14).
895.650 *14*	$(3^+,4^-)$	ABC	Jπ: γ′s to $(4)^+$ and $(2)^-$. Primary γ′s from 4^- and 5^+ resonances.
924.252 *25*	(2^+)	A C E	Jπ: from Hauser-Feshbach (1977Fe14).
932.70 *3*		ABCDE	
936.036 *20*	$^+$	ABCDE	Jπ: L(d,p)=2.
948.0 *9*	(8)	HI	
957.36 *3*	$(5)^+$	ABCD	Jπ: L(d,p)=0. γ to $(7)^+$.
970.161 *15*		ABC	
976.76 *4*		ABC E	
979.29 *18*	(2)	AB E	Jπ: from Hauser-Feshbach (1977Fe14).
991.3[‡] *9*	(9)	I	
1006.2 *21*	$4^+,5^+$	A CD	Jπ: L(d,p)=0+2.
1010.9 *3*		ABCD	
1023.35 *4*		A C	
1030.191 *17*		A C	
1061.223 *23*	$4^+,5^+$	ABCD	XREF: B(1059.0). Jπ: L(d,p)=0.
1085.955 *19*	$(2^+,3,4)$	A C	Jπ: γ′s to $(3)^+$, $(3)^-$, (4^+).
1158.71 *4*		A C E	
1163.2 *9*	$(3^+,4,5^+)$	E	Jπ: γ′s to 3^+, $(5)^+$.
1169.88 *6*	$4^+,5^+$	ABCD	Jπ: L(d,p)=0+2.
1179.61 *6*		ABC	
1182.4 *8*		E	
1202?	$^+$[@]	D	Jπ: L(d,p)=4.
1230.10 *7*	$(4^+,5^-)$	A C	Jπ: γ′s to $3^{(-)}$ and $(6)^+$.
1231.92 *3*	$(2,3,4)^+$	ABCD	XREF: B(1233.8). Jπ: L(d,p)=2. γ′s to 3^+, $(3)^-$.
1247.26 *7*		ABC	
1256.85 *10*	$^+$	ABCD	Jπ: L(d,p)=2 at 1259 keV.
1262.82 *7*	$(3,4^-)$	ABC	Jπ: level fed from 4^+,5^+ capture state and 4^+, 5^- resonances. Decays to $(2)^-$ level. $J^\pi=(5^+,6,7)$ has been suggested in (n,γ).
1272.83 *4*		ABC	
1281.44 *11*	$4^+,5^+$	ABCD	Jπ: L(d,p)=0.
1323.41 *15*	$4^+,5^+$	ABCD	Jπ: L(d,p)=0.
1332.6 *3*	$(3^+,4,5^+)$	ABC E	Jπ: γ′s to 3^+, $(5)^+$.
1346.69 *15*		ABC	
1361.1 *7*	$^+$	A D	Jπ: L(d,p)=2.
1392.73 *12*	$^+$	A D	Jπ: L(d,p)=2.
1405 *1*	$^+$	D	Jπ: L(d,p)=4.
1428	$(^+)$	D	Jπ: possibly L(d,p)=2.
1448.1 *13*		B	
1458.12 *13*		AB	
1464.1? *11*		B	
1484.9 *15*		ABC	
1488.9 *3*		AB	
1492.9 *4*		AB D	Jπ: L(d,p)=1 at 1496 keV *5*.
1499.92 *14*		AB D	Jπ: L(d,p)=1 at 1496 keV *5*.
1519.0 *10*	$^-$	ABCD	Jπ: L(d,p)=1.
1559.7 *16*		B	
1569.6 *16*	$4^+,5^+$	B D	Jπ: L(d,p)=0.
1581.95 *14*		AB	
1609.6[#] *12*	(11)	I	

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Adopted Levels, Gammas (continued)

^{94}Nb Levels (continued)

E(level)[†]	Jπ	XREF	Comments
1615.4 *7*		AB	
1620.6 *4*	4+,5+	AB D	XREF: B(1623.5). Jπ: L(d,p)=0+(2).
1636.14 *11*		A	
1639.27 *16*		A	
1655.09 *17*		A CD	
1659.0 *7*	(4+,5+)	B D	Jπ: L(d,p)=(0).
1678.5 *3*		AB	
1695.74 *15*		AB D	
1716.66 *19*		AB	
1720.1 *3*		A D	
1731.4 *13*		ABC	
1763.7 *3*		AB	
1770.3 *4*		A	
1776.92 *14*		AB	
1779.72 *5*	+	ABCD	Jπ: L(d,p)=2+4.
1805.5 *3*	+	AB D	Jπ: L(d,p)=2.
1815.75 *18*		AB	
1821.2 *7*	+	AB	Jπ: L(d,p)=2.
1828.1 *3*		AB D	
1859.75 *11*		ABC	
1864.13 *14*	4+,5+	AB D	Jπ: L(d,p)=0.
1879.35 *14*		A	
1882.39 *17*		AB	
1900		F	
1912.1 *15*		B	
1920.0 *4*		AB	
1926.8 *4*	4+,5+	AB D	Jπ: L(d,p)=0+2.
1930.9? *11*	(9)	I	
1937.45 *17*		A	
1943.76 *23*		AB	
1950.4 *3*		AB	
1956.73 *22*		A	
1970.22 *17*		A D	
1975.5 *4*		AB	
1983.1? *9*		B	
1997.37 *20*		A	
2000.0 *6*	4+,5+	AB D	Jπ: L(d,p)=0+2.
2010.4 *3*		AB	
2014.19 *20*		AB	
2020.0 *3*		AB	XREF: A(2019.98).
2033.6 *3*		ABC	XREF: B(2037.1).
2047.94 *15*		AB D	
2062.0 *14*		AB D	
2071.4 *5*		AB D	
2076.8 *4*	4+,5+	A D	Jπ: L(d,p)=0.
2098.78 *16*		A	
2102.0 *4*		A	
2124.62 *15*		AB	
2134.9 *4*		AB	XREF: A(2135.0).
2140.57 *17*		AB D	
2150.1 *5*		AB	
2157.67 *15*		A	
2162.28 *16*		A	
2168.2 *3*		A	
2175.2 *4*		AB	
2181.7 *7*		B	

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Adopted Levels, Gammas (continued)

^{94}Nb Levels (continued)

E(level)†	Jπ	XREF	Comments
2189.5 *8*		AB D	
2195.86 *16*		A	
2207.0 *3*		A	
2215.4 *3*		A D	
2221.16 *24*		AB	
2229.98 *17*		AB	
2236.48 *24*	$4^+,5^+$	AB D	Jπ: L(d,p)=0+2.
2245.3 *5*		AB	
2250.5‡ *11*	(10)	A I	
2253?		D	
2278.5 *7*		AB	
2284.9 *4*		A C	
2286.41 *25*		A	
2300.04 *22*		AB F	
2304.7 *3*		A D	
2314.4 *3*		AB	
2320.5 *4*		AB	
2325.9 *3*	$4^+,5^+$	A D	Jπ: L(d,p)=0.
2336.7 *7*		AB	
2346.3 *5*		A	
2355.3 *14*		ABC	
2363.54 *21*		A	
2369.8 *3*		A D	
2378.5 *5*		A	
2393.1 *4*		A	
2398.6 *15*		ABC	
2407.0 *6*		A	
2412.3 *5*		AB	
2417.8 *3*		A H	
2420.6 *5*		B	
2436.5 *5*		AB D	
2442.3 *15*		ABC	
2449.2‡ *13*	(11)	I	
2449.7 *6*		AB	
2455.7 *4*		AB	
2471.68 *17*		AB D	
2478.9 *3*		AB	
2488.98 *17*		A	
2502.98 *23*		A	
2509.6 *3*		A	
2516.38 *18*		AB	
2528.3 *4*		A	
2537.3 *7*		AB D	
2545.93 *25*		AB	
2555.80 *17*		A	
2565.63 *18*		AB	
2576.0 *9*		AB D	
2585.8 *4*		A	
2592.54 *17*		A	
2598.07 *17*		A	
2607.71 *20*		A	
2620.1 *3*		AB D	
2633.52 *17*		A	
2645.0 *5*		A	
2649.6 *8*		A D	
2654.1 *5*		AB	

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Adopted Levels, Gammas (continued)

^{94}Nb Levels (continued)

E(level)†	Jπ	XREF
2662.2 *13*		B
2669.45 *18*		A
2674.1 *3*		AB D
2685.0 *4*		AB
2689.34 *17*		A
2696.5 *5*		A
2703.87 *18*		A
2709.0 *9*		B
2722.3 *4*		AB
2726.55 *18*		A
2730.2 *3*		A
2738.1 *4*		A
2742.6 *7*		AB
2757.27 *20*		A
2761.5 *3*		A D
2769.1 *5*		AB
2772.67 *19*		A
2777.4 *4*		AB
2780.9 *8*		B
2790.6 *7*		B
2796.01 *18*		A
2801.6 *6*		A
2810.4 *19*		B D
2817.9# *13*	(12)	I
2821.32 *20*		A
2824.8 *4*		AB
2832.91 *18*		AB
2838.98 *21*		AB
2843.73 *20*		A D
2849.8 *3*		AB
2855.8 *3*		A
2875.96 *23*		A
2880.38 *21*		A
2889.7 *3*		A
2897.17 *19*		A D
2900.67 *20*		A
2913.75 *22*		A
2923.22 *19*		A
2930.0 *9*		B
2942.79 *25*		A
2950.6 *9*		AB
2955.68 *19*		A
2967.3 *6*		AB
2981.8 *6*		A
2985.86 *23*		A
2990.84 *20*		A
2995.9 *5*		A
3003.6 *8*		B
3007.09 *23*		AB
3019.65 *20*		A
3031.31 *20*		A
3036.8 *3*		AB
3042.1 *3*		A
3047.09 *21*		A
3055.44 *22*		A
3059.4 *11*		B D
3071.48 *22*		A
3074.18 *22*		A
3084.48 *22*		A
3088.48 *22*		A
3097.68 *22*		A
3106.68 *22*		A D
3112.68 *22*		A
3118.88 *22*		A
3126.78 *22*		A
3137.6 *3*		AB
3142.3 *5*		A
3148.7 *3*		A
3153.4 *4*		A
3169.8 *4*		A
3172.3 *5*		A
3177.6 *6*		B
3183.48 *20*		A
3195.2 *4*		AB
3199.4 *3*		A D
3204.49 *22*		A
3212.09 *22*		A
3217.29 *22*		A
3222.4 *13*		AB
3227.79 *22*		A
3245.39 *22*		A
3249.3 *4*		AB
3255.99 *22*		A
3267.0 *14*		AB D
3272.29 *22*		A
3281.79 *22*		A
3291.29 *22*		A
3296.29 *22*		A
3300.19 *22*		A
3304.49 *22*		A
3307.3?‡ *15*	(12)	I
3308.39 *22*		A
3315.29 *22*		A
3320.99 *22*		A
3325.8 *3*		A
3335.19 *22*		A D
3339.29 *22*		A
3342.09 *22*		A
3348.89 *22*		A
3356.6 *4*		A
3360.49 *22*		A
3369.1 *3*		A
3371.69 *22*		A
3376.6 *4*		A
3390.89 *22*		A
3393.8 *3*		A
3399.2 *3*		A
3406.6 *3*		A
3411.1 *3*		A
3417.30 *22*		A
3421.3 *7*		A
3424.5 *3*		A
3431.2 *3*		A
3434.1 *3*		A
3438.50 *20*		A
3442.3 *8*		A
3454.10 *20*		A
3462.8 *3*		A
3467.10 *22*		A
3473.30 *22*		A
3475.0‡ *15*	(13)	I
3482.50 *22*		A
3487.10 *22*		A
3492.6 *3*		A
3498.30 *22*		A
3507.40 *2*		A
3520.3 *3*		A
3524.3 *4*		A
3533.20 *20*		A
3536.2 *4*		A
3544.50 *20*		A
3547.50 *20*		A
3551.40 *20*		A
3569.50 *20*		A
3576.80 *20*		A
3582.00 *20*		A
3590.2 *4*		A
3594.00 *20*		A
3600.2 *4*		A
3622.4 *5*		A
3633.9 *3*		A
3638.5 *3*		A
3647.9 *3*		A
3656.9 *8*		A
3666.51 *20*		A
3671.0 *3*		A
3674.71 *20*		A
3684.61 *20*		A
3689.11 *20*		A
3695.2 *3*		A
3703.4 *3*		A
3706.4 *3*		A
3713.81 *22*		A
3720.01 *22*		A
3725.41 *22*		A
3732.7 *3*		A
3738.1 *3*		A
3744.6 *3*		A
3747.21 *2*		A
3750.6 *4*		A
3762.51 *22*		A
3769.71 *22*		A
3774.6 *5*		A
3778.8 *4*		A
3785.0 *4*		A
3787.8 *4*		A
3796.31 *22*		A
3799.71 *22*		A
3807.2 *3*		A
3811.7 *3*		A
3819.5 *3*		A

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Adopted Levels, Gammas (continued)

^{94}Nb Levels (continued)

E(level)†	XREF	E(level)†	XREF	E(level)†	J^π	XREF
3831.0 *3*	A	3908.12 *22*	A	3972.1 *3*		A
3835.4 *3*	A	3912.3 *3*	A	3975.7 *3*		A
3839.51 *22*	A	3915.8 *5*	A	3983.2 *3*		A
3844.51 *22*	A	3920.1 *6*	A	3987.02 *22*		A
3853.7 *6*	A	3923.3 *4*	A	3992.1 *3*		A
3861.01 *22*	A	3926.6 *6*	A	4001.0 *3*		A
3866.41 *2*	A	3933.0 *6*	A	4290.3# *17*		I
3874.41 *22*	A	3936.62 *22*	A	4549.9‡ *18*	(15)	I
3877.2 *3*	A	3942.2 *3*	A	5331.4‡ *21*	(17)	I
3884.11 *22*	A	3947.7 *4*	A	5814.2‡ *23*	(18)	I
3888.1 *3*	A	3953.1 *4*	A	6496‡ *3*		I
3897.31 *22*	A	3961.62 *22*	A			
3902.81 *22*	A	3967.72 *22*	A			

† From least-squares fit to Eγ in (n,γ) E=thermal. Data from (α,d) reaction are not shown as no realistic association of their energies with those from other studies can be made because of their large uncertainties of 30 to 100 keV.

‡ Band(A): Cascade based on g.s..

Band(B): Cascade based on J^π=(11), E=1609.6.

@ Possible candidate for a multiplet with configuration=$((\pi\ 1g_{9/2})^{+1}(\nu\ 1d_{5/2})^{-1})$ (1985Bo48). The authors suggest 334 level has $J^\pi=2^+$ and is a member of this multiplet.

Adopted Levels, Gammas (continued)

γ(^{94}Nb)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	α[a]	Comments
40.892	3^+	40.90 *5*	100	0.0	6^+	M3		1366	α(K)=784; α(L)=462; α(M)=90.0
58.708	$(4)^+$	17.98 *7*	100	40.892	3^+	(M1)		4.31	α(L)=3.49; α(M)=0.617
78.6683	$(7)^+$	78.6683 *8*	100	0.0	6^+	M1		0.445	α(K)=0.390; α(L)=0.0459; α(M)=0.00814; α(N+..)=0.00146
113.4009	$(5)^+$	54.706 *13*	5.69 *4*	58.708	$(4)^+$	M1+E2	0.31	2.048	α(K)=1.651; α(L)=0.329; α(M)=0.0587; α(N+..)=0.00954
		113.4007 *8*	100.0 *23*	0.0	6^+	M1		0.1602	α(K)=0.1404; α(L)=0.01636; α(M)=0.00290; α(N+..)=0.00052
140.298	$(2)^-$	99.4074 *9*	100	40.892	3^+	E1		0.1222	α(K)=0.1074; α(L)=0.01224; α(M)=0.00214; α(N+..)=0.00037
301.558	$(2)^-$	161.261 *2*	100	140.298	$(2)^-$	M1+E2[@]	0.31 *10*	0.075 *9*	α(K)=0.064 *7*; α(L)=0.0079 *11*; α(N+..)=0.00025 *4*
311.821	$(4,5)^+$	253.113 *5*	100	58.708	$(4)^+$	M1,E2		0.030 *12*	α(K)=0.026 *10*; α(L)=0.0033 *14*
334.102	$(3)^+$	193.96[&] *13*	3.4[&] *6*	140.298	$(2)^-$				
		293.205 *4*	100.0 *10*	40.892	3^+	M1		0.0132	α(K)=0.01142; α(L)=0.00130 I_γ: from (p,nγ).
396.227	$(3)^-$	255.929 *2*	100 *4*	140.298	$(2)^-$	M1+E2	0.40	0.022	α(K)=0.01864; α(L)=0.00220
		337.529 *8*	33.0 *12*	58.708	$(4)^+$	E1[@]			
		355.36 *5*	3.81 *21*	40.892	3^+	[E1]			
450.204	$(3)^-$	148.69 *11*	0.17 *7*	301.558	$(2)^-$				
		309.914 *8*	100.0 *7*	140.298	$(2)^-$	M1[@]		0.0114	α(K)=0.00994; α(L)=0.00113
		409.26 *15*	2.0 *3*	40.892	3^+				
631.533	$(4)^+$	319.62 *13*	5.01 *20*	311.821	$(4,5)^+$				
		518.117 *14*	100 *4*	113.4009	$(5)^+$	M1[@]			
		552.76[bc] *16*	2.1[b] *4*	78.6683	$(7)^+$				
		572.8[bc] *5*	3.0[b] *3*	58.708	$(4)^+$				
		590.60 *5*	15.5 *10*	40.892	3^+				
640.988	$(5)^+$	329.174[b] *13*	41.5[b] *15*	311.821	$(4,5)^+$				
		527.574 *24*	42.5 *25*	113.4009	$(5)^+$				
		562.341 *14*	100.0 *10*	78.6683	$(7)^+$				
		641.05 *6*	17.3 *6*	0.0	6^+				
666.10	$(3)^+$	364.4[&] *4*	4.6[&] *18*	301.558	$(2)^-$				
		525.77 *5*	100 *9*	140.298	$(2)^-$	E1[@]			
		552.76[bc] *16*	15.0[b] *25*	113.4009	$(5)^+$				
785.657	$(3)^+$	484.36 *3*	100 *12*	301.558	$(2)^-$	E1[@]			
		645.19 *25*	35 *3*	140.298	$(2)^-$				
		672.5 *5*	39 *3*	113.4009	$(5)^+$				
792.595	$(3,4)^+$	396.4 *5*	3.2 *6*	396.227	$(3)^-$				
		458.464 *11*	100 *3*	334.102	$(3)^+$	M1[@]			
		734.2 *4*	5.7 *6*	58.708	$(4)^+$				

$^{94}_{41}Nb_{53}$-7

Adopted Levels, Gammas (continued)

γ(^{94}Nb) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[#]
792.595	$(3,4)^+$	751.78 *7*	56.8 *4*	40.892	3^+	
816.83	$(3)^-$	150.707 *24*	11.2 *6*	666.10	$(3)^+$	
		482.64 *7*	13.2 *10*	334.102	$(3)^+$	E1[@]
		775.99 *6*	100 *7*	40.892	3^+	
895.650	$(3^+,4^-)$	229.90 *15*	1.00 *18*	666.10	$(3)^+$	
		499.426 *8*	100.0 *16*	396.227	$(3)^-$	
		583.79 *12*	2.13 *23*	311.821	$(4,5)^+$	
		755.28 *7*	19.2 *14*	140.298	$(2)^-$	
		782.57[bc] *25*	9.7[b] *9*	113.4009	$(5)^+$	
924.252	(2^+)	138.614 *8*	69 *14*	785.657	$(3)^+$	
		612.3 *5*	5.4 *9*	311.821	$(4,5)^+$	
		622.3 *10*	4.6 *8*	301.558	$(2)^-$	
		883.8 *6*	100 *6*	40.892	3^+	
932.70		140.10 *3*	1.0×10^2 *7*	792.595	$(3,4)^+$	
		146.87 *15*	11 *3*	785.657	$(3)^+$	
		598.8[bc] *5*	48[b] *4*	334.102	$(3)^+$	
		854.4 *4*	52 *5*	78.6683	$(7)^+$	
		932.9 *5*	43 *7*	0.0	6^+	
936.036	$^+$	142.65 *12*	2.2 *3*	792.595	$(3,4)^+$	
		303.43 *11*	10.8 *8*	631.533	$(4)^+$	
		876.41 *11*	38 *3*	58.708	$(4)^+$	
		894.24 *5*	100 *6*	40.892	3^+	
948.0	(8)	869.3	100	78.6683	$(7)^+$	D
957.36	$(5)^+$	316.51 *3*	6 *5*	640.988	$(5)^+$	
		878.85 *10*	76 *5*	78.6683	$(7)^+$	
		897.0[&c] *1*	55[&] *3*	58.708	$(4)^+$	
		957.34 *5*	100 *6*	0.0	6^+	
970.161		45.89 *5*	1.22 *25*	924.252	(2^+)	
		329.174[bc] *13*	67.5[b] *25*	640.988	$(5)^+$	
		338.73 *7*	18.7 *10*	631.533	$(4)^+$	
		635.99[bc] *4*	36.18[b] *17*	334.102	$(3)^+$	
		658.2 *5*	7.8 *9*	311.821	$(4,5)^+$	
		911.56 *9*	100 *7*	58.708	$(4)^+$	
976.76		642.59 *5*	100 *6*	334.102	$(3)^+$	
		977.1 *5*	27 *9*	0.0	6^+	
979.29	(2)	313.54[&] *20*	41[&] *6*	666.10	$(3)^+$	
		644.2[&] *4*	<100[&]	334.102	$(3)^+$	
		837.3[&] *8*	20[&] *7*	140.298	$(2)^-$	
991.3	(9)	912.6	100	78.6683	$(7)^+$	Q

$^{94}_{41}Nb_{53}$-8

Adopted Levels, Gammas (continued)

γ(^{94}Nb) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π
1010.9		194.1 *3*	100	816.83	$(3)^-$
1023.35		46.55 *5*	6.5 *6*	976.76	
		127.67[b] *15*	4.2[b] *10*	895.650	$(3^+,4^-)$
		381.84 *25*	23.3 *18*	640.988	$(5)^+$
		572.8[bc] *5*	23.3[b] *23*	450.204	$(3)^-$
		711.56 *18*	28.3 *22*	311.821	$(4,5)^+$
		944.55 *15*	100 *10*	78.6683	$(7)^+$
		964.79 *15*	23 *4*	58.708	$(4)^+$
		982.39 *10*	19 *6*	40.892	3^+
		1023.48 *22*	17 *3*	0.0	6^+
1030.191		134.54 *1*	100 *5*	895.650	$(3^+,4^-)$
		399.1 *5*	28 *5*	631.533	$(4)^+$
		696.17 *25*	54 *6*	334.102	$(3)^+$
		718.4 *5*	30 *6*	311.821	$(4,5)^+$
1061.223	$4^+,5^+$	125.183 *16*	12.1 *15*	936.036	$^+$
		127.67[bc] *15*	7.9[b] *18*	932.70	
		137.48[c] *4*	100	924.252	(2^+)
		267.85 *7*	49 *9*	792.595	$(3,4)^+$
		748.40 *25*	77 *5*	311.821	$(4,5)^+$
		1001.75 *15*	89 *15*	58.708	$(4)^+$
		1019.6 *4*	67 *6*	40.892	3^+
1085.955	$(2^+,3,4)$	149.837[&c] *12*	11[&] *4*	936.036	$^+$
		153.64 *11*	1.6 *7*	932.70	
		190.42 *7*	5.2 *4*	895.650	$(3^+,4^-)$
		454.3[bc] *5*	15.0[b] *9*	631.533	$(4)^+$
		635.99[bc] *4*	36.18[b] *17*	450.204	$(3)^-$
		689.907 *24*	100 *5*	396.227	$(3)^-$
1158.71		135.34 *3*	36 *11*	1023.35	
		263.21 *7*	7.6 *9*	895.650	$(3^+,4^-)$
		366.10 *25*	3.5 *10*	792.595	$(3,4)^+$
		1100.11 *15*	70 *8*	58.708	$(4)^+$
		1118.00 *25*	100 *9*	40.892	3^+
1163.2	$(3^+,4,5^+)$	1050.1[&] *15*	24[&] *8*	113.4009	$(5)^+$
		1106.1[&] *15*	100[&] *16*	58.708	$(4)^+$
		1120.5[&] *15*	66[&] *16*	40.892	3^+
1169.88	$4^+,5^+$	377.32[bc] *8*	9.1[b] *9*	792.595	$(3,4)^+$
		538.34[bc] *25*	4.3[b] *9*	631.533	$(4)^+$
		1056.39 *15*	10 *4*	113.4009	$(5)^+$
		1111.13 *17*	7.5 *13*	58.708	$(4)^+$

$^{94}_{41}Nb_{53}$-9

Adopted Levels, Gammas (continued)

$\gamma(^{94}Nb)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f
1169.88	4$^+$,5$^+$	1129.02 25	100 8	40.892	3$^+$
1179.61		118.72 8	9.4 8	1061.223	4$^+$,5$^+$
		538.34[bc] 25	7.5[b] 16	640.988	(5)$^+$
		547.76 10	46.7 25	631.533	(4)$^+$
		782.57[bc] 25	67[b] 7	396.227	(3)$^-$
		1120.4 5	100 10	58.708	(4)$^+$
1182.4		880.8[&] 10	52[&] 6	301.558	(2)$^-$
		1042.1[&] 14	100[&] 16	140.298	(2)$^-$
1230.10	(4$^+$,5$^-$)	71.42 10	13.3 18	1158.71	
		413.02 18	23.0 23	816.83	(3)$^-$
		437.73 25	16.8 20	792.595	(3,4)$^+$
		598.8[bc] 5	36[b] 3	631.533	(4)$^+$
		1151.5 5	100 18	78.6683	(7)$^+$
		1230.08 15	82 10	0.0	6$^+$
1231.92	(2,3,4)$^+$	145.90 4	5.54 24	1085.955	(2$^+$,3,4)
		600.5 5	8.4 5	631.533	(4)$^+$
		835.72 3	100 5	396.227	(3)$^-$
		1119.1 4	89 24	113.4009	(5)$^+$
		1192.2[&c] 5	34[&] 3	40.892	3$^+$
1247.26		270.46 7	32.4 12	976.76	
		454.3[bc] 5	12.0[b] 7	792.595	(3,4)$^+$
		851.3 4	9.3 8	396.227	(3)$^-$
		1107.42 25	38 4	140.298	(2)$^-$
		1188.3 4	26.8 20	58.708	(4)$^+$
		1206.52 24	100 7	40.892	3$^+$
1256.85	$^+$	332.33 15	16.6 16	924.252	(2$^+$)
		1216.5 5	58 11	40.892	3$^+$
		1257.03 14	100 14	0.0	6$^+$
1262.82	(3,4$^-$)	104.20 10	10.7 12	1158.71	
		367.11 25	7.1 14	895.650	(3$^+$,4$^-$)
		812.46 13	100 9	450.204	(3)$^-$
		950.9 4	29 3	311.821	(4,5)$^+$
		1122.65 25	76 7	140.298	(2)$^-$
1272.83		377.32[bc] 8	16.7[b] 15	895.650	(3$^+$,4$^-$)
		455.96 4	100.0 15	816.83	(3)$^-$
		822.5 5	21.2 17	450.204	(3)$^-$
		1160.0 5	78 9	113.4009	(5)$^+$
		1214.6 5	53 9	58.708	(4)$^+$
1281.44	4$^+$,5$^+$	1222.98 12	100 10	58.708	(4)$^+$

$^{94}_{41}Nb_{53}$-10

Adopted Levels, Gammas (continued)

γ(^{94}Nb) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]
1281.44	4$^+$,5$^+$	1239.38[&c] *25*	84[&] *10*	40.892	3$^+$	
		1281.7 *5*	16 *9*	0.0	6$^+$	
1323.41	4$^+$,5$^+$	1264.69[c] *15*	100	58.708	(4)$^+$	
1332.6	(3$^+$,4,5$^+$)	1220.1[&c] *5*	48[&] *7*	113.4009	(5)$^+$	
		1273.4[&c] *5*	53[&] *7*	58.708	(4)$^+$	
		1291.3[&c] *5*	100[&] *7*	40.892	3$^+$	
1346.69		451.04[c] *15*	100	895.650	(3$^+$,4$^-$)	
1484.9		1484.9[bc] *15*	100[b]	0.0	6$^+$	
1519.0	$^-$	1441.2[bc] *15*	70[b]	78.6683	(7)$^+$	
		1459.6[bc] *14*	100[b]	58.708	(4)$^+$	
1609.6	(11)	618.2	100	991.3	(9)	(Q)
1655.09		1258.85[c] *17*	100	396.227	(3)$^-$	
1731.4		1419.6 *13*	100	311.821	(4,5)$^+$	
1779.72	$^+$	693.76[c] *5*	100	1085.955	(2$^+$,3,4)	
1859.75		1228.21[c] *11*	100	631.533	(4)$^+$	
1930.9?	(9)	983.0	100	948.0	(8)	(D)
2033.6		801.7[c] *3*	100	1231.92	(2,3,4)$^+$	
2250.5	(10)	319.6	16.7	1930.9?	(9)	D
		1259.3	100	991.3	(9)	D
2284.9		1308.1[c] *4*	100	976.76		
2355.3		1459.6[bc] *14*	100[b]	895.650	(3$^+$,4$^-$)	
2398.6		1392.4[c] *14*	86	1006.2	4$^+$,5$^+$	
		1441.2[bc] *15*	100[b]	957.36	(5)$^+$	
2442.3		1484.9[bc] *15*	100[b]	957.36	(5)$^+$	
2449.2	(11)	198.8	100	2250.5	(10)	D
2817.9	(12)	368.8	8.0 *10*	2449.2	(11)	D
		1208.2	24 *3*	1609.6	(11)	D
3307.3?	(12)	858.0	100	2449.2	(11)	
3475.0	(13)	167.6 *3*	15 *3*	3307.3?	(12)	D
		1026.0 *15*	100 *9*	2449.2	(11)	Q
4290.3		1472.4	100	2817.9	(12)	
4549.9	(15)	1074.9	100	3475.0	(13)	Q
5331.4	(17)	781.5	100	4549.9	(15)	Q
5814.2	(18)	482.8	100	5331.4	(17)	D
6496		682.0	100	5814.2	(18)	

[†] From Eγ in (n,γ) E=thermal up to 2442.3, higher energies from ^{82}Se(^{19}F,α3nγ).

$^{94}_{41}Nb_{53}$-11

$\gamma(^{94}Nb)$ (continued)

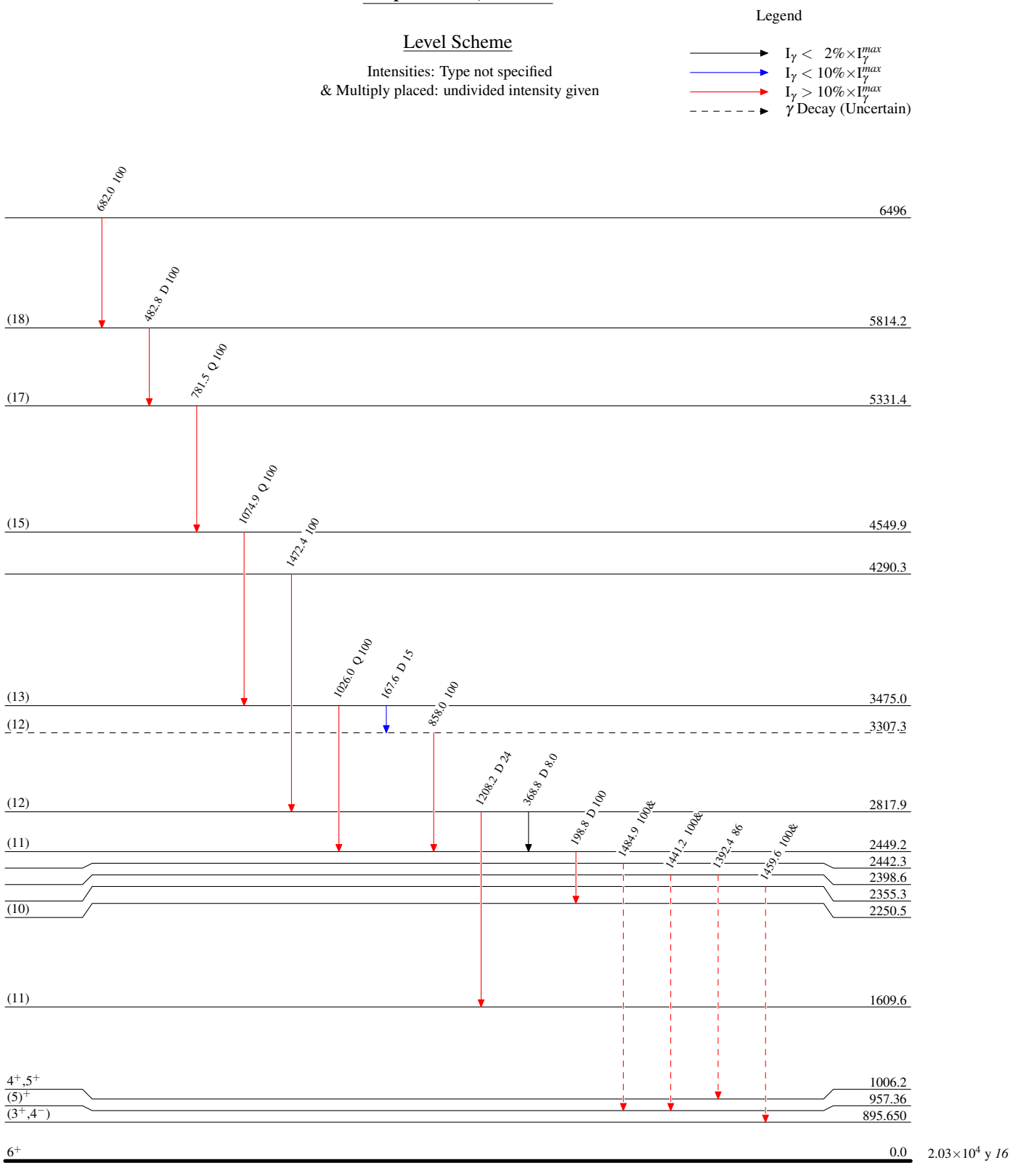
[‡] Relative branching from each level. Mostly from (n,γ) E=thermal.
[#] From α(K)exp, α(L+...)exp in (n,γ). Mult.(40.94) is from α(K)exp in IT decay.
[@] From (p,nγ). δ(where given) is also from (p,nγ).
[&] From (p,nγ).
[a] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
[b] Multiply placed with undivided intensity.
[c] Placement of transition in the level scheme is uncertain.

$^{94}_{41}Nb_{53}$-12

Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified
& Multiply placed: undivided intensity given

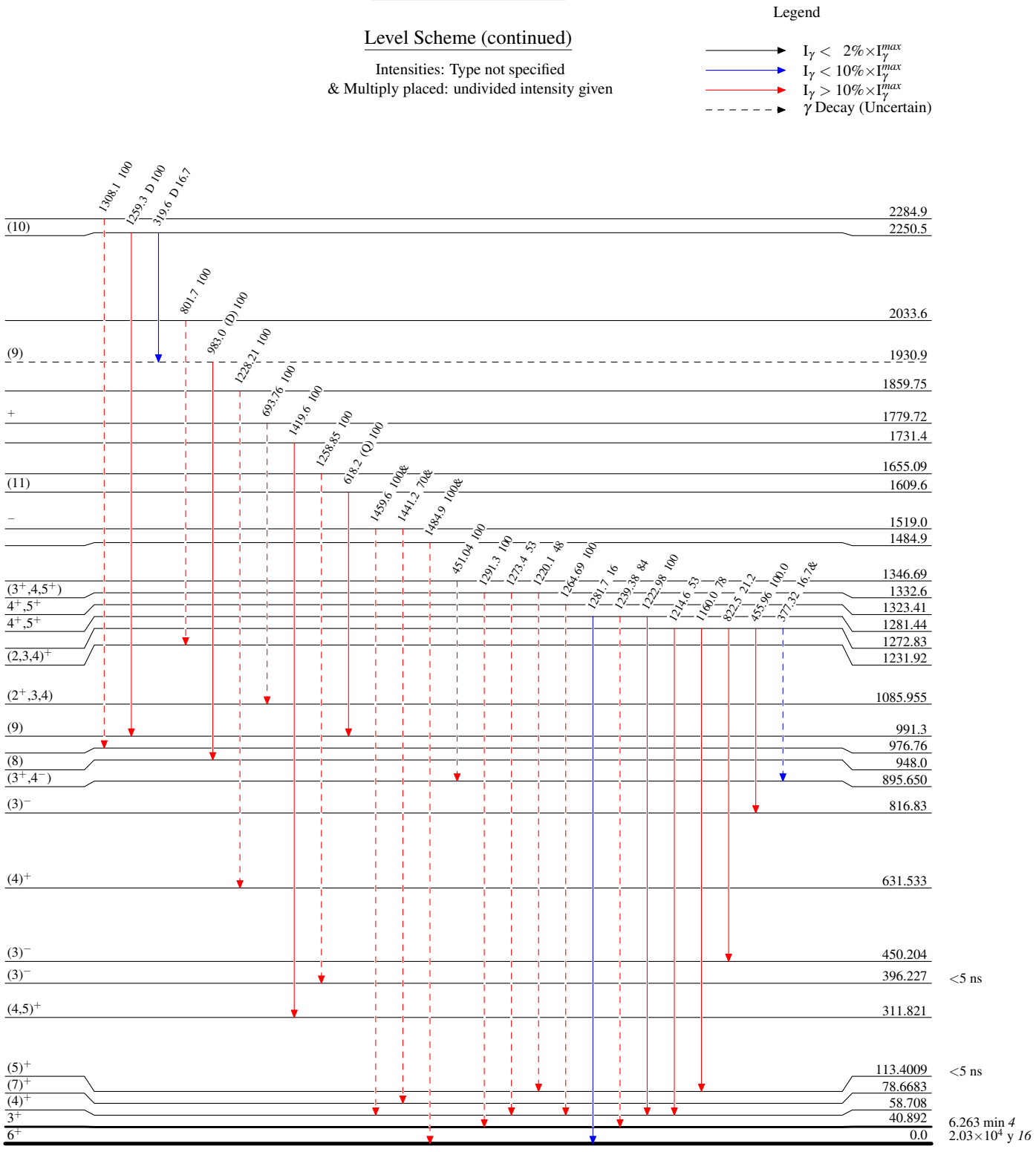


$^{94}_{41}Nb_{53}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified
& Multiply placed: undivided intensity given



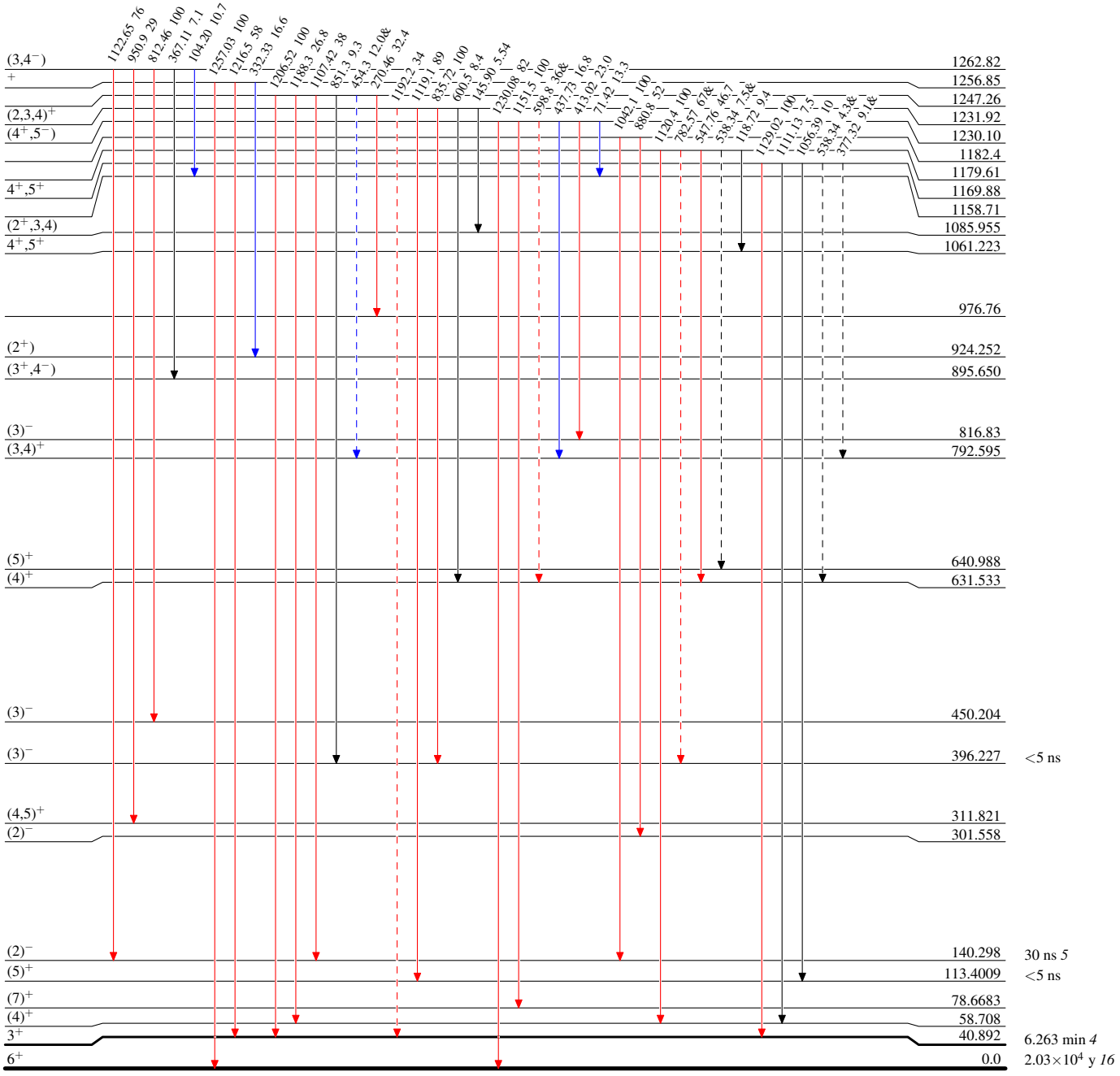
$^{94}_{41}Nb_{53}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified
& Multiply placed: undivided intensity given

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)

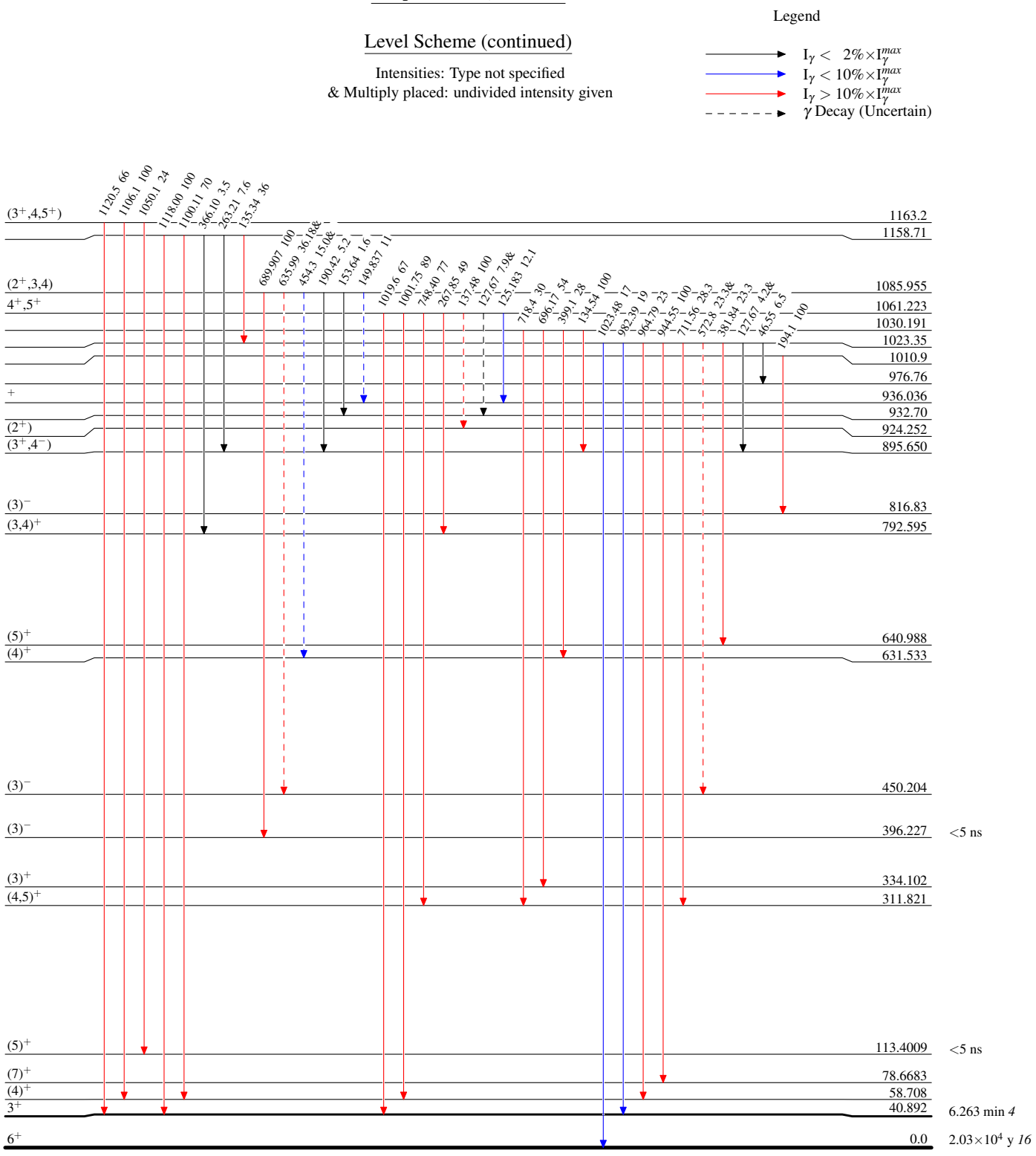


$^{94}_{41}Nb_{53}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified
& Multiply placed: undivided intensity given

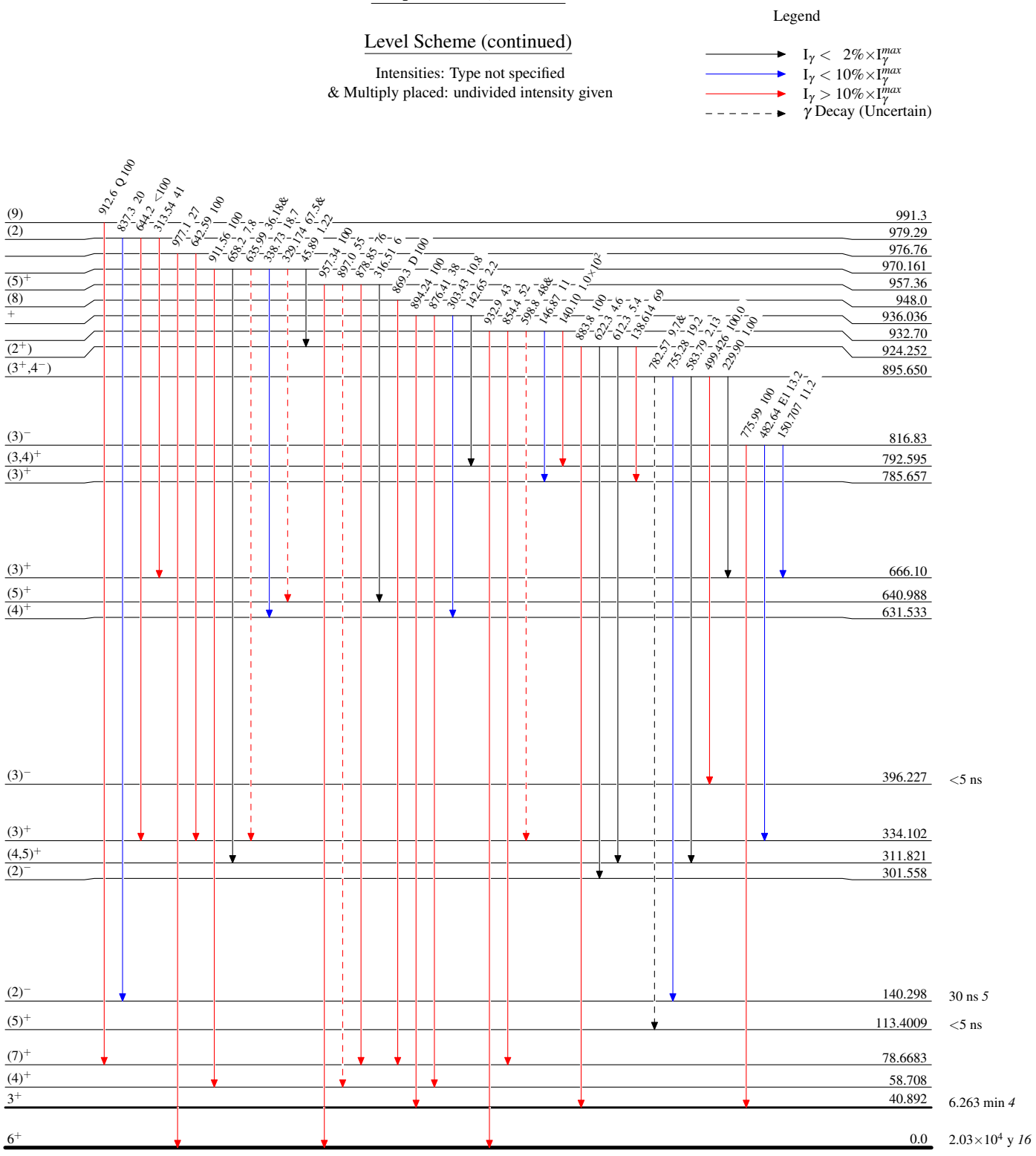


$^{94}_{41}Nb_{53}$

Adopted Levels, Gammas

Level Scheme (continued)

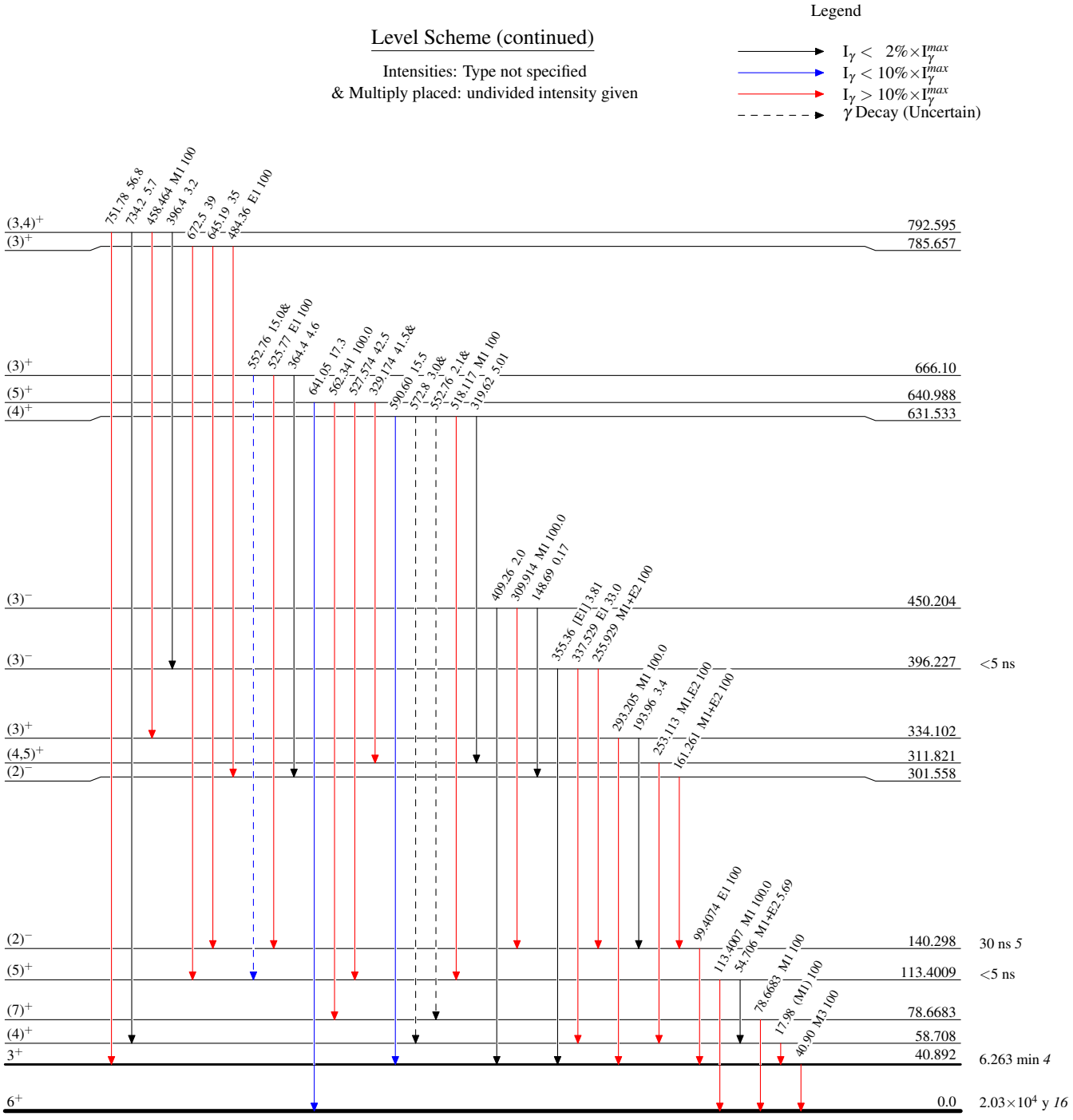
Intensities: Type not specified
& Multiply placed: undivided intensity given



Adopted Levels, Gammas

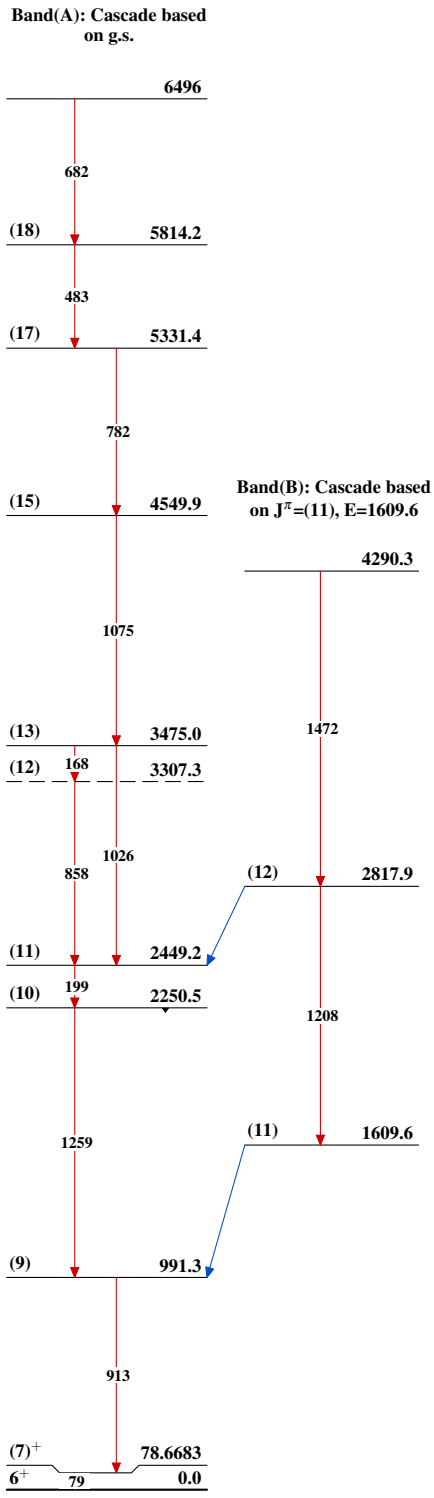
Level Scheme (continued)

Intensities: Type not specified
& Multiply placed: undivided intensity given



$^{94}_{41}Nb_{53}$

Adopted Levels, Gammas



$^{94}_{41}Nb_{53}$