Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. Lalkovski, F. G. Kondev	NDS 124, 157 (2015)	1-Aug-2014

Q(β^-)=4.10×10^3 *5*; S(n)=6917 *13*; S(p)=13895 *14*; Q(α)=−7291 *14* 2012Wa38

^{112}Ru Levels

Cross Reference (XREF) Flags

A ^{112}Tc β^- decay
B ^{197}Au(^{19}F,Fγ), ^{232}Th(^{18}O,Fγ),
C ^{252}Cf SF decay
D ^{238}U(α,Fγ)
E ^{248}Cm SF decay

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	XREF	Comments
0.0[@]	0$^+$	1.75 s *7*	ABCDE	%β^-=100 T$_{1/2}$: from 327.0γ(t), following ^{112}Ru β^--decay using a mass separated source (1991Jo11,1988Pe13,1988AyZZ). Others: 2.6 s *1*, deduced from the growth and decay of 348γ in ^{112}Pd (1987GiZW), 4.65 s *14* (1970WiZN), 4.1 s *3* (1976MaYL), and 3.6 s *5* (1978Fr16), but some of these activities probably belong to ^{112}Rh.
236.69[@] *16*	2$^+$	0.32 ns *3*	ABCDE	J$^\pi$: 236.8γ E2 to the g.s. T$_{1/2}$: from recoil-distance Doppler-shift method (1974JaZN,1974JaYY). Other: 0.16 ns *4* (1970Ch11). μ: +0.88 *18*, deduced from g=+0.44 *9* (2004Sm04, 2005Sm08) using the time-integral correlation technique.
523.51[&] *16*	2$^+$		A CDE	J$^\pi$: 523.4γ to 0$^+$; 287γ M1+E2 to 2$^+$; band member.
644.97[@] *20*	4$^+$		ABCDE	J$^\pi$: 408.2γ E2 to 2$^+$; band assignment.
747.48[&] *18*	3$^+$		A CDE	J$^\pi$: 224.0γ to 2$^+$; 510.8γ to 2$^+$; absence of 747γ to 0$^+$; band assignment.
980.68[&] *18*	4$^+$		CDE	J$^\pi$: 233.2γ to 3$^+$; 457.2γ to 2$^+$; band assignment.
1026.7 *5*			A	
1179.4 *5*			A	
1189.79[@] *24*	6$^+$		BCDE	J$^\pi$: 544.7γ (E2) to 4$^+$; band assignment.
1235.34[&] *21*	5$^+$		CDE	J$^\pi$: 487.9γ to 3$^+$; 590.5γ to 4$^+$; band assignment.
1413.6[a] *3*	(4$^+$)		C	J$^\pi$: 666.3γ to 4$^+$; 890.0γ to 2$^+$; band assignment.
1570.2[&] *3*	6$^+$		CDE	J$^\pi$: 334.8γ to 5$^+$; 589.3γ to 3$^+$; band assignment.
1649.5[a] *4*	(5$^+$)		C	J$^\pi$: 235.9γ to (4$^+$), 902.1γ to 3$^+$; band assignment.
1839.7[@] *3*	8$^+$	1.84 ps *28*	BCDE	J$^\pi$: 650.0γ (E2) to 6$^+$; band assignment. T$_{1/2}$: Other: 1.7 ps *+13−5* in ^{252}Cf SF decay (2013Sn01) using DSAM.
1841.1[&] *3*	7$^+$	2.50 ps *35*	CDE	J$^\pi$: 270.8γ to 6$^+$; 605.7γ (E2) to 5$^+$; band assignment. T$_{1/2}$: Other: 2.2 ps *+7−14* in ^{252}Cf SF decay (2013Sn01) using DSAM.
1955.7[a] *4*	(6$^+$)		C	J$^\pi$: 542.0γ to (4$^+$), 720.5γ to (5$^+$); band assignment.
1995.1 *3*	(4$^-$)		C	J$^\pi$: 1014.4γ to 4$^+$, 1247.5γ to 3$^+$.
2003.3[b] *3*	(5$^-$)	<1 ns	C	J$^\pi$: 1022.5γ to 4$^+$; 768.0γ to 5$^+$; band assignment. T$_{1/2}$: From ^{252}Cf SF decay (2009Lu01).
2147.9 *4*	(5$^-$)		C	J$^\pi$: 1502.9γ to 4$^+$.
2230.3[b] *3*	(6$^-$)		C	J$^\pi$: 235.1γ to (4$^-$), 1040.6γ to 6$^+$; band assignment.
2231.3[a] *5*	(7$^+$)		C	J$^\pi$: 581.9γ to (5$^+$); band assignment.
2263.5[&] *5*	8$^+$		CDE	J$^\pi$: 693.3γ to 6$^+$; band assignment.
2334.3[c] *4*	(6$^-$)	<1 ns	C	J$^\pi$: 1098.8γ to 5$^+$, 331.0γ to (5$^-$); band assignment. T$_{1/2}$: From ^{252}Cf SF decay (2009Lu01).
2392.0 *5*			C	

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Adopted Levels, Gammas (continued)

^{112}Ru Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$[#]	XREF	Comments
2489.3[b] *3*	(7$^-$)		C	J$^{\pi}$: 259.0γ to (6$^-$), 341.4γ to (5$^-$),1299.6γ D to 6$^+$; band assignment.
2534.2[&] *4*	9$^+$	1.23 ps *18*	CDE	J$^{\pi}$: 694.4γ (E2) to 7$^+$; band assignment. T$_{1/2}$: Other: 1.3 ps *+7−6* in ^{252}Cf SF decay (2013Sn01) using DSAM.
2563.0[@] *4*	10$^+$	1.05 ps *16*	BCDE	J$^{\pi}$: 723.3γ (E2) to 8$^+$; band assignment. T$_{1/2}$: Other: 1.4 ps *3* in ^{252}Cf SF decay (2013Sn01) using DSAM.
2574.3[c] *4*	(7$^-$)		C	J$^{\pi}$: 426.3γ to (5$^-$), 733.1γ to 7$^+$,1384.6γ D to 6$^+$; band assignment.
2574.6[a] *6*	(8$^+$)		C	J$^{\pi}$: 618.9γ to (6$^+$); band assignment.
2771.8[b] *4*	(8$^-$)		C	J$^{\pi}$: 282.5γ to (7$^-$), 541.5γ to (6$^-$); band assignment.
2829.4[c] *5*	(8$^-$)		C	J$^{\pi}$: 255.1γ to (7$^-$), 495.1γ to (6$^-$); band assignment.
2899.9 *5*			C	
2909.2[a] *7*	(9$^+$)		C	J$^{\pi}$: 677.9γ to (7$^+$); band assignment.
3033.6[&] *7*	10$^+$		CD	J$^{\pi}$: 770.1γ to 8$^+$; band assignment.
3076.6[b] *4*	(9$^-$)		C	J$^{\pi}$: 304.8γ to (8$^-$), 587.3γ to (7$^-$); band assignment.
3094.2[c] *4*	(9$^-$)		C	J$^{\pi}$: 264.8γ to (8$^-$), 519.8γ to (7$^-$); band assignment.
3290.5[&] *7*	11$^+$	0.78 ps *11*	CDE	J$^{\pi}$: 756.3γ (E2) to 9$^+$; band assignment. T$_{1/2}$: Other: 0.9 ps *5* in ^{252}Cf SF decay (2013Sn01) using DSAM.
3326.2[@] *6*	12$^+$	0.93 ps *9*	CDE	J$^{\pi}$: 763.2γ (E2) to 10$^+$; band assignment. T$_{1/2}$: weighted average of 0.80 ps *12* in ^{248}Cm SF decay (2012Sm02) (Doppler-broadened lineshape technique) and 1.12 ps *+15−14* in ^{252}Cf SF decay (2013Sn01) (DSAM).
3379.9[c] *5*	(10$^-$)		C	J$^{\pi}$: 285.6γ to (9$^-$), 550.6γ to (8$^-$); band assignment.
3420.9[b] *5*	(10$^-$)		C	J$^{\pi}$: 344.3γ to (9$^-$), 649.0γ to (8$^-$); band assignment.
3519.8 *7*			C	
3711.7[c] *5*	(11$^-$)		C	J$^{\pi}$: 331.7γ to (10$^-$), 617.4γ to (9$^-$); band assignment.
3768.7[b] *5*	(11$^-$)		C	J$^{\pi}$: 347.8γ to (10$^-$), 692.0γ to (9$^-$); band assignment.
3870.9[&] *9*	12$^+$		CD	J$^{\pi}$: 837.3γ to (10$^+$); band assignment.
4032.6[c] *7*	(12$^-$)		C	J$^{\pi}$: 321.0γ to (11$^-$), 652.7γ to (10$^-$); band assignment.
4095.4[&] *8*	13$^+$		CD	J$^{\pi}$: 804.9γ to 11$^+$; band assignment.
4118.4[@] *8*	14$^+$	1.6 ps *3*	CD	J$^{\pi}$: 792.2γ to 12$^+$; band assignment. T$_{1/2}$: from ^{252}Cf SF decay (2013Sn01) using DSAM.
4198.8[b] *6*	(12$^-$)		C	J$^{\pi}$: 430.1γ to (11$^-$), 778.0γ to (10$^-$); band assignment.
4213.4 *9*			C	
4428.5[c] *7*	(13$^-$)		C	J$^{\pi}$: 716.8γ to (11$^-$); band assignment.
4561.8[b] *7*	(13$^-$)		C	J$^{\pi}$: 793.1γ to (11$^-$); band assignment.
4764.2[&] *10*	14$^+$		C	J$^{\pi}$: 893.3γ to 12$^+$; band assignment.
4769.7?[c] *6*	(14$^-$)			
4788.9 *13*	(14$^+$)		D	J$^{\pi}$: 918γ to (12$^+$); band assignment.
4950.7[&] *10*	15$^+$		CD	J$^{\pi}$: 855.3γ to 13$^+$; band assignment.
4954.6[@] *10*	16$^+$		CD	J$^{\pi}$: 836.2γ to 14$^+$; band assignment.
5072.9[b] *8*	(14$^-$)		C	J$^{\pi}$: 874.1γ to (12$^-$); band assignment.
5228.0[c] *9*	(15$^-$)		C	J$^{\pi}$: 799.5γ to (13$^-$); band assignment.
5700.8?[&] *7*	(16$^+$)			
5830.0[@] *11*	18$^+$		CD	J$^{\pi}$: 875.4γ to 16$^+$; band assignment.
5857.4[&] *11*	17$^+$		CD	J$^{\pi}$: 902.8γ to 15$^+$; band assignment.
6725.4[@] *12*	(20$^+$)		CD	J$^{\pi}$: 895.4γ to 18$^+$; band assignment.
6800.4[&] *15*	(19$^+$)		D	J$^{\pi}$: 943γ to 17$^+$; band assignment.
7749.3[@] *13*	(22$^+$)		D	J$^{\pi}$: 1023.8γ to (20$^+$); band assignment.

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Adopted Levels, Gammas (continued)

^{112}Ru Levels (continued)

† From a least-squares fit to Eγ.
‡ From the deduced γ-ray transition multipolarities and the apparent band structures.
# From ^{248}Cm SF decay (2012Sm02) using Doppler-broadened lineshape technique, unless otherwise stated.
@ Band(A): Kπ=0$^+$, g.s. band.
& Band(B): Kπ=2$^+$,γ−vibrational band.
a Band(C): Rotational band built on the 1413.6 keV level.
b Band(D): Kπ=4$^-$,ν1/2[411]⊗ν7/2[523] band. The experimental ABS(g_K-g_R) = 0.185 17 deduced from the cascade-to-crossover branching ratios agrees well with theoretical value of 0.186 for this configuration, using Q_0=3.4 *3 eb*.
c Band(E): Likely Kπ=6$^-$ band. The assignment is tentative.

γ(^{112}Ru)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.@	α#a	Comments
236.69	2$^+$	236.8§ *2*	100§	0.0	0$^+$	E2	0.0602	B(E2)(W.u.)=70 *7* α(K)=0.0513 *8*; α(L)=0.00728 *11*; α(M)=0.001346 *20* α(N)=0.000211 *3*; α(O)=8.41×10^{-6} *12* Mult.: From the ce measurement in ^{112}Tc β$^-$ decay (1990Ay02) and γ(ω) in ^{248}Cm SF decay (1994Sh26).
523.51	2$^+$	287.0§ *2*	100§ *12*	236.69	2$^+$	M1+E2	0.0183	α(K)=0.01604 *23*; α(L)=0.00188 *3*; α(M)=0.000346 *5* α(N)=5.59×10^{-5} *8*; α(O)=2.95×10^{-6} *5* Mult.: From ce measurements in ^{112}Tc β$^-$ decay.
		523.4§ *2*	73§ *15*	0.0	0$^+$	[E2]	0.00467	α(K)=0.00407 *6*; α(L)=0.000499 *7*; α(M)=9.16×10^{-5} *13* α(N)=1.465×10^{-5} *21*; α(O)=7.10×10^{-7} *10* I_γ: Other: 91.8 *14* in ^{252}Cf SF decay and 82 *16* in ^{248}Cm SF decay.
644.97	4$^+$	408.2§ *2*	100§	236.69	2$^+$	E2	0.00988	α(K)=0.00856 *12*; α(L)=0.001086 *16*; α(M)=0.000200 *3* α(N)=3.18×10^{-5} *5*; α(O)=1.472×10^{-6} *21* Mult.: From γ(ω) in ^{248}Cm SF decay (1994Sh26).
747.48	3$^+$	224.0 *2*	38 *8*	523.51	2$^+$			I_γ: Other: 35.1 *6* in ^{252}Cf SF decay and≈100 in 1990Ay02 (^{112}Tc β$^-$ decay).
		510.8 *2*	100 *3*	236.69	2$^+$			I_γ: Other:≈87 in 1990Ay02 (^{112}Tc β$^-$ decay).
980.68	4$^+$	233.2 *2*	7.1 *14*	747.48	3$^+$			I_γ: Other: 5.6 *6* in ^{252}Cf SF decay.
		335.6 *2*	20 *4*	644.97	4$^+$			I_γ: Other: 22.0 *10* in ^{252}Cf SF decay.
		457.2 *2*	100 *20*	523.51	2$^+$			
		744.0 *2*	7.1 *14*	236.69	2$^+$			I_γ: Other: 3.6 *3* in ^{252}Cf SF decay.
1026.7		381.7§ *5*	100§	644.97	4$^+$			
1179.4		152.7§ *2*	100§	1026.7				
		432.0 *10*		747.48	3$^+$			E_γ: From ^{112}Tc β$^-$ decay.
1189.79	6$^+$	544.9 *2*	100	644.97	4$^+$	(E2)	0.00416	α(K)=0.00363 *5*; α(L)=0.000443 *7*; α(M)=8.13×10^{-5} *12* α(N)=1.301×10^{-5} *19*; α(O)=6.34×10^{-7} *9* Mult.: From γ(ω) in ^{248}Cm SF decay (1994Sh26).
1235.34	5$^+$	254.7‡ *5*	5.70‡ *20*	980.68	4$^+$			
		487.9 *2*	100 *3*	747.48	3$^+$			

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Adopted Levels, Gammas (continued)

γ(^{112}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[@]	α[#a]	Comments
1235.34	5^+	590.3 *2*	8.1 *14*	644.97	4^+			
1413.6	(4^+)	666.3[‡] *5*	15.4[‡] *7*	747.48	3^+			
		890.0[‡] *5*	100[‡]	523.51	2^+			
1570.2	6^+	334.8[‡] *5*	2.6[‡] *3*	1235.34	5^+			
		380.3[‡] *5*	1.20[‡] *20*	1189.79	6^+			
		589.3[‡] *5*	100[‡]	980.68	4^+			
1649.5	(5^+)	235.9[‡] *5*	100[‡]	1413.6	(4^+)			
		668.9[‡] *5*	5.6[‡] *4*	980.68	4^+			
		902.1[‡] *5*	22.2[‡] *11*	747.48	3^+			
1839.7	8^+	650.0 *2*	100	1189.79	6^+	(E2)	0.00256	α(K)=0.00223 *4*; α(L)=0.000267 *4*; α(M)=4.90×10^{-5} *7* α(N)=7.88×10^{-6} *11*; α(O)=3.93×10^{-7} *6* B(E2)(W.u.)=82 *13* Mult.: From γ(ω) in ^{248}Cm SF decay (1994Sh26).
1841.1	7^+	270.8[‡] *5*	4.1[‡] *5*	1570.2	6^+	[M1]	0.0213	B(M1)(W.u.)=0.017 *4* α(K)=0.0186 *3*; α(L)=0.00219 *4*; α(M)=0.000402 *6* α(N)=6.50×10^{-5} *10*; α(O)=3.42×10^{-6} *5*
		605.7[‡] *5*	100[‡]	1235.34	5^+	(E2)	0.00310	B(E2)(W.u.)=83 *12* α(K)=0.00270 *4*; α(L)=0.000326 *5*; α(M)=5.98×10^{-5} *9* α(N)=9.59×10^{-6} *14*; α(O)=4.74×10^{-7} *7* Mult.: From γ(ω) in ^{248}Cm SF decay (1994Sh26).
		651.2 *5*		1189.79	6^+	[M1]	0.00250	α(K)=0.00219 *3*; α(L)=0.000251 *4*; α(M)=4.61×10^{-5} *7* α(N)=7.47×10^{-6} *11*; α(O)=3.99×10^{-7} *6* E_γ: From ^{252}Cf SF decay.
1955.7	(6^+)	542.0[‡] *5*	100[‡]	1413.6	(4^+)			
		720.5[‡] *5*	12.5[‡] *7*	1235.34	5^+			
		975.0[‡] *5*	63[‡] *3*	980.68	4^+			
1995.1	(4^-)	1014.4[‡] *5*	33.3[‡] *24*	980.68	4^+			
		1247.5[‡] *5*	100[‡]	747.48	3^+			
		1350.2[‡] *5*	16.7[‡] *21*	644.97	4^+			
2003.3	(5^-)	589.7[‡] *5*	<38.7[‡]	1413.6	(4^+)	[E1]	1.14×10^{-3}	B(E1)(W.u.)>1.8×10^{-7} α(K)=0.001004 *15*; α(L)=0.0001139 *16*; α(M)=2.08×10^{-5} *3* α(N)=3.36×10^{-6} *5*; α(O)=1.762×10^{-7} *25*
		768.0 *5*		1235.34	5^+	[E1]	6.41×10^{-4}	α(K)=0.000564 *8*; α(L)=6.36×10^{-5} *9*; α(M)=1.162×10^{-5} *17* α(N)=1.88×10^{-6} *3*; α(O)=9.94×10^{-8} *14* E_γ: From ^{252}Cf SF decay.
		1022.5[‡] *5*	100[‡]	980.68	4^+	[E1]	3.63×10^{-4}	B(E1)(W.u.)>1.8×10^{-7} α(K)=0.000319 *5*; α(L)=3.58×10^{-5} *5*; α(M)=6.53×10^{-6} *10* α(N)=1.058×10^{-6} *15*; α(O)=5.64×10^{-8} *8*
		1358.3[‡] *5*	33[‡] *7*	644.97	4^+	[E1]	3.55×10^{-4}	B(E1)(W.u.)>2.5×10^{-8} α(K)=0.000191 *3*; α(L)=2.13×10^{-5} *3*;

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Adopted Levels, Gammas (continued)

$\gamma(^{112}Ru)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[@]	α[#a]	Comments
								α(M)=3.89×10^{-6} *6* α(N)=6.30×10^{-7} *9*; α(O)=3.38×10^{-8} *5*; α(IPF)=0.0001376 *20*
2147.9	(5$^-$)	1167.2[‡] *5*	20[‡] *5*	980.68	4$^+$			
		1502.9[‡] *5*	100[‡]	644.97	4$^+$			
2230.3	(6$^-$)	226.9[‡] *5*	6.7[‡] *17*	2003.3	(5$^-$)			
		235.1[‡] *5*	9.2[‡] *17*	1995.1	(4$^-$)			
		660.1[‡] *5*	13.5[‡] *23*	1570.2	6$^+$			
		994.9[‡] *5*	42[‡] *6*	1235.34	5$^+$			
		1040.6[‡] *5*	100[‡]	1189.79	6$^+$			
2231.3	(7$^+$)	581.9[‡] *5*	100[‡]	1649.5	(5$^+$)			
		995.8[‡] *5*	68[‡] *4*	1235.34	5$^+$			
2263.5	8$^+$	693.3[‡] *5*	100[‡]	1570.2	6$^+$			
2334.3	(6$^-$)	331.0[‡] *5*	12.1[‡]	2003.3	(5$^-$)	[M1]	0.01278	α(K)=0.01119 *17*; α(L)=0.001308 *19*; α(M)=0.000240 *4* α(N)=3.89×10^{-5} *6*; α(O)=2.05×10^{-6} *3* B(M1)(W.u.)>3.9×10^{-5}
		764.1[‡] *5*	34[‡] *5*	1570.2	6$^+$	[E1]	6.48×10^{-4}	B(E1)(W.u.)>1.2×10^{-7} α(K)=0.000570 *8*; α(L)=6.43×10^{-5} *9*; α(M)=1.174×10^{-5} *17* α(N)=1.90×10^{-6} *3*; α(O)=1.004×10^{-7} *15*
		1098.8[‡] *5*	100[‡]	1235.34	5$^+$	[E1]	3.17×10^{-4}	B(E1)(W.u.)>1.2×10^{-7} α(K)=0.000279 *4*; α(L)=3.12×10^{-5} *5*; α(M)=5.70×10^{-6} *8* α(N)=9.23×10^{-7} *13*; α(O)=4.93×10^{-8} *7*
		1144.6[‡] *5*	40[‡] *10*	1189.79	6$^+$	[E1]	3.09×10^{-4}	B(E1)(W.u.)>4.2×10^{-8} α(K)=0.000259 *4*; α(L)=2.89×10^{-5} *4*; α(M)=5.28×10^{-6} *8* α(N)=8.56×10^{-7} *12*; α(O)=4.57×10^{-8} *7*; α(IPF)=1.46×10^{-5} *3*
2392.0		1156.6[‡] *5*	100[‡]	1235.34	5$^+$			
2489.3	(7$^-$)	259.0[‡] *5*	12.3[‡] *12*	2230.3	(6$^-$)			
		341.4[‡] *5*	12.7[‡] *20*	2147.9	(5$^-$)			
		486.0[‡] *5*	4.8[‡] *12*	2003.3	(5$^-$)			
		919.1[‡] *5*	17[‡] *3*	1570.2	6$^+$			
		1299.6[‡] *5*	100[‡]	1189.79	6$^+$	D		Mult.: from (1299.6γ)(544.7γ)(θ): A_2=−0.090 *35*, A_4=−0.02 *6* in ^{252}Cf SF decay. The predicted values are A_2=−0.071, A_4=0 (for a dipole-quadrupole cascade and A_2=−0.102 and A_4=−0.051 for a quadrupole-quadrupole cascade.
2534.2	9$^+$	694.4 *2*	100	1839.7	8$^+$	(E2)	0.00215	B(E2)(W.u.)=89 *13* α(K)=0.00188 *3*; α(L)=0.000223 *4*; α(M)=4.10×10^{-5} *6* α(N)=6.58×10^{-6} *10*; α(O)=3.31×10^{-7} *5* Mult.: From $\gamma(\omega)$ in ^{248}Cm SF decay (1994Sh26).
2563.0	10$^+$	723.3 *2*	100	1839.7	8$^+$	(E2)	0.00193	B(E2)(W.u.)=85 *13*

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Adopted Levels, Gammas (continued)

$\gamma(^{112}Ru)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[@]	α[#a]	Comments
								α(K)=0.001690 *24*; α(L)=0.000200 *3*; α(M)=3.67×10^{-5} *6* α(N)=5.91×10^{-6} *9*; α(O)=2.99×10^{-7} *5* Mult.: From $\gamma(\omega)$ in ^{248}Cm SF decay (1994Sh26).
2574.3	(7$^-$)	240.0[b] *5*		2334.3	(6$^-$)			E_γ: From ^{252}Cf SF decay.
		426.3[‡] *5*	10[‡] *4*	2147.9	(5$^-$)			
		733.1[‡] *5*	4.2[‡] *2*	1841.1	7$^+$			
		1004.1[‡] *5*	11.8[‡] *15*	1570.2	6$^+$			
		1384.6[‡] *5*	100[‡]	1189.79	6$^+$	D		Mult.: from (1384.6γ)(544.7γ)(θ): A_2=−0.07 *6*, A_4=−0.05 *9* in 252CF SF DECAY. The predicted values are A_2=−0.071, A_4=0 for a for dipole-quadrupole cascade and A_2=−0.102 and A_4=−0.051 for a quadrupole-quadrupole cascade.
2574.6	(8$^+$)	618.9[‡] *5*	100[‡]	1955.7	(6$^+$)			
2771.8	(8$^-$)	282.5[‡] *5*	24[‡] *5*	2489.3	(7$^-$)			
		541.5[‡] *5*	100[‡]	2230.3	(6$^-$)			
		930.7[‡] *5*	7.0[‡] *18*	1841.1	7$^+$			
		932.0[‡] *5*	3.5[‡] *8*	1839.7	8$^+$			
2829.4	(8$^-$)	255.1[‡] *5*	100.0[‡] *24*	2574.3	(7$^-$)			I_γ: 100.22.4 in table 3 of 2009Lu18 seems a misprint.
		340.0[‡b] *5*	4.5[‡]	2489.3	(7$^-$)			
		495.1[b] *5*		2334.3	(6$^-$)			E_γ: From ^{252}Cf SF decay.
2899.9		507.9 *5*		2392.0				E_γ: From ^{252}Cf SF decay.
		1058.8[‡] *5*	100[‡]	1841.1	7$^+$			
2909.2	(9$^+$)	677.9[‡] *5*	100[‡]	2231.3	(7$^+$)			
3033.6	10$^+$	770.1[‡] *5*	100[‡]	2263.5	8$^+$			
3076.6	(9$^-$)	304.8[‡] *5*	11.0[‡] *23*	2771.8	(8$^-$)			
		587.3[‡] *5*	100[‡]	2489.3	(7$^-$)			
		1237.0[‡] *5*	40[‡] *4*	1839.7	8$^+$			
3094.2	(9$^-$)	264.8[‡] *5*	9.3[‡] *7*	2829.4	(8$^-$)			
		519.8[‡] *5*	100[‡]	2574.3	(7$^-$)			
		830.7[‡] *5*	23[‡] *8*	2263.5	8$^+$			
		1254.5[‡] *5*	35[‡] *6*	1839.7	8$^+$			
3290.5	11$^+$	756.3[‡] *5*	100[‡]	2534.2	9$^+$	(E2)	1.73×10^{-3}	B(E2)(W.u.)=91 *13* α(K)=0.001509 *22*; α(L)=0.000178 *3*; α(M)=3.27×10^{-5} *5* α(N)=5.26×10^{-6} *8*; α(O)=2.67×10^{-7} *4* Mult.: From $\gamma(\omega)$ in ^{248}Cm SF decay (1994Sh26).
3326.2	12$^+$	763.2[‡] *5*	100[‡]	2563.0	10$^+$	(E2)	1.69×10^{-3}	α(K)=0.001475 *21*; α(L)=0.0001740 *25*; α(M)=3.19×10^{-5} *5* α(N)=5.13×10^{-6} *8*; α(O)=2.61×10^{-7} *4* B(E2)(W.u.)=73 *7* Mult.: From $\gamma(\omega)$ in ^{248}Cm SF decay (1994Sh26).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{112}Ru) (continued)

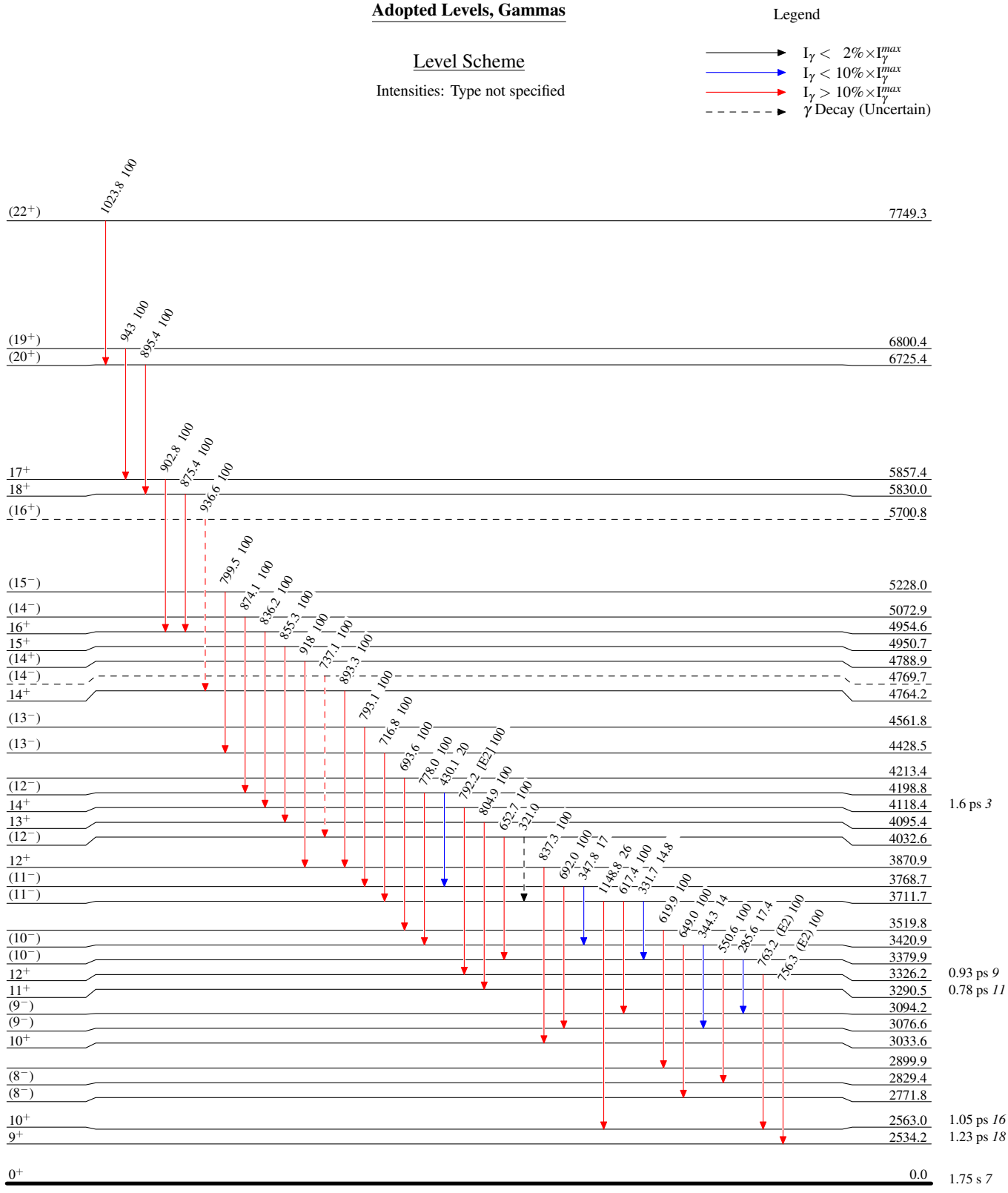
E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[@]	α[#a]	Comments
3379.9	(10$^-$)	285.6[‡] *5*	17.4[‡] *22*	3094.2	(9$^-$)			
		550.6[‡] *5*	100[‡]	2829.4	(8$^-$)			
3420.9	(10$^-$)	344.3[‡] *5*	14[‡] *3*	3076.6	(9$^-$)			
		649.0[‡] *5*	100[‡]	2771.8	(8$^-$)			
3519.8		619.9[‡] *5*	100[‡]	2899.9				
3711.7	(11$^-$)	331.7[‡] *5*	14.8[‡] *13*	3379.9	(10$^-$)			
		617.4[‡] *5*	100[‡]	3094.2	(9$^-$)			
		1148.8[‡] *5*	26[‡] *3*	2563.0	10$^+$			
3768.7	(11$^-$)	347.8[‡] *5*	17[‡] *5*	3420.9	(10$^-$)			
		692.0 *5*	100	3076.6	(9$^-$)			
3870.9	12$^+$	837.3[‡] *5*	100[‡]	3033.6	10$^+$			
4032.6	(12$^-$)	321.0[*b*] *5*		3711.7	(11$^-$)			E_γ: From ^{252}Cf SF decay.
		652.7[‡] *5*	100[‡]	3379.9	(10$^-$)			
4095.4	13$^+$	804.9[‡] *5*	100[‡]	3290.5	11$^+$			
4118.4	14$^+$	792.2[‡] *5*	100[‡]	3326.2	12$^+$	[E2]	1.54×10^{-3}	α(K)=0.001344 *19*; α(L)=0.0001581 *23*; α(M)=2.90×10^{-5} *4* α(N)=4.67×10^{-6} *7*; α(O)=2.38×10^{-7} *4* B(E2)(W.u.)=35 *7*
4198.8	(12$^-$)	430.1[‡] *5*	20[‡] *6*	3768.7	(11$^-$)			
		778.0[‡] *5*	100[‡]	3420.9	(10$^-$)			
4213.4		693.6[‡] *5*	100[‡]	3519.8				
4428.5	(13$^-$)	716.8[‡] *5*	100[‡]	3711.7	(11$^-$)			
4561.8	(13$^-$)	793.1[‡] *5*	100[‡]	3768.7	(11$^-$)			
4764.2	14$^+$	893.3[‡] *5*	100[‡]	3870.9	12$^+$			
4769.7?	(14$^-$)	737.1[‡][*b*] *5*	100[‡]	4032.6	(12$^-$)			
4788.9	(14$^+$)	918[&] *1*	100	3870.9	12$^+$			
4950.7	15$^+$	855.3[‡] *5*	100[‡]	4095.4	13$^+$			
4954.6	16$^+$	836.2[‡] *5*	100[‡]	4118.4	14$^+$			
5072.9	(14$^-$)	874.1[‡] *5*	100[‡]	4198.8	(12$^-$)			
5228.0	(15$^-$)	799.5[‡] *5*	100[‡]	4428.5	(13$^-$)			
5700.8?	(16$^+$)	936.6[‡][*b*] *5*	100[‡]	4764.2	14$^+$			
5830.0	18$^+$	875.4[‡] *5*	100[‡]	4954.6	16$^+$			
5857.4	17$^+$	902.8[‡] *5*	100[‡]	4954.6	16$^+$			
6725.4	(20$^+$)	895.4[‡] *5*	100[‡]	5830.0	18$^+$			
6800.4	(19$^+$)	943[&] *1*	100	5857.4	17$^+$			
7749.3	(22$^+$)	1023.8[&] *5*	100	6725.4	(20$^+$)			

[†] From ^{248}Cm SF decay, unless otherwise stated.
[‡] From ^{252}Cf SF decay.
[§] From ^{112}Tc β^- decay.
[&] From ^{238}U(α,Fγ).
[@] From angular correlation measurements in ^{252}Cf SF decay and ^{248}Cm SF decay, and the apparent band structures, unless otherwise stated.
[#] Additional information 1.
[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] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified

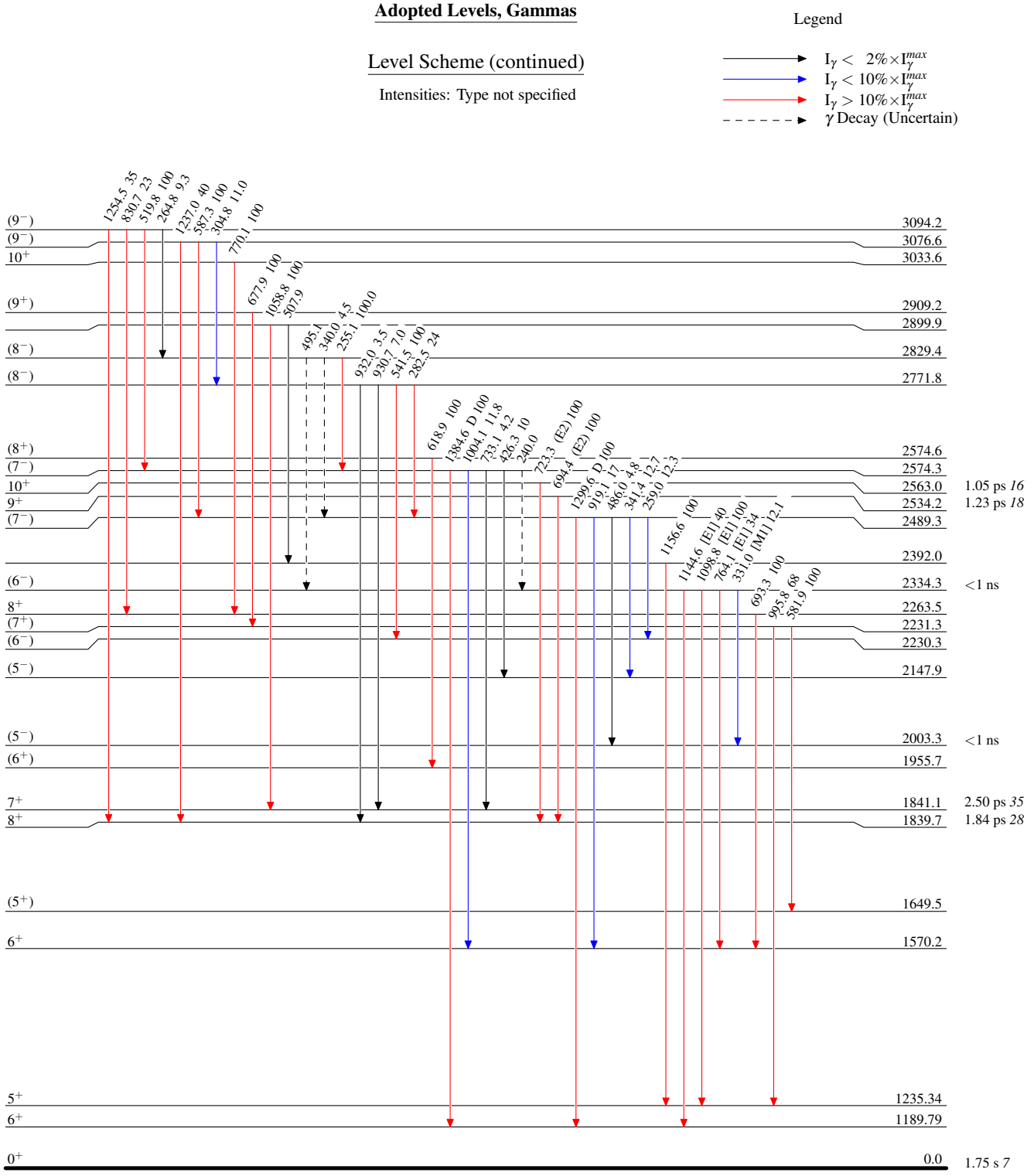


$^{112}_{44}Ru_{68}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

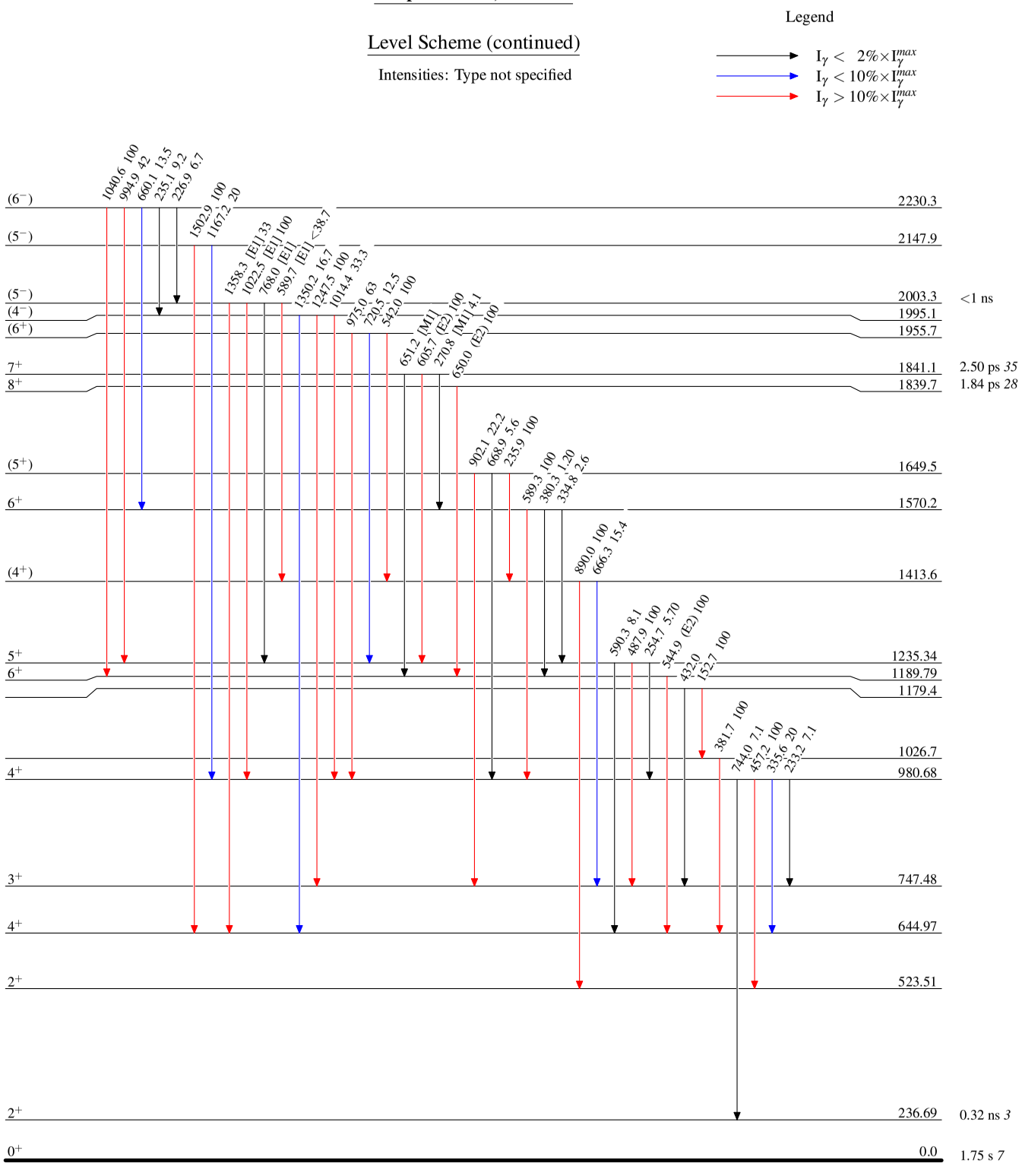


$^{112}_{44}Ru_{68}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

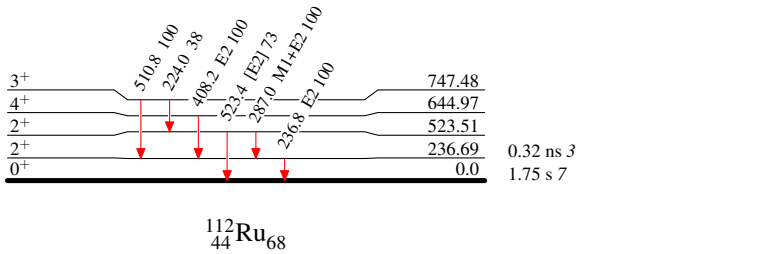


$^{112}_{44}Ru_{68}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



$^{112}_{44}Ru_{68}$

Adopted Levels, Gammas