Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 111,525 (2010)	19-Nov-2009

Q(β^-)=−3.52×10^3 *4*; S(n)=8112 *3*; S(p)=7588 *6*; Q(α)=−1738 *3* 2012Wa38
Note: Current evaluation has used the following Q record −3520 40 *8111.5 28* 7584 10 −1734 *9* 2003Au03.

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Theory, calculations, systematics:
     calculated B(M1), spec. factors for pseudospin partners: 2000Vo12
     calculated log  ft:    1998Vi09
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^{97}Ru Levels

Mo + 22 MeV α and Ru + 11 MeV d produced a 1.84 *6* ms activity with Eγ=227 *5* keV which was assigned to ^{97}Ru (1963De37). Not all levels proposed by the various experimenters are included in Adopted Levels. For additional, more tentative levels, see the individual data sets.

Cross Reference (XREF) Flags

A	^{97}Rh ε decay (30.7 min)	E	^{93}Nb(^{7}Li,3nγ)
B	^{97}Rh ε decay (46.2 min)	F	^{94}Mo(α,nγ), (^{6}Li,p2nγ)
C	^{65}Cu(^{36}S,p3nγ)	G	^{95}Mo(α,2nγ)
D	^{88}Sr(^{12}C,3nγ)	H	^{96}Ru(d,p)

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	XREF	Comments
0.0[@]	5/2$^+$	2.83 d *23*	ABCDEFGH	%ε+%β^+=100 μ=(−)0.787 *8* (2005St24) J$^\pi$: L=2 in (d,p), M1(+E2) γ transition from L=4, 421.54-keV level. T$_{1/2}$: weighted average of 2.79 d *3* (1998Ko27), 2.88 d *4* (1958Ka95), and 2.9 d *1* (1966Cr09). μ: from g-factor=0.315 *3* (1985Ed06) and g-factor=(−)0.315 *3* (1980Le09, recalculated by 1981Ha11). Others: 0.72 *5* (1981Ha11), 0.687 *27* (1976Ba39).
189.22 *6*	3/2$^+$	0.23 ns *2*	ABC FGH	J$^\pi$: M1+E2 γ to g.s.; log *ft*=6.43 (log $f^{1u}t$=7.79) from ^{97}Rh 1/2$^-$ state (J Ne 5/2$^+$, 7/2$^+$). T$_{1/2}$: from ^{97}Rh ε decay (46.2 min).
421.54[#] *5*	7/2$^+$	25 ps *8*	A CDEFGH	J$^\pi$: L=4 in (d,p); M1 γ to L=2 g.s. T$_{1/2}$: weighted average (with external unc.) of 34.6 ps *21* (^{12}C,3nγ) and 17.9 ps *19* (^{36}S,p3nγ).
527.84 *5*	3/2$^+$		B F H	J$^\pi$: L=2 in (d,p); 3/2 from ((α,nγ),(^{6}Li,p2nγ)).
610.79 *8*	(1/2$^+$,3/2,5/2$^+$)		B F	J$^\pi$: γ to 5/2$^+$ level, γ from 1/2$^+$ level.
771.38 *8*	3/2$^+$		B F H	J$^\pi$: L=2 in (d,p); log $f^{1u}t$=7.86 from ^{97}Rh 1/2$^-$ state (J Ne 5/2$^+$).
840.19 *7*	7/2$^+$		A FG	J$^\pi$: D+Q γ to g.s.; log *ft*=5.78 *5* from ^{97}Rh 9/2$^+$ state (J Ne 3/2$^+$, 5/2$^+$).
878.76[@] *6*	9/2$^+$		A CDEFG	J$^\pi$: E2 γ to g.s.; 9/2 from (^{7}Li,3nγ), (α,2nγ).
908.29 *7*	1/2$^+$		B F H	J$^\pi$: L=0 in (d,p).
1184.54 *9*	3/2$^+$,5/2$^+$		B F H	J$^\pi$: L=2 in (d,p).
1199.11[#] *16*	11/2$^+$	7 ps *4*	A CDEFG	J$^\pi$: E2 ΔJ=2 γ to 7/2$^+$ level; D+Q to (9/2)$^+$ level; 11/2 from γ excit ((α,nγ),(^{6}Li,p2nγ)). T$_{1/2}$: unweighted average of 3.5 ps *7* (^{12}C,3nγ) and 10.5 ps *16* (^{36}S,p3nγ).
1229.43 *8*	9/2$^+$		A F	J$^\pi$: E2 γ to 5/2$^+$ g.s., D+Q γ to 7/2$^+$ level; 9/2 from ((α,nγ),(^{6}Li,p2nγ)).

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Adopted Levels, Gammas (continued)

^{97}Ru Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
1376.87 *14*			B F	
1477 *7*	3/2+,5/2+		H	Jπ: J; L=2 in (d,p).
1543.02 *19*	(7/2,9/2,11/2+)		A F	Jπ: log *ft*=6.32 from ^{97}Rh 9/2+ state; γ to 7/2+ level.
1595.6 *10*			G	
1619.6 *3*	(11/2)+		A FG	Jπ: E2 γ to 7/2+ level, D+Q γ to (9/2)+ level; 11/2 from γ(θ) ((α,nγ),(^{6}Li,p2nγ)).
1650.9[@] *4*	(13/2+)		C	Jπ: (E2) γ to (9/2)+ level; 13/2 from (^{36}S,p3nγ).
1825.7 *3*	(13/2)+		CDEFG	Jπ: E2 γ to (9/2)+ level; 13/2 from (^{7}Li,3nγ), ((α,nγ), (^{6}Li,p2nγ)).
1845.69[#] *22*	(15/2)+	12.7 ps *14*	CDEFG	Jπ: E2 to (11/2)+; 15/2 from (^{7}Li,3nγ), ((α,nγ),(^{6}Li,p2nγ)), (α,2nγ). $T_{1/2}$: weighted average of 14.6 ps *21* (^{12}C,3nγ) and 11.6 ps *16* (^{36}S,p3nγ).
1879.3[&] *3*	11/2−		C EFGH	XREF: H(1887). Jπ: L=5 in (d,p); 11/2 from (^{7}Li,3nγ), ((α,nγ)(^{6}Li,p2nγ)), (α,2nγ).
1929 *7*	3/2+,5/2+		H	Jπ: L=2 in (d,p).
1932.32 *13*	7/2+		A F	Jπ: log *ft*=5.33 from ^{97}Rh 9/2+ level; γ to 3/2+ level.
1990.07 *22*	(7/2)		A F	Jπ: from γ(θ), excit ((α,nγ),(^{6}Li,p2nγ)).
1998.6 *3*	7/2+,9/2+,11/2+		A	Jπ: log *ft*=5.77 *6* (log $f^{1u}t$=6.61) from ^{97}Rh 9/2+ state.
2005 *7*			H	
2020.1 *8*			F	
2080 *7*			H	
2150.9 *5*	7/2+		A	Jπ: log *ft*=5.31 from ^{97}Rh 9/2+ state; weak γ to 3/2+ level.
2173 *7*	1/2+		H	Jπ: L=0 in (d,p).
2197.70 *11*	3/2−		B	Jπ: log *ft*=4.71 from ^{97}Rh 1/2− state; γ to 5/2+ level.
2245.89 *18*	3/2−		B	Jπ: log *ft*=4.74 from ^{97}Rh 1/2− state; strong γ to 5/2+ g.s. rules out 1/2−.
2284 *7*	1/2+		H	Jπ: L=0 in (d,p).
2300.7 *6*	1/2,3/2		B	Jπ: log *ft*=6.04 (log $f^{1u}t$=6.93) from ^{97}Rh 1/2− state rules out J=5/2 and higher.
2312.78 *19*	1/2−,3/2−		B	Jπ: log *ft*=5.51 from ^{97}Ru 1/2− state.
2350 *7*			H	E(level): unresolved doublet with L=0 + L=2.
2505.6[@] *6*	(17/2+)		C	Jπ: (E2) γ to (13/2+) level; 17/2 from (^{36}S,p3nγ).
2506 *7*	1/2+		H	Jπ: L=0 in (d,p).
2545.54[#] *25*	(17/2+)	11.4 ps *12*	CDEFG	Jπ: D+Q γ to (15/2)+ level; 17/2 from (^{7}Li,3nγ), from γ(θ), excit ((α,nγ),(^{6}Li,p2nγ)). $T_{1/2}$: from (^{36}S,p3nγ); other: 3.5 ps<(^{12}C,3nγ).
2552.8[&] *8*	15/2−		C F	Jπ: E2 γ to 11/2− level; 15/2 from γ(θ) ((α,nγ), (^{6}Li,p2nγ)).
2564.90 *16*	3/2−		B	Jπ: log *ft*=4.79 from ^{97}Rh 1/2− state; γ to 5/2+ g.s.
2576.0 *5*	1/2−,3/2−		B	Jπ: log *ft*=5.66 from ^{97}Rh 1/2− state.
2591.4 *4*	7/2+,9/2+,11/2+		A	Jπ: log *ft*=5.35 from ^{97}Rh 9/2+ state.
2596.2 *4*	15/2−		E	Jπ: E2 γ to 11/2− level: 15/2 from (^{7}Li,3nγ).
2598.7 *11*	(17/2+)		D G	Jπ: (E2) γ to (13/2)+ level; 17/2 from (α,2nγ).
2605 *7*			H	
2640.4 *4*	(17/2)+		EF	Jπ: E2 γ to (13/2)+ level; 17/2 from γ(θ) ((α,nγ),(^{6}Li,p,2nγ)).
2647.82 *21*	3/2−		B	Jπ: log *ft*=4.84 from ^{97}Rh 1/2− state; strong γ to 5/2+ g.s.
2652 *7*	1/2+		H	Jπ: L=0 in (d,p).
2660.4[@] *7*	(19/2+)		C	Jπ: (M1(+E2)) γ to (17/2+); 17/2 from (^{36}S,p3nγ).
2702 *7*	1/2+		H	Jπ: L=0 in (d,p).
2739.1[#] *3*	(21/2+)	7.8 ns *2*	C H	μ=+9.2 *8* (1982Di18,2005St24) Jπ: E2 γ to (17/2+) level; J^{π} consistent with g-factor; from (^{7}Li,3nγ), γ(θ) ((α,nγ),(^{6}Li,p2nγ)).

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Adopted Levels, Gammas (continued)

^{97}Ru Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$	XREF	Comments
				$T_{1/2}$: from (α,2nγ); others: 8.7 ns *9* (^{12}C,3nγ), 7.3 ps *8* (^{36}S,p3nγ), whose unit is probably a typographic error. μ: from g-factor=0.88 *8*, consistent with configuration=((π $g_{9/2})^{+2}_{8+}$(ν $d_{5/2}$)) (1982Di18).
2743.1 *11*	(17/2$^+$)		F	Jπ: D+Q γ to (15/2)$^+$; 17/2 from γ(θ) ((α,nγ),(^{6}Li,pnγ)).
2754.7 *4*	7/2$^+$		A	Jπ: log *ft*=5.38 from ^{97}Rh 9/2$^+$ state; γ to 3/2$^+$ level.
2759.4 *3*	(19/2)$^+$		C EFG	Jπ: E2 γ to (15/2)$^+$; 19/2 from (^{7}Li,3nγ), ((α,nγ),(^{6}Li,p2nγ)),
2760.4 *5*	7/2$^+$,9/2$^+$,11/2$^+$		A	Jπ: log *ft*=5.56 from ^{97}Rh 9/2$^+$ state.
2762.8 *5*	(19/2$^+$)		C	Jπ: (M1(+E2)) γ to (17/2$^+$); 19/2 from (^{36}S,p3nγ).
2764.77 *22*	1/2$^-$,3/2$^-$		B	Jπ: log *ft*=5.08 from ^{97}Rh 1/2$^-$ state.
2766.2 *5*	7/2$^+$,9/2$^+$,11/2$^+$		A	Jπ: log *ft*=5.52 from ^{97}Rh 9/2$^+$ state.
2796.9 *3*	1/2$^-$,3/2$^-$		B	Jπ: log *ft*=5.15 from ^{97}Rh 1/2$^-$ state.
2929.76 *22*	3/2$^-$		B	Jπ: log *ft*=5.17 from ^{97}Rh 1/2$^-$ state: strong γ to 5/2$^+$ g.s.
2966.4 *6*	7/2$^+$		A	Jπ: log *ft*=5.50 from ^{97}Rh 9/2$^+$ state; 2777.9γ to 3/2$^+$ level.
3030 *7*	3/2$^+$,5/2$^+$		H	Jπ: L=2 in (d,p).
3225.5& *9*	(19/2$^-$)		C	Jπ: (E2) γ to (15/2)$^-$ level; 19/2 from (^{36}S,p3nγ).
3264.9 *4*	3/2$^-$		B	Jπ: log *ft*=5.29 from ^{97}Rh 1/2$^-$ state; γ to 5/2$^+$ g.s.
3269.5 *5*	(19/2$^-$)		E	Jπ: from (^{7}Li,3nγ).
3296.1 *6*	1/2$^-$,3/2$^-$		B	Jπ: log *ft*=5.14 from ^{97}Rh 1/2$^-$ state.
3303.1 *8*	(21/2$^+$)		C	Jπ: (M1(+E2)) γ to (19/2$^+$); 21/2 from (^{36}S,p3nγ).
3368.8 *6*	7/2$^+$,9/2$^+$,11/2$^+$		A	Jπ: log *ft*=4.4 from ^{97}Rh 9/2$^+$ state.
3374.7 *4*	3/2$^-$		B	Jπ: log *ft*=4.44 from ^{97}Rh 1/2$^-$ state; strong γ to 5/2$^+$ g.s.
3458.9 *6*	3/2$^-$		B	Jπ: log *ft*=5.06 from ^{97}Rh 1/2$^-$ state; γ to 5/2$^+$ g.s.
3480.8 *15*	(21/2$^+$)		D G	Jπ: from (α,2nγ).
3609.5@ *8*	(23/2$^+$)		C	Jπ: (E2) γ to (19/2$^+$) and (M1(+E2)) γ to (21/2$^+$); 23/2 from (^{36}S,p3nγ).
3620.9 *5*	(23/2)$^+$		C EF	Jπ: E2 γ to (19/2)$^+$; 23/2 from (^{7}Li,3nγ), ((α,nγ),(^{6}Li,p2nγ)).
3669.5# *7*	(25/2$^+$)	4.9 ps *6*	DEFG	Jπ: E2 γ to (21/2$^+$) level; 25/2 from (^{7}Li,3nγ), ((α,nγ), (^{6}Li,p2nγ)), (α,2nγ). $T_{1/2}$: from (^{36}S,p3nγ).
3941.1 *5*			E	
3941.8& *10*	(23/2$^-$)		C	Jπ: (E2) γ to (19/2$^-$) level; 23/2 from (^{36}S,p3nγ).
4262.7# *7*	(27/2$^+$)	4.9 ps *6*	CDEFG	Jπ: (E2) γ to (23/2)$^+$ level and (M1(+E2)) γ to (25/2$^+$); 27/2 from (^{36}S,p3nγ). $T_{1/2}$: from (^{36}S,p3nγ).
4653.1@ *9*	(27/2$^+$)		C	Jπ: (E2) γ to (23/2$^+$) level; 27/2 from (^{36}S,p3nγ).
4694.5& *10*	(27/2$^-$)		C	Jπ: (E2) γ to (23/2$^-$) level; 27/2 from (^{36}S,p3nγ).
4730.1# *8*	(29/2$^+$)	7.1 ps *9*	C EF	Jπ: (E2) γ to (25/2$^+$) level and (M1(+E2)) γ to (27/2$^+$); 29/2 from (^{36}S,p3nγ). $T_{1/2}$: from (^{36}S,p3nγ).
4763.3 *8*			C	
5106.4 *8*	(31/2$^+$)		C	Jπ: (E2) γ to (27/2$^+$) level; 31/2 from (^{36}S,p3nγ).
5373.2# *8*	(33/2$^+$)	≤12.5 ps	C	Jπ: (E2) γ to (29/2$^+$) level and (M1(+E2)) γ to (31/2$^+$); 33/2 from (^{36}S,p3nγ). $T_{1/2}$: from (^{36}S,p3nγ).
5490.0& *11*			C	
5721.8 *11*			C	
6133.3@ *10*	(31/2$^+$)		C	Jπ: (E2) γ to (27/2$^+$) level; 31/2 from (^{36}S,p3nγ).
6248.4# *9*	(35/2$^+$)		C	Jπ: (M1(+E2)) γ to (33/2$^+$) level; 33/2 from (^{36}S,p3nγ).

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Adopted Levels, Gammas (continued)

^{97}Ru Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
6312.6[&] *12*			C	
6765.2[@] *11*	(35/2$^+$)		C	Jπ: (E2) γ to (31/2$^+$) level; 35/2 from (^{36}S,p3nγ).
6777.3 *16*			C	
6889.9[a] *10*	(37/2$^+$)		C	Jπ: (M1(+E2)) γ to (35/2$^+$) level; 37/2 from (^{36}S,p3nγ).
7380.4 *11*	(39/2$^+$)		C	Jπ: (M1(+E2)) γ from (41/2$^+$) level; 39/2 from (^{36}S,p3nγ).
7462.8[@] *11*	(39/2$^+$)		C	Jπ: (E2) γ to (35/2$^+$) level; 39/2 from (^{36}S,p3nγ).
7638.6[#] *10*	(39/2$^+$)	≤13.9 ps	C	Jπ: (E2) γ to (35/2$^+$) level; 39/2 from (^{36}S,p3nγ). $T_{1/2}$: from (^{36}S,p3nγ).
7678.5 *12*			C	
7908.2 *13*			C	
8159.3 *11*	(39/2$^+$)		C	Jπ: (M1(+E2)) γ to (37/2$^+$) level; 39/2 from (^{36}S,p3nγ).
8407.2 *12*			C	
8468.4[#] *11*	(43/2$^+$)		C	Jπ: (E2) γ to (39/2$^+$) level; 43/2 from (^{36}S,p3nγ).
8489.1[a] *11*	(41/2$^+$)		C	Jπ: (E2) γ to (37/2$^+$) level; 41/2 from (^{36}S,p3nγ).
8541.7[@] *12*			C	
8621.3 *12*			C	
9204.3[#] *11*	(45/2$^+$)		C	Jπ: (M1(+E2)) γ to (43/2$^+$) level; 45/2 from (^{36}S,p3nγ).
9383.0[@] *13*			C	
9423.1 *13*			C	
9446.7 *13*			C	
9728.8 *12*			C	
9763.6[a] *11*	(45/2$^+$)		C	Jπ: (E2) γ to (41/2$^+$) level; 45/2 from (^{36}S,p3nγ).
10121.1[#] *12*	(47/2$^+$)		C	Jπ: (M1(+E2)) γ to (45/2$^+$) level; 47/2 from (^{36}S,p3nγ).
10126.1 *12*			C	
10622.7 *12*			C	
10829.4 *12*			C	
10927.2[a] *12*	(47/2$^+$)		C	Jπ: (M1(+E2)) γ to (45/2$^+$) level; 47/2 from (^{36}S,p3nγ).
11081.2[#] *12*	(49/2$^+$)		C	Jπ: (M1(+E2)) γ to (47/2$^+$) level; 49/2 from (^{36}S,p3nγ).
11288.0 *13*	(51/2$^+$)		C	Jπ: (M1(+E2)) γ to (49/2$^+$) level; 51/2 from (^{36}S,p3nγ).
11508.5 *13*			C	
11717.6 *14*	(53/2$^+$)		C	Jπ: (M1(+E2)) γ to (51/2$^+$) level; 53/2 from (^{36}S,p3nγ).
12124.5[a] *13*	(49/2$^+$)		C	Jπ: (M1(+E2)) γ to (47/2$^+$) level; 49/2 from (^{36}S,p3nγ).
12421.5 *13*			C	
12559.4 *13*			C	
12729.2 *15*			C	
12737.9 *14*			C	
12744.5 *14*			C	
12946.9 *14*			C	
13253.8 *14*			C	
13328.1[a] *13*	(51/2$^+$)		C	Jπ: (M1(+E2)) γ to (49/2$^+$) level; 49/2 from (^{36}S,p3nγ).
13975.4 *15*			C	
14566.0 *17*			C	
15047.7 *17*			C	
15209.9 *17*			C	
15479.8[a] *17*			C	
16088.0 *20*			C	
16132.0 *20*			C	
17291.7 *19*			C	

[†] From least squares fit to Eγ.

[‡] Specific arguments for spin assignments are given if possible. However, if the spin assignments are those proposed in the reaction

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Adopted Levels, Gammas (continued)

^{97}Ru Levels (continued)

data sets, based on combination of experimental results, then the specific data sets are referenced. For J^{π} values from (^{36}S,p3nγ): because of lack of evidence not all the values given in the dataset are adopted.

Band(A): sequence 1.

@ Band(B): sequence 2.

& Band(C): $(11/2^{-})$ band.

a Band(D): sequence 3.

Adopted Levels, Gammas (continued)

$\gamma(^{97}Ru)$

Not all gammas reported and placed in their proposed level schemes by the various experimenters are included in the adopted gammas. For additional gammas, see the individual data sets.
For unplaced γ's see ^{97}Rh ε decay (30.7 min) and ^{97}Rh ε decay (46.2 min) datasets.
Above 4730 keV excitation energy all γ data are from ^{65}Cu(^{36}S,p3nγ) dataset.

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[@]	α[e]	Comments
189.22	3/2$^+$	189.21 *15*	100	0.0	5/2$^+$	M1+E2	0.30 *6*	0.061 *3*	α(K)=0.0527 *22*; α(L)=0.0066 *4*; α(M)=0.00121 *7*; α(N+..)=0.000203 *11* α(N)=0.000194 *11*; α(O)=9.5×10^{-6} *4* B(M1)(W.u.)=0.0122 *12*; B(E2)(W.u.)=30 *12* Mult.,δ: from ^{97}Ru decay; δ=0.96 from (α,2nγ) gives B(E2)(W.u.)=175 *16*.
421.54	7/2$^+$	421.55 *5*	100	0.0	5/2$^+$	M1		0.0080 *10*	α(K)=0.0070 *8*; α(L)=0.00085 *14*; α(M)=0.000155 *25*; α(N+..)=2.6×10^{-5} *4* α(N)=2.5×10^{-5} *4*; α(O)=1.23×10^{-6} *11* B(M1)(W.u.)=0.012 *4* Mult.: from $\gamma(\theta)$ (^{12}C,3nγ), (α,2nγ); not pure E2 or higher multipolarity (RUL); L=4 to L=2 transition.
527.84	3/2$^+$	338.4 *3*	22 *5*	189.22	3/2$^+$				
		527.85 *5*	100 *5*	0.0	5/2$^+$				
610.79	(1/2$^+$,3/2,5/2$^+$)	421.55 *5*	100 *12*	189.22	3/2$^+$				
		610.58 *18*	4.3 *6*	0.0	5/2$^+$				
771.38	3/2$^+$	582.25 *21*	51 *5*	189.22	3/2$^+$				
		771.37 *9*	100 *5*	0.0	5/2$^+$				
840.19	7/2$^+$	651.01 *10*	8.1 *1*	189.22	3/2$^+$	[E2]		0.00255	α(K)=0.00222 *4*; α(L)=0.000266 *4*; α(M)=4.88×10^{-5} *7*; α(N+..)=8.23×10^{-6} *12* α(N)=7.84×10^{-6} *11*; α(O)=3.92×10^{-7} *6*
		840.13 *9*	100	0.0	5/2$^+$	(M1+E2)[&]		0.00137 *4*	α(K)=0.00120 *4*; α(L)=0.000138 *3*; α(M)=2.53×10^{-5} *5*; α(N+..)=4.31×10^{-6} *10* α(N)=4.09×10^{-6} *9*; α(O)=2.15×10^{-7} *9* δ: −1.4 *3* from $\gamma(\theta)$ ((α,nγ),(^{6}Li,p2nγ)).
878.76	9/2$^+$	457.30 *10*	8.7 *9*	421.54	7/2$^+$	(M1+E2)[&]		0.0064 *6*	α(K)=0.0056 *5*; α(L)=0.00067 *9*; α(M)=0.000123 *16*; α(N+..)=2.07×10^{-5} *25* α(N)=1.98×10^{-5} *24*; α(O)=9.9×10^{-7} *7* δ: −1.5 *+4−5* ((α,nγ),(^{6}Li,p2nγ)); 0.27 (α,2nγ).
		878.80 *8*	100.0 *16*	0.0	5/2$^+$	E2		1.19×10^{-3}	α(K)=0.001046 *15*; α(L)=0.0001220 *17*; α(M)=2.24×10^{-5} *4*; α(N+..)=3.79×10^{-6} *6* α(N)=3.60×10^{-6} *5*; α(O)=1.86×10^{-7} *3*

Adopted Levels, Gammas (continued)

γ(^{97}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[e]	Comments
								Mult.: from γ(θ) (^{12}C,3nγ), ((α,nγ),(^{6}Li,p2nγ)), (α,2nγ).
908.29	1/2$^+$	297.1 *5*	10 *5*	610.79	(1/2$^+$,3/2,5/2$^+$)			
		719.00 *9*	100 *5*	189.22	3/2$^+$			
		908.35 *8*	67 *5*	0.0	5/2$^+$	[E2]	1.10×10^{-3}	α(K)=0.000967 *14*; α(L)=0.0001126 *16*; α(M)=2.06×10^{-5} *3*; α(N+..)=3.50×10^{-6} *5* α(N)=3.33×10^{-6} *5*; α(O)=1.719×10^{-7} *24*
1184.54	3/2$^+$,5/2$^+$	412.7 *6*	6 *4*	771.38	3/2$^+$			
		995.36 *8*	86 *6*	189.22	3/2$^+$			
		1184.1 *5*	100 *7*	0.0	5/2$^+$			
1199.11	11/2$^+$	320.2 *5*	17.2 *7*	878.76	9/2$^+$	(M1+E2)	0.018 *4*	α(K)=0.015 *4*; α(L)=0.0019 *6*; α(M)=0.00036 *10*; α(N+..)=6.0×10^{-5} *16* α(N)=5.7×10^{-5} *15*; α(O)=2.7×10^{-6} *5* Mult.: D+Q from ((α,nγ),(^{6}Li,p2nγ)); D from (^{12}C,3nγ), (^{7}Li,3nγ); Δπ=no from level scheme. δ: δ=0.13 (α,2nγ); δ=−2.3+5−8 ((α,nγ),(^{6}Li,p2nγ)).
		777.44 *18*	100.0 *19*	421.54	7/2$^+$	E2	1.61×10^{-3}	α(K)=0.001408 *20*; α(L)=0.0001659 *24*; α(M)=3.04×10^{-5} *5*; α(N+..)=5.15×10^{-6} *8* α(N)=4.90×10^{-6} *7*; α(O)=2.49×10^{-7} *4* B(E2)(W.u.)=9 *6* Mult.: from γ(θ) (^{12}C,3nγ), (α,2nγ); ΔJ=2 ((α,nγ), (^{6}Li,p2nγ)).
1229.43	9/2$^+$	351.0 *4*	28 *4*	878.76	9/2$^+$			
		389.25 *5*	58 *4*	840.19	7/2$^+$	D		Mult.: from γ(θ) ((α,nγ),(^{6}Li,p2nγ)).
		807.7 *2*	100 *7*	421.54	7/2$^+$	D+Q		Mult.,δ: δ=+3.1 *+13−48* γ(θ) ((α,nγ),(^{6}Li,p2nγ)).
		1228.7 *7*	77 *4*	0.0	5/2$^+$	E2	5.75×10^{-4}	α(K)=0.000495 *7*; α(L)=5.65×10^{-5} *8*; α(M)=1.034×10^{-5} *15*; α(N+..)=1.355×10^{-5} *22* α(N)=1.673×10^{-6} *24*; α(O)=8.82×10^{-8} *13*; α(IPF)=1.179×10^{-5} *21* Mult.: from γ(θ) ((α,nγ),(^{6}Li,p2nγ)).
1376.87		605.54 *18*	19 *3*	771.38	3/2$^+$			
		1187.3[g] *5*	100[g] *28*	189.22	3/2$^+$			
		1376.9 *4*	25 *3*	0.0	5/2$^+$			
1543.02	(7/2,9/2,11/2$^+$)	664.1 *8*	14 *8*	878.76	9/2$^+$			
		702.84 *18*	100 *25*	840.19	7/2$^+$			
1595.6		716.8		878.76	9/2$^+$			
1619.6	(11/2)$^+$	740.9 *3*	64 *4*	878.76	9/2$^+$	(M1+E2)	0.00184 *4*	α(K)=0.00161 *4*; α(L)=0.000187 *3*;

Adopted Levels, Gammas (continued)

γ(^{97}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[e]	Comments
								α(M)=3.43×10^{-5} *5*; α(N+..)=5.83×10^{-6} *9* α(N)=5.54×10^{-6} *8*; α(O)=2.89×10^{-7} *9* Mult.: D+Q from γ(θ) ((α,nγ),(^{6}Li,p2nγ)), (α,2nγ); Δπ=no from level scheme. δ: δ=−1.7 *2* γ(θ) ((α,nγ),(^{6}Li,p2nγ)).
1619.6	(11/2)$^+$	1197.9 *5*	100 *5*	421.54	7/2$^+$	E2	6.02×10^{-4}	α(K)=0.000522 *8*; α(L)=5.97×10^{-5} *9*; α(M)=1.093×10^{-5} *16*; α(N+..)=9.10×10^{-6} *15* α(N)=1.767×10^{-6} *25*; α(O)=9.30×10^{-8} *13*; α(IPF)=7.24×10^{-6} *12* Mult.: from γ(θ) ((α,nγ),(^{6}Li,p2nγ)).
1650.9	(13/2$^+$)	772.1 *4*	100	878.76	9/2$^+$	(E2)	1.64×10^{-3}	α(K)=0.001433 *21*; α(L)=0.0001689 *24*; α(M)=3.10×10^{-5} *5*; α(N+..)=5.24×10^{-6} *8* α(N)=4.98×10^{-6} *7*; α(O)=2.54×10^{-7} *4*
1825.7	(13/2)$^+$	947.3 *3*	100	878.76	9/2$^+$	E2	1.00×10^{-3}	α(K)=0.000877 *13*; α(L)=0.0001018 *15*; α(M)=1.86×10^{-5} *3*; α(N+..)=3.17×10^{-6} *5* α(N)=3.01×10^{-6} *5*; α(O)=1.560×10^{-7} *22* Mult.: from γ(θ) (^{12}C,3nγ), ((α,nγ),(^{6}Li,p2nγ)).
1845.69	(15/2)$^+$	646.47 *17*	100	1199.11	11/2$^+$	E2	0.00259	α(K)=0.00227 *4*; α(L)=0.000271 *4*; α(M)=4.98×10^{-5} *7*; α(N+..)=8.39×10^{-6} *12* α(N)=7.99×10^{-6} *12*; α(O)=3.99×10^{-7} *6* B(E2)(W.u.)=14.9 *17* Mult.: from γ(θ) (^{12}C,3nγ), ((α,nγ),(^{6}Li,p2nγ)), (α,2nγ).
1879.3	11/2$^-$	650.0		1229.43	9/2$^+$	[E1]	9.18×10^{-4}	α(K)=0.000807 *12*; α(L)=9.13×10^{-5} *13*; α(M)=1.669×10^{-5} *24*; α(N+..)=2.84×10^{-6} *4* α(N)=2.70×10^{-6} *4*; α(O)=1.419×10^{-7} *20*
		680.3	42 *3*	1199.11	11/2$^+$	(E1)[a]	8.31×10^{-4}	α(K)=0.000731 *11*; α(L)=8.26×10^{-5} *12*; α(M)=1.509×10^{-5} *22*; α(N+..)=2.57×10^{-6} *4* α(N)=2.44×10^{-6} *4*; α(O)=1.285×10^{-7} *18*
		1000.5 *3*	100	878.76	9/2$^+$	(E1)[a]	3.78×10^{-4}	α(K)=0.000333 *5*; α(L)=3.73×10^{-5} *6*; α(M)=6.81×10^{-6} *10*; α(N+..)=1.162×10^{-6} *17* α(N)=1.103×10^{-6} *16*; α(O)=5.88×10^{-8} *9*
1932.32	7/2$^+$	702.84 *18*	20 *10*	1229.43	9/2$^+$			
		1053.70 *24*	100 *7*	878.76	9/2$^+$			
		1092.1 *3*	38 *4*	840.19	7/2$^+$			
		1511.0 *4*	38 *7*	421.54	7/2$^+$			
		1742.5 *13*	15 *5*	189.22	3/2$^+$	[E2]	4.64×10^{-4}	α(K)=0.000246 *4*; α(L)=2.77×10^{-5} *4*; α(M)=5.07×10^{-6} *8*; α(N+..)=0.000185 *3* α(N)=8.22×10^{-7} *12*; α(O)=4.40×10^{-8} *7*; α(IPF)=0.000184 *3*
		1931.7 *6*	36 *8*	0.0	5/2$^+$			
1990.07	(7/2)	1111.49 *24*	100 *12*	878.76	9/2$^+$			

$^{97}_{44}Ru_{53}$-8

Adopted Levels, Gammas (continued)

γ(^{97}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[e]	Comments
1990.07	(7/2)	1989.2 *6*	40 *12*	0.0	5/2$^+$			
1998.6	7/2$^+$,9/2$^+$,11/2$^+$	1158.3 *4*	100 *10*	840.19	7/2$^+$			
		1577.1 *4*	83 *13*	421.54	7/2$^+$			
2020.1		400.4		1619.6	(11/2)$^+$			
		821.0		1199.11	11/2$^+$			
2150.9	7/2$^+$	1272.9 *9*	25 *5*	878.76	9/2$^+$			
		1310.1 *6*	100 *13*	840.19	7/2$^+$			
		1730.4 *13*	13 *7*	421.54	7/2$^+$			
		1962.4 *15*	7 *7*	189.22	3/2$^+$	[E2]	5.10×10^{-4}	α(K)=0.000197 *3*; α(L)=2.21×10^{-5} *4*; α(M)=4.04×10^{-6} *6*; α(N+..)=0.000287 *4* α(N)=6.56×10^{-7} *10*; α(O)=3.52×10^{-8} *5*; α(IPF)=0.000286 *4*
2197.70	3/2$^-$	820.9 *3*	9.1 *9*	1376.87				
		1013.33 *17*	68 *4*	1184.54	3/2$^+$,5/2$^+$	[E1]	3.69×10^{-4}	α(K)=0.000325 *5*; α(L)=3.64×10^{-5} *5*; α(M)=6.64×10^{-6} *10*; α(N+..)=1.134×10^{-6} *16* α(N)=1.076×10^{-6} *15*; α(O)=5.73×10^{-8} *8*
		1426.40 *24*	28 *2*	771.38	3/2$^+$	[E1]	3.83×10^{-4}	α(K)=0.0001758 *25*; α(L)=1.96×10^{-5} *3*; α(M)=3.57×10^{-6} *5*; α(N+..)=0.000184 *3* α(N)=5.79×10^{-7} *9*; α(O)=3.11×10^{-8} *5*; α(IPF)=0.000184 *3*
		1586.66 *24*	100 *6*	610.79	(1/2$^+$,3/2,5/2$^+$)			
		2008.1 *6*	48 *3*	189.22	3/2$^+$	[E1]	7.35×10^{-4}	α(K)=0.0001014 *15*; α(L)=1.122×10^{-5} *16*; α(M)=2.05×10^{-6} *3*; α(N+..)=0.000621 *9* α(N)=3.32×10^{-7} *5*; α(O)=1.79×10^{-8} *3*; α(IPF)=0.000620 *9*
		2197.2 *5*	8.3 *10*	0.0	5/2$^+$	[E1]	8.51×10^{-4}	α(K)=8.84×10^{-5} *13*; α(L)=9.78×10^{-6} *14*; α(M)=1.785×10^{-6} *25*; α(N+..)=0.000751 *11* α(N)=2.90×10^{-7} *4*; α(O)=1.565×10^{-8} *22*; α(IPF)=0.000751 *11*
2245.89	3/2$^-$	869.2 *6*	2.9 *6*	1376.87				
		1060.0[f] *10*	2.0[f] *8*	1184.54	3/2$^+$,5/2$^+$	[E1]	3.39×10^{-4}	α(K)=0.000298 *5*; α(L)=3.34×10^{-5} *5*; α(M)=6.10×10^{-6} *9*; α(N+..)=1.041×10^{-6} *15* α(N)=9.88×10^{-7} *14*; α(O)=5.27×10^{-8} *8*
		1337.5 *4*	6.6 *6*	908.29	1/2$^+$	[E1]	3.47×10^{-4}	α(K)=0.000196 *3*; α(L)=2.19×10^{-5} *3*; α(M)=3.99×10^{-6} *6*; α(N+..)=0.0001247 *18* α(N)=6.47×10^{-7} *9*; α(O)=3.47×10^{-8} *5*; α(IPF)=0.0001240 *18*
		1474.6 *4*	12.0 *12*	771.38	3/2$^+$	[E1]	4.08×10^{-4}	α(K)=0.0001662 *24*; α(L)=1.85×10^{-5} *3*; α(M)=3.38×10^{-6} *5*; α(N+..)=0.000220 *3* α(N)=5.47×10^{-7} *8*; α(O)=2.94×10^{-8} *5*; α(IPF)=0.000219 *3*
		1718.5 *4*	18 *2*	527.84	3/2$^+$	[E1]	5.55×10^{-4}	α(K)=0.0001294 *19*; α(L)=1.436×10^{-5} *21*;

$^{97}_{44}Ru_{53}$-9

Adopted Levels, Gammas (continued)

γ(^{97}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[e]	Comments
								α(M)=2.62×10^{-6} *4*; α(N+..)=0.000408 *6*
								α(N)=4.25×10^{-7} *6*; α(O)=2.29×10^{-8} *4*; α(IPF)=0.000408 *6*
2245.89	3/2$^-$	2245.6 *5*	100	0.0	5/2$^+$	[E1]	8.80×10^{-4}	α(K)=8.56×10^{-5} *12*; α(L)=9.46×10^{-6} *14*; α(M)=1.727×10^{-6} *25*; α(N+..)=0.000783 *11*
								α(N)=2.80×10^{-7} *4*; α(O)=1.514×10^{-8} *22*; α(IPF)=0.000783 *11*
2300.7	1/2,3/2	1117.2 *10*	35 *17*	1184.54	3/2$^+$,5/2$^+$			
		2110.9 *7*	100 *14*	189.22	3/2$^+$			
2312.78	1/2$^-$,3/2$^-$	1785.1 *4*	49 *4*	527.84	3/2$^+$	[E1]	5.96×10^{-4}	α(K)=0.0001218 *17*; α(L)=1.350×10^{-5} *19*; α(M)=2.46×10^{-6} *4*; α(N+..)=0.000458 *7*
								α(N)=4.00×10^{-7} *6*; α(O)=2.15×10^{-8} *3*; α(IPF)=0.000458 *7*
		2123.2 *8*	100 *8*	189.22	3/2$^+$	[E1]	8.06×10^{-4}	α(K)=9.31×10^{-5} *13*; α(L)=1.030×10^{-5} *15*; α(M)=1.88×10^{-6} *3*; α(N+..)=0.000701 *10*
								α(N)=3.05×10^{-7} *5*; α(O)=1.647×10^{-8} *23*; α(IPF)=0.000701 *10*
2505.6	(17/2$^+$)	854.7 *4*	100	1650.9	(13/2$^+$)	(E2)	1.28×10^{-3}	α(K)=0.001117 *16*; α(L)=0.0001306 *19*; α(M)=2.39×10^{-5} *4*; α(N+..)=4.06×10^{-6} *6*
								α(N)=3.86×10^{-6} *6*; α(O)=1.98×10^{-7} *3*
								Mult.: from DCO in ^{65}Cu(^{36}S,p3nγ).
2545.54	(17/2$^+$)	699.77 *17*	100[c] *10*	1845.69	(15/2)$^+$	(M1+E2)	0.00211	α(K)=0.00185 *3*; α(L)=0.000216 *5*; α(M)=3.95×10^{-5} *8*; α(N+..)=6.71×10^{-6} *11*
								α(N)=6.38×10^{-6} *11*; α(O)=3.32×10^{-7} *9*
								Mult.: from γ(θ) (^{7}Li,3nγ), ((α,nγ),(^{6}Li,p2nγ)), (α,2nγ); D,E2 from RUL; Δπ=no from level scheme.
								δ: −2.0 *+4−6* ((α,nγ),(^{6}Li,p2nγ)), 0.16 (α,2nγ).
		720.5 *4*	1.5 *6*	1825.7	(13/2)$^+$			
2552.8	15/2$^-$	673.5	100 *8*	1879.3	11/2$^-$	E2	0.00233	α(K)=0.00203 *3*; α(L)=0.000243 *4*; α(M)=4.45×10^{-5} *7*; α(N+..)=7.51×10^{-6} *11*
								α(N)=7.15×10^{-6} *10*; α(O)=3.58×10^{-7} *5*
								Mult.: from γ(θ) ((α,nγ),(^{6}Li,p2nγ)).
		727.0	53 *12*	1825.7	(13/2)$^+$	(E1)	7.20×10^{-4}	α(K)=0.000633 *9*; α(L)=7.15×10^{-5} *10*; α(M)=1.306×10^{-5} *19*; α(N+..)=2.22×10^{-6} *4*
								α(N)=2.11×10^{-6} *3*; α(O)=1.115×10^{-7} *16*
								Mult.: ΔJ=1, δ≈0 from γ(θ) ((α,nγ),(^{6}Li,p2nγ)); Δπ=yes from level scheme.
2564.90	3/2$^-$	252.12 *18*	36 *3*	2312.78	1/2$^-$,3/2$^-$			
		367.3 *3*	21 *2*	2197.70	3/2$^-$			
		1187.3[g] *5*	67[g] *19*	1376.87				
		1656.9 *3*	67 *6*	908.29	1/2$^+$	[E1]	5.17×10^{-4}	α(K)=0.0001372 *20*; α(L)=1.523×10^{-5} *22*; α(M)=2.78×10^{-6} *4*; α(N+..)=0.000361 *5*
								α(N)=4.51×10^{-7} *7*; α(O)=2.43×10^{-8} *4*; α(IPF)=0.000361 *5*

$^{97}_{44}Ru_{53}$-10

Adopted Levels, Gammas (continued)

γ(^{97}Ru) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Mult.#	α e	Comments
2564.90	3/2⁻	2036.8 g 5	100 g 24	527.84	3/2⁺	[E1]	7.53×10⁻⁴	α(K)=9.92×10⁻⁵ 14; α(L)=1.098×10⁻⁵ 16; α(M)=2.00×10⁻⁶ 3; α(N+..)=0.000641 9 α(N)=3.25×10⁻⁷ 5; α(O)=1.755×10⁻⁸ 25; α(IPF)=0.000641 9
		2375.7 5	35 3	189.22	3/2⁺	[E1]	9.55×10⁻⁴	α(K)=7.88×10⁻⁵ 11; α(L)=8.70×10⁻⁶ 13; α(M)=1.588×10⁻⁶ 23; α(N+..)=0.000866 13 α(N)=2.58×10⁻⁷ 4; α(O)=1.393×10⁻⁸ 20; α(IPF)=0.000866 13
		2564.0 9	6 4	0.0	5/2⁺	[E1]	1.06×10⁻³	α(K)=7.05×10⁻⁵ 10; α(L)=7.78×10⁻⁶ 11; α(M)=1.420×10⁻⁶ 20; α(N+..)=0.000982 14 α(N)=2.31×10⁻⁷ 4; α(O)=1.247×10⁻⁸ 18; α(IPF)=0.000981 14
2576.0	1/2⁻,3/2⁻	1965.0 5	100 10	610.79	(1/2⁺,3/2,5/2⁺)			
		2576.6 f 8	30 f 7	0.0	5/2⁺			
2591.4	7/2⁺,9/2⁺,11/2⁺	1391.9 7	71 18	1199.11	11/2⁺			
		1712.9 5	98 20	878.76	9/2⁺			
		1751.2 6	100 21	840.19	7/2⁺			
2596.2	15/2⁻	716.9 3	100	1879.3	11/2⁻	E2	0.00198	α(K)=0.001728 25; α(L)=0.000205 3; α(M)=3.76×10⁻⁵ 6; α(N+..)=6.35×10⁻⁶ 9 α(N)=6.05×10⁻⁶ 9; α(O)=3.05×10⁻⁷ 5 Mult.: from γ(θ) (^{7}Li,3nγ).
2598.7	(17/2⁺)	773.0	100	1825.7	(13/2)⁺	(E2)	1.63×10⁻³	α(K)=0.001429 20; α(L)=0.0001684 24; α(M)=3.09×10⁻⁵ 5; α(N+..)=5.22×10⁻⁶ 8 α(N)=4.97×10⁻⁶ 7; α(O)=2.53×10⁻⁷ 4 Mult.: from γ(θ) (^{12}C,3nγ).
2640.4	(17/2)⁺	814.6 3	100	1825.7	(13/2)⁺	E2	1.43×10⁻³	α(K)=0.001255 18; α(L)=0.0001473 21; α(M)=2.70×10⁻⁵ 4; α(N+..)=4.57×10⁻⁶ 7 α(N)=4.35×10⁻⁶ 7; α(O)=2.23×10⁻⁷ 4 Mult.: from γ(θ) ((α,nγ),(^{6}Li,p2nγ)).
2647.82	3/2⁻	1463.2 4	37 3	1184.54	3/2⁺,5/2⁺	[E1]	4.02×10⁻⁴	α(K)=0.0001684 24; α(L)=1.87×10⁻⁵ 3; α(M)=3.42×10⁻⁶ 5; α(N+..)=0.000211 3 α(N)=5.55×10⁻⁷ 8; α(O)=2.98×10⁻⁸ 5; α(IPF)=0.000210 3
		1739.7 5	35 6	908.29	1/2⁺	[E1]	5.68×10⁻⁴	α(K)=0.0001269 18; α(L)=1.407×10⁻⁵ 20; α(M)=2.57×10⁻⁶ 4; α(N+..)=0.000424 6 α(N)=4.17×10⁻⁷ 6; α(O)=2.24×10⁻⁸ 4; α(IPF)=0.000424 6
		1876.5 5	4.6 15	771.38	3/2⁺	[E1]	6.53×10⁻⁴	α(K)=0.0001126 16; α(L)=1.247×10⁻⁵ 18;

$^{97}_{44}Ru_{53}$-11

Adopted Levels, Gammas (continued)

γ(^{97}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[e]	Comments
								α(M)=2.28×10^{-6} *4*; α(N+..)=0.000526 *8* α(N)=3.69×10^{-7} *6*; α(O)=1.99×10^{-8} *3*; α(IPF)=0.000525 *8*
2647.82	3/2$^-$	2036.8[g] *5*	34[g] *9*	610.79	(1/2$^+$,3/2,5/2$^+$)			
		2458.7 *9*	5 *3*	189.22	3/2$^+$	[E1]	1.00×10^{-3}	α(K)=7.49×10^{-5} *11*; α(L)=8.27×10^{-6} *12*; α(M)=1.510×10^{-6} *22*; α(N+..)=0.000918 *13* α(N)=2.45×10^{-7} *4*; α(O)=1.325×10^{-8} *19*; α(IPF)=0.000917 *13*
		2647.8 *5*	100 *8*	0.0	5/2$^+$	[E1]	1.11×10^{-3}	α(K)=6.73×10^{-5} *10*; α(L)=7.43×10^{-6} *11*; α(M)=1.356×10^{-6} *19*; α(N+..)=0.001032 *15* α(N)=2.20×10^{-7} *3*; α(O)=1.191×10^{-8} *17*; α(IPF)=0.001031 *15*
2660.4	(19/2$^+$)	154.8 *4*	100	2505.6	(17/2$^+$)	(M1(+E2))	0.18 *9*	α(K)=0.15 *8*; α(L)=0.023 *14*; α(M)=0.004 *3*; α(N+..)=0.0007 *4* α(N)=0.0007 *4*; α(O)=2.5×10^{-5} *10* Mult.: from DCO in ^{65}Cu(^{36}S,p3nγ).
2739.1	(21/2$^+$)	(98)		2652	1/2$^+$	[E2]	1.399	α(K)=1.105 *16*; α(L)=0.242 *4*; α(M)=0.0454 *7*; α(N+..)=0.00696 *10* α(N)=0.00680 *10*; α(O)=0.0001607 *23*
		193.53 *17*	100[c] *10*	2545.54	(17/2$^+$)	E2	0.1222	α(K)=0.1032 *15*; α(L)=0.01559 *23*; α(M)=0.00289 *5*; α(N+..)=0.000465 *7* α(N)=0.000448 *7*; α(O)=1.653×10^{-5} *24* B(E2)(W.u.)=9.0 *13* Mult.: from γ(θ) ((α,nγ),(^{6}Li,p2nγ)), (α,2nγ).
2743.1	(17/2$^+$)	897.4		1845.69	(15/2)$^+$	(M1+E2)[&]	0.00117 *4*	α(K)=0.00103 *4*; α(L)=0.000118 *3*; α(M)=2.17×10^{-5} *6*; α(N+..)=3.69×10^{-6} *11* α(N)=3.51×10^{-6} *10*; α(O)=1.85×10^{-7} *9* δ: −3.8 *+25−14* from γ(θ) ((α,nγ),(^{6}Li,p2nγ)).
2754.7	7/2$^+$	764.9 *6*	50 *25*	1990.07	(7/2)			
		1876.5 *5*	100 *25*	878.76	9/2$^+$			
		2563.7	35 *25*	189.22	3/2$^+$	[E2]	7.14×10^{-4}	α(K)=0.0001225 *18*; α(L)=1.364×10^{-5} *20*; α(M)=2.49×10^{-6} *4*; α(N+..)=0.000576 *8* α(N)=4.05×10^{-7} *6*; α(O)=2.19×10^{-8} *3*; α(IPF)=0.000575 *8*
		2753.8 *8*	50 *25*	0.0	5/2$^+$			
2759.4	(19/2)$^+$	213.90 *21*	22 *4*	2545.54	(17/2$^+$)	(M1(+E2))	0.063 *24*	α(K)=0.054 *20*; α(L)=0.007 *4*; α(M)=0.0014 *7*; α(N+..)=0.00022 *10* α(N)=0.00021 *10*; α(O)=9.E−6 *3* Mult.: from DCO in ^{65}Cu(^{36}S,p3nγ).

$^{97}_{44}Ru_{53}$-12

Adopted Levels, Gammas (continued)

γ(^{97}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[e]	Comments
2759.4	$(19/2)^+$	913.6 *4*	100 *7*	1845.69	$(15/2)^+$	E2	1.09×10^{-3}	α(K)=0.000954 *14*; α(L)=0.0001110 *16*; α(M)=2.03×10^{-5} *3*; α(N+..)=3.45×10^{-6} *5* α(N)=3.28×10^{-6} *5*; α(O)=1.696×10^{-7} *24* Mult.: from γ(θ) (^{7}Li,3nγ), ((α,nγ),(^{6}Li,p,2nγ)).
2760.4	$7/2^+,9/2^+,11/2^+$	1881.4 *9*	80 *40*	878.76	$9/2^+$			
		1920.0 *14*	60 *40*	840.19	$7/2^+$			
		2338.9 *5*	100 *24*	421.54	$7/2^+$			
2762.8	$(19/2^+)$	217.3[b] *4*	100	2545.54	$(17/2^+)$	(M1(+E2))	0.059 *22*	α(K)=0.051 *18*; α(L)=0.007 *3*; α(M)=0.0013 *6*; α(N+..)=0.00021 *9* α(N)=0.00020 *9*; α(O)=9.E−6 *3*
2764.77	$1/2^-,3/2^-$	567.24 *24*	75 *7*	2197.70	$3/2^-$			
		2152.1[d] *6*	100 *13*	610.79	$(1/2^+,3/2,5/2^+)$			
		2237.1 *6*	79 *13*	527.84	$3/2^+$	[E1]	8.75×10^{-4}	α(K)=8.61×10^{-5} *12*; α(L)=9.52×10^{-6} *14*; α(M)=1.737×10^{-6} *25*; α(N+..)=0.000777 *11* α(N)=2.82×10^{-7} *4*; α(O)=1.523×10^{-8} *22*; α(IPF)=0.000777 *11*
		2576.6[f] *8*	25[f] *6*	189.22	$3/2^+$			
2766.2	$7/2^+,9/2^+,11/2^+$	1888.0 *6*	44 *22*	878.76	$9/2^+$			
		1925.1 *7*	100 *31*	840.19	$7/2^+$			
2796.9	$1/2^-,3/2^-$	551.5 *6*	9 *2*	2245.89	$3/2^-$			
		1421.1 *8*	11 *2*	1376.87				
		1888.0 *6*	<16	908.29	$1/2^+$	[E1]	6.60×10^{-4}	α(K)=0.0001115 *16*; α(L)=1.235×10^{-5} *18*; α(M)=2.26×10^{-6} *4*; α(N+..)=0.000534 *8* α(N)=3.66×10^{-7} *6*; α(O)=1.97×10^{-8} *3*; α(IPF)=0.000534 *8*
		2608.0 *5*	100 *11*	189.22	$3/2^+$	[E1]	1.09×10^{-3}	α(K)=6.88×10^{-5} *10*; α(L)=7.59×10^{-6} *11*; α(M)=1.386×10^{-6} *20*; α(N+..)=0.001008 *15* α(N)=2.25×10^{-7} *4*; α(O)=1.217×10^{-8} *17*; α(IPF)=0.001008 *15*
2929.76	$3/2^-$	617.2 *4*	38 *15*	2312.78	$1/2^-,3/2^-$			
		683.8 *5*	46 *15*	2245.89	$3/2^-$			
		731.8 *3*	68 *9*	2197.70	$3/2^-$			
		2318.5 *8*	23 *15*	610.79	$(1/2^+,3/2,5/2^+)$			
		2930.6 *6*	100 *23*	0.0	$5/2^+$	[E1]	1.25×10^{-3}	α(K)=5.84×10^{-5} *9*; α(L)=6.43×10^{-6} *9*; α(M)=1.173×10^{-6} *17*; α(N+..)=0.001183 *17* α(N)=1.90×10^{-7} *3*; α(O)=1.032×10^{-8} *15*; α(IPF)=0.001183 *17*
2966.4	$7/2^+$	967.9 *6*	100 *36*	1998.6	$7/2^+,9/2^+,11/2^+$			

Adopted Levels, Gammas (continued)

γ(^{97}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[@]	α[e]	Comments
2966.4	7/2$^+$	2777.0 *10*	29 *18*	189.22	3/2$^+$	[E2]		7.95×10^{-4}	α(K)=0.0001068 *15*; α(L)=1.188×10^{-5} *17*; α(M)=2.17×10^{-6} *3*; α(N+..)=0.000674 *10* α(N)=3.52×10^{-7} *5*; α(O)=1.90×10^{-8} *3*; α(IPF)=0.000673 *10* Mult.: from DCO in ^{65}Cu(^{36}S,p3nγ).
3225.5	(19/2$^-$)	672.7[b] *4*	100	2552.8	15/2$^-$	(E2)		0.00233	α(K)=0.00204 *3*; α(L)=0.000243 *4*; α(M)=4.46×10^{-5} *7*; α(N+..)=7.53×10^{-6} *11* α(N)=7.17×10^{-6} *11*; α(O)=3.60×10^{-7} *5*
3264.9	3/2$^-$	1888.0[f] *6*	≤350[f]	1376.87					
		2492.9 *9*	50 *40*	771.38	3/2$^+$	[E1]		1.02×10^{-3}	α(K)=7.34×10^{-5} *11*; α(L)=8.11×10^{-6} *12*; α(M)=1.480×10^{-6} *21*; α(N+..)=0.000939 *14* α(N)=2.40×10^{-7} *4*; α(O)=1.299×10^{-8} *19*; α(IPF)=0.000938 *14*
		2737.6 *9*	100 *50*	527.84	3/2$^+$	[E1]		1.16×10^{-3}	α(K)=6.42×10^{-5} *9*; α(L)=7.08×10^{-6} *10*; α(M)=1.292×10^{-6} *19*; α(N+..)=0.001083 *16* α(N)=2.10×10^{-7} *3*; α(O)=1.136×10^{-8} *16*; α(IPF)=0.001083 *16*
		3076.2 *10*	100 *50*	189.22	3/2$^+$	[E1]		1.32×10^{-3}	α(K)=5.46×10^{-5} *8*; α(L)=6.01×10^{-6} *9*; α(M)=1.097×10^{-6} *16*; α(N+..)=0.001254 *18* α(N)=1.780×10^{-7} *25*; α(O)=9.65×10^{-9} *14*; α(IPF)=0.001254 *18*
		3264.0 *10*	50 *35*	0.0	5/2$^+$	[E1]		1.41×10^{-3}	α(K)=5.03×10^{-5} *7*; α(L)=5.54×10^{-6} *8*; α(M)=1.010×10^{-6} *15*; α(N+..)=0.001349 *19* α(N)=1.640×10^{-7} *23*; α(O)=8.89×10^{-9} *13*; α(IPF)=0.001349 *19*
3269.5	(19/2$^-$)	673.3 *3*	100	2596.2	15/2$^-$	E2		0.00233	α(K)=0.00203 *3*; α(L)=0.000243 *4*; α(M)=4.45×10^{-5} *7*; α(N+..)=7.51×10^{-6} *11* α(N)=7.15×10^{-6} *10*; α(O)=3.59×10^{-7} *5* Mult.: from γ(θ) (^{7}Li,3nγ).
3296.1	1/2$^-$,3/2$^-$	2767.1 *8*	100 *33*	527.84	3/2$^+$	[E1]		1.17×10^{-3}	α(K)=6.33×10^{-5} *9*; α(L)=6.98×10^{-6} *10*; α(M)=1.273×10^{-6} *18*; α(N+..)=0.001099 *16* α(N)=2.07×10^{-7} *3*; α(O)=1.119×10^{-8} *16*; α(IPF)=0.001099 *16*
		3108.0 *8*	95 *18*	189.22	3/2$^+$	[E1]		1.33×10^{-3}	α(K)=5.38×10^{-5} *8*; α(L)=5.93×10^{-6} *9*; α(M)=1.081×10^{-6} *16*; α(N+..)=0.001270 *18* α(N)=1.755×10^{-7} *25*; α(O)=9.51×10^{-9} *14*; α(IPF)=0.001270 *18*
3303.1	(21/2$^+$)	642.6[b] *4*	100	2660.4	(19/2$^+$)	(M1(+E2))		0.00261 *5*	α(K)=0.00228 *4*; α(L)=0.000268 *10*; α(M)=4.91×10^{-5}

$^{97}_{44}Ru_{53}$-14

Adopted Levels, Gammas (continued)

γ(^{97}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[e]	Comments
								17; α(N+..)=8.32×10^{-6} *24* α(N)=7.92×10^{-6} *24*; α(O)=4.09×10^{-7} *7* Mult.: from DCO in ^{65}Cu(^{36}S,p3nγ).
3368.8	7/2$^+$,9/2$^+$,11/2$^+$	2947.2 *6*	100	421.54	7/2$^+$			
3374.7	3/2$^-$	578.6 *6*	22 *7*	2796.9	1/2$^-$,3/2$^-$			
		1060.9 *10*	19 *8*	2312.78	1/2$^-$,3/2$^-$			
		3185.5 *7*	16 *3*	189.22	3/2$^+$	[E1]	1.37×10^{-3}	α(K)=5.20×10^{-5} *8*; α(L)=5.73×10^{-6} *8*; α(M)=1.045×10^{-6} *15*; α(N+..)=0.001309 *19* α(N)=1.696×10^{-7} *24*; α(O)=9.20×10^{-9} *13*; α(IPF)=0.001309 *19*
		3374.1 *6*	100 *11*	0.0	5/2$^+$	[E1]	1.46×10^{-3}	α(K)=4.81×10^{-5} *7*; α(L)=5.29×10^{-6} *8*; α(M)=9.66×10^{-7} *14*; α(N+..)=0.001404 *20* α(N)=1.568×10^{-7} *22*; α(O)=8.50×10^{-9} *12*; α(IPF)=0.001404 *20*
3458.9	3/2$^-$	3270.7 *10*	16 *10*	189.22	3/2$^+$	[E1]	1.41×10^{-3}	α(K)=5.02×10^{-5} *7*; α(L)=5.52×10^{-6} *8*; α(M)=1.008×10^{-6} *15*; α(N+..)=0.001352 *19* α(N)=1.636×10^{-7} *23*; α(O)=8.87×10^{-9} *13*; α(IPF)=0.001352 *19*
		3458.5 *6*	100 *20*	0.0	5/2$^+$	[E1]	1.50×10^{-3}	α(K)=4.65×10^{-5} *7*; α(L)=5.12×10^{-6} *8*; α(M)=9.34×10^{-7} *13*; α(N+..)=0.001443 *21* α(N)=1.516×10^{-7} *22*; α(O)=8.22×10^{-9} *12*; α(IPF)=0.001443 *21*
3480.8	(21/2$^+$)	882.1	100	2598.7	(17/2$^+$)			
3609.5	(23/2$^+$)	306.3[b] *4*	23[c] *5*	3303.1	(21/2$^+$)	(M1(+E2))	0.020 *5*	α(K)=0.018 *4*; α(L)=0.0022 *7*; α(M)=0.00041 *12*; α(N+..)=6.9×10^{-5} *19* α(N)=6.5×10^{-5} *19*; α(O)=3.1×10^{-6} *6* Mult.: from DCO in ^{65}Cu(^{36}S,p3nγ).
		949.2[b] *4*	100[c] *10*	2660.4	(19/2$^+$)	(E2)	9.96×10^{-4}	α(K)=0.000873 *13*; α(L)=0.0001013 *15*; α(M)=1.86×10^{-5} *3*; α(N+..)=3.15×10^{-6} *5* α(N)=2.99×10^{-6} *5*; α(O)=1.553×10^{-7} *22* Mult.: from DCO in ^{65}Cu(^{36}S,p3nγ).
3620.9	(23/2)$^+$	861.5 *6*	47 *5*	2759.4	(19/2)$^+$	E2	1.25×10^{-3}	α(K)=0.001096 *16*; α(L)=0.0001281 *18*; α(M)=2.35×10^{-5} *4*; α(N+..)=3.98×10^{-6} *6* α(N)=3.78×10^{-6} *6*; α(O)=1.95×10^{-7} *3* Mult.: from γ(θ) (^{7}Li,3nγ), ((α,nγ),(^{6}Li,p,2nγ)).
		881.8 *4*	100 *10*	2739.1	(21/2$^+$)			
3669.5	(25/2$^+$)	930.8 *8*	100	2743.1	(17/2$^+$)	E2	1.04×10^{-3}	α(K)=0.000914 *13*; α(L)=0.0001061 *15*;

Adopted Levels, Gammas (continued)

γ(^{97}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[e]	Comments
								α(M)=1.94×10^{-5} *3*; α(N+..)=3.30×10^{-6} *5* α(N)=3.14×10^{-6} *5*; α(O)=1.624×10^{-7} *23* B(E2)(W.u.)=6.2 *8* Mult.: γ(θ) (^{12}C,3nγ), ((α,nγ),(^{6}Li,p,2nγ)).
3941.1		1202.0 *3*		2739.1	(21/2$^+$)	(D)		Mult.: from γ(θ) (^{7}Li,3nγ).
3941.8	(23/2$^-$)	716.3[b] *4*	100	3225.5	(19/2$^-$)	(E2)	0.00198	α(K)=0.001732 *25*; α(L)=0.000205 *3*; α(M)=3.77×10^{-5} *6*; α(N+..)=6.37×10^{-6} *9* α(N)=6.06×10^{-6} *9*; α(O)=3.06×10^{-7} *5* Mult.: from DCO in ^{65}Cu(^{36}S,p3nγ).
4262.7	(27/2$^+$)	593.13 *17*	87[c] *9*	3669.5	(25/2$^+$)	(M1(+E2))	0.00319 *10*	α(K)=0.00279 *8*; α(L)=0.000329 *17*; α(M)=6.0×10^{-5} *4*; α(N+..)=1.02×10^{-5} *5* α(N)=9.7×10^{-6} *5*; α(O)=4.99×10^{-7} *8* Mult.: from DCO in ^{65}Cu(^{36}S,p3nγ).
		641.2	100[c]	3620.9	(23/2)$^+$	(E2)	0.00265	α(K)=0.00232 *4*; α(L)=0.000278 *4*; α(M)=5.09×10^{-5} *8*; α(N+..)=8.58×10^{-6} *12* α(N)=8.18×10^{-6} *12*; α(O)=4.08×10^{-7} *6* B(E2)(W.u.)=21 *3* Mult.: from DCO in ^{65}Cu(^{36}S,p3nγ).
4653.1	(27/2$^+$)	1043.6[b] *4*	100	3609.5	(23/2$^+$)	(E2)	8.03×10^{-4}	α(K)=0.000704 *10*; α(L)=8.12×10^{-5} *12*; α(M)=1.487×10^{-5} *21*; α(N+..)=2.53×10^{-6} *4* α(N)=2.40×10^{-6} *4*; α(O)=1.254×10^{-7} *18* Mult.: from DCO in ^{65}Cu(^{36}S,p3nγ).
4694.5	(27/2$^-$)	752.7[b] *4*	100	3941.8	(23/2$^-$)	(E2)	1.75×10^{-3}	α(K)=0.001527 *22*; α(L)=0.000180 *3*; α(M)=3.31×10^{-5} *5*; α(N+..)=5.59×10^{-6} *8* α(N)=5.32×10^{-6} *8*; α(O)=2.70×10^{-7} *4* Mult.: from DCO in ^{65}Cu(^{36}S,p3nγ).
4730.1	(29/2$^+$)	466.8 *3*	100 *8*	4262.7	(27/2$^+$)	(M1(+E2))	0.0060 *6*	α(K)=0.0053 *5*; α(L)=0.00063 *8*; α(M)=0.000116 *15*; α(N+..)=1.96×10^{-5} *22* α(N)=1.86×10^{-5} *22*; α(O)=9.3×10^{-7} *6* Mult.: from DCO in ^{65}Cu(^{36}S,p3nγ).
		1061.5 *4*	77[c] *8*	3669.5	(25/2$^+$)	(E2)	7.73×10^{-4}	α(K)=0.000678 *10*; α(L)=7.81×10^{-5} *11*; α(M)=1.430×10^{-5} *20*; α(N+..)=2.43×10^{-6} *4* α(N)=2.31×10^{-6} *4*; α(O)=1.208×10^{-7} *17* B(E2)(W.u.)=0.97 *17* Mult.: from DCO in ^{65}Cu(^{36}S,p3nγ).
4763.3		500.6 *4*	100	4262.7	(27/2$^+$)			
5106.4	(31/2$^+$)	343.1 *4*	13 *3*	4763.3				

Adopted Levels, Gammas (continued)

γ(^{97}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[e]	Comments
5106.4	(31/2$^+$)	376.1 *4*	13 *4*	4730.1	(29/2$^+$)			
		843.9 *4*	100 *10*	4262.7	(27/2$^+$)	(E2)	1.32×10^{-3}	α(K)=0.001152 *17*; α(L)=0.0001348 *19*; α(M)=2.47×10^{-5} *4*; α(N+..)=4.19×10^{-6} *6* α(N)=3.98×10^{-6} *6*; α(O)=2.04×10^{-7} *3*
5373.2	(33/2$^+$)	266.8 *4*	26 *4*	5106.4	(31/2$^+$)	(M1(+E2))	0.031 *9*	α(K)=0.027 *8*; α(L)=0.0035 *13*; α(M)=0.00064 *23*; α(N+..)=0.00011 *4* α(N)=0.00010 *4*; α(O)=4.6×10^{-6} *11*
		643.1 *4*	100 *10*	4730.1	(29/2$^+$)	(E2)	0.00263	α(K)=0.00230 *4*; α(L)=0.000275 *4*; α(M)=5.05×10^{-5} *8*; α(N+..)=8.52×10^{-6} *12* α(N)=8.11×10^{-6} *12*; α(O)=4.04×10^{-7} *6* B(E2)(W.u.)>12
5490.0		795.5 *4*	100	4694.5	(27/2$^-$)			
5721.8		1027.3 *4*	100	4694.5	(27/2$^-$)			
6133.3	(31/2$^+$)	1480.2 *4*	100	4653.1	(27/2$^+$)	(E2)	4.60×10^{-4}	α(K)=0.000338 *5*; α(L)=3.83×10^{-5} *6*; α(M)=7.00×10^{-6} *10*; α(N+..)=7.69×10^{-5} *11* α(N)=1.134×10^{-6} *16*; α(O)=6.03×10^{-8} *9*; α(IPF)=7.57×10^{-5} *11*
6248.4	(35/2$^+$)	875.2 *4*	100	5373.2	(33/2$^+$)	(M1(+E2))	0.00124 *4*	α(K)=0.00109 *4*; α(L)=0.000126 *3*; α(M)=2.30×10^{-5} *6*; α(N+..)=3.91×10^{-6} *11* α(N)=3.72×10^{-6} *10*; α(O)=1.96×10^{-7} *9*
6312.6		822.6 *4*	100	5490.0				
6765.2	(35/2$^+$)	631.9 *4*	100	6133.3	(31/2$^+$)	(E2)	0.00276	α(K)=0.00241 *4*; α(L)=0.000289 *4*; α(M)=5.31×10^{-5} *8*; α(N+..)=8.94×10^{-6} *13* α(N)=8.52×10^{-6} *12*; α(O)=4.24×10^{-7} *6*
6889.9	(37/2$^+$)	641.5 *4*	100	6248.4	(35/2$^+$)	(M1(+E2))	0.00262 *5*	α(K)=0.00229 *4*; α(L)=0.000269 *10*; α(M)=4.93×10^{-5} *18*; α(N+..)=8.36×10^{-6} *25* α(N)=7.95×10^{-6} *25*; α(O)=4.10×10^{-7} *7*
7380.4	(39/2$^+$)	490.5 *4*	100	6889.9	(37/2$^+$)			
7462.8	(39/2$^+$)	697.6 *4*	100	6765.2	(35/2$^+$)	(E2)	0.00212	α(K)=0.00185 *3*; α(L)=0.000221 *4*; α(M)=4.04×10^{-5} *6*; α(N+..)=6.83×10^{-6} *10* α(N)=6.50×10^{-6} *10*; α(O)=3.27×10^{-7} *5*
7638.6	(39/2$^+$)	1390.1 *4*	100	6248.4	(35/2$^+$)	(E2)	4.84×10^{-4}	α(K)=0.000383 *6*; α(L)=4.35×10^{-5} *7*; α(M)=7.96×10^{-6} *12*; α(N+..)=4.89×10^{-5} *7* α(N)=1.289×10^{-6} *18*; α(O)=6.84×10^{-8} *10*; α(IPF)=4.75×10^{-5} *7* B(E2)(W.u.)>0.30
7678.5		215.7 *4*	100	7462.8	(39/2$^+$)			
7908.2		229.7 *4*	100	7678.5				
8159.3	(39/2$^+$)	1269.2 *4*	100	6889.9	(37/2$^+$)	(M1(+E2))	5.67×10^{-4} *23*	α(K)=0.000483 *22*; α(L)=5.47×10^{-5} *22*; α(M)=1.00×10^{-5} *4*; α(N+..)=1.92×10^{-5} *16* α(N)=1.62×10^{-6} *7*; α(O)=8.7×10^{-8} *5*; α(IPF)=1.75×10^{-5} *17*

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Adopted Levels, Gammas (continued)

γ(^{97}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[e]	Comments
8407.2		944.4 *4*	100	7462.8	(39/2$^+$)			
8468.4	(43/2$^+$)	829.8 *4*	100	7638.6	(39/2$^+$)	(E2)	1.37×10^{-3}	α(K)=0.001200 *17*; α(L)=0.0001406 *20*; α(M)=2.58×10^{-5} *4*; α(N+..)=4.37×10^{-6} *7* α(N)=4.15×10^{-6} *6*; α(O)=2.13×10^{-7} *3*
8489.1	(41/2$^+$)	329.6 *4*	6 *2*	8159.3	(39/2$^+$)			
		1108.6 *4*	82 *8*	7380.4	(39/2$^+$)	(M1(+E2))	0.00073 *4*	α(K)=0.00064 *3*; α(L)=7.3×10^{-5} *3*; α(M)=1.34×10^{-5} *5*; α(N+..)=2.98×10^{-6} *5* α(N)=2.17×10^{-6} *9*; α(O)=1.16×10^{-7} *6*; α(IPF)=6.9×10^{-7} *8*
		1600 *1*	100 *10*	6889.9	(37/2$^+$)	(E2)	4.52×10^{-4}	α(K)=0.000290 *4*; α(L)=3.28×10^{-5} *5*; α(M)=5.99×10^{-6} *9*; α(N+..)=0.0001232 *18* α(N)=9.71×10^{-7} *14*; α(O)=5.18×10^{-8} *8*; α(IPF)=0.0001222 *18*
8541.7		1078.9 *4*	100	7462.8	(39/2$^+$)			
8621.3		1843.9 *10*	100	6777.3				
9204.3	(45/2$^+$)	736.1 *4*	100	8468.4	(43/2$^+$)	(M1(+E2))	0.00187 *4*	α(K)=0.00164 *4*; α(L)=0.000190 *3*; α(M)=3.49×10^{-5} *6*; α(N+..)=5.93×10^{-6} *9* α(N)=5.63×10^{-6} *8*; α(O)=2.94×10^{-7} *9*
9383.0		841.3 *4*	100	8541.7				
9423.1		881.4 *4*	100	8541.7				
9446.7		1039.5 *4*	100	8407.2				
9728.8		524.5 *4*	100	9204.3	(45/2$^+$)			
9763.6	(45/2$^+$)	1142.3 *4*	13 *6*	8621.3				
		1274.5 *4*	100 *10*	8489.1	(41/2$^+$)	(E2)	5.42×10^{-4}	α(K)=0.000458 *7*; α(L)=5.22×10^{-5} *8*; α(M)=9.56×10^{-6} *14*; α(N+..)=2.18×10^{-5} *4* α(N)=1.547×10^{-6} *22*; α(O)=8.17×10^{-8} *12*; α(IPF)=2.01×10^{-5} *3*
10121.1	(47/2$^+$)	916.7 *4*	100 *35*	9204.3	(45/2$^+$)	(M1(+E2))	0.00112 *4*	α(K)=0.00098 *4*; α(L)=0.000113 *3*; α(M)=2.06×10^{-5} *6*; α(N+..)=3.51×10^{-6} *11* α(N)=3.34×10^{-6} *10*; α(O)=1.76×10^{-7} *9*
		1652.0 *10*	50 *25*	8468.4	(43/2$^+$)			
10126.1		1637.0 *10*	100	8489.1	(41/2$^+$)			
10622.7		1418.3 *4*	100	9204.3	(45/2$^+$)			
10829.4		1625.0 *1*	100	9204.3	(45/2$^+$)			
10927.2	(47/2$^+$)	801.1 *4*	67 *15*	10126.1				
		1163.6 *4*	100 *17*	9763.6	(45/2$^+$)	(M1(+E2))	0.00066 *3*	α(K)=0.00058 *3*; α(L)=6.6×10^{-5} *3*; α(M)=1.21×10^{-5} *5*; α(N+..)=5.3×10^{-6} *3* α(N)=1.96×10^{-6} *8*; α(O)=1.04×10^{-7} *6*; α(IPF)=3.2×10^{-6} *4*
11081.2	(49/2$^+$)	960.0 *4*	100 *20*	10121.1	(47/2$^+$)	(M1(+E2))	0.00101 *4*	α(K)=0.00088 *4*; α(L)=0.000101 *3*; α(M)=1.86×10^{-5} *6*; α(N+..)=3.16×10^{-6} *11* α(N)=3.00×10^{-6} *10*; α(O)=1.59×10^{-7} *8*
		1877.8 *10*	25 *13*	9204.3	(45/2$^+$)			

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Adopted Levels, Gammas (continued)

γ(^{97}Ru) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult. [#]	α [e]	Comments
11288.0	(51/2$^+$)	206.8 *4*	100	11081.2	(49/2$^+$)	(M1(+E2))	0.07 *3*	α(K)=0.060 *23*; α(L)=0.008 *4*; α(M)=0.0015 *8*; α(N+..)=0.00025 *12* α(N)=0.00024 *11*; α(O)=1.0×10^{-5} *4*
11508.5		1387.4 *4*	100	10121.1	(47/2$^+$)			
11717.6	(53/2$^+$)	429.6 *4*	100	11288.0	(51/2$^+$)	(M1(+E2))	0.0076 *9*	α(K)=0.0066 *8*; α(L)=0.00080 *12*; α(M)=0.000147 *23*; α(N+..)=2.5×10^{-5} *4* α(N)=2.4×10^{-5} *4*; α(O)=1.17×10^{-6} *10*
12124.5	(49/2$^+$)	1197.3 *4*	100	10927.2	(47/2$^+$)	(M1(+E2))	0.00063 *3*	α(K)=0.000546 *25*; α(L)=6.20×10^{-5} *25*; α(M)=1.14×10^{-5} *5*; α(N+..)=8.4×10^{-6} *6* α(N)=1.84×10^{-6} *8*; α(O)=9.8×10^{-8} *6*; α(IPF)=6.5×10^{-6} *7*
12421.5		1340.3 *4*	100	11081.2	(49/2$^+$)			
12559.4		1478.1 *4*	100	11081.2	(49/2$^+$)			
12729.2		1899.8 *10*	100	10829.4				
12737.9		316.3 *4*	100	12421.5				
12744.5		1456.4 *4*	100	11288.0	(51/2$^+$)			
12946.9		1229.3 *4*	100	11717.6	(53/2$^+$)			
13253.8		694.4 *4*	100	12559.4				
13328.1	(51/2$^+$)	1203.6 *4*	100	12124.5	(49/2$^+$)	(M1(+E2))	0.00062 *3*	α(K)=0.000540 *25*; α(L)=6.13×10^{-5} *24*; α(M)=1.12×10^{-5} *5*; α(N+..)=9.2×10^{-6} *7* α(N)=1.82×10^{-6} *8*; α(O)=9.7×10^{-8} *5*; α(IPF)=7.3×10^{-6} *8*
13975.4		1028.4 *4*	100	12946.9				
14566.0		1619.0 *10*	100	12946.9				
15047.7		1793.9	100	13253.8				
15209.9		1881.8 *10*	100	13328.1	(51/2$^+$)			
15479.8		2151.7 *10*	100	13328.1	(51/2$^+$)			
16088.0		1522.0 *10*	100	14566.0				
16132.0		1566.0 *10*	100	14566.0				
17291.7		2081.8 *10*	100	15209.9				

[†] From either of the ^{97}Rh ε decays where available. For gammas seen only in reaction data, E is the unweighted average of measurements in (^{7}Li,3nγ), ((α,nγ), (^{6}Li,p2nγ)) and (α,2nγ) data sets where available (the data from ^{65}Cu(^{36}S,p3nγ) dataset, which were recalibrated by evaluator − see this dataset for details − were not considered to the average).

[‡] Weighted average of measurements in all data sets where available.

[#] It is assumed that transitions deduced to be stretched Q from γ(θ) in reaction experiments are E2 and not M2.

[@] The δ values determined in the ((α,nγ), ^{6}Li,p2nγ)) and (α,2nγ) experiments have not been adopted because of the large discrepancy between the two measurements. The values are given in comments.

[&] D+Q from ((α,nγ),(^{6}Li,p2nγ)); Δπ=no from level scheme.

[a] D from ((α,nγ),(^{6}Li,p2nγ)); Δπ=yes from level scheme.

[b] From ^{65}Cu(^{36}S,p3nγ).

[c] From ^{65}Cu(^{36}S,p3nγ).

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Adopted Levels, Gammas (continued)

$\gamma(^{97}Ru)$ (continued)

[d] Differ by 3σ from calculated value.

[e] 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.

[f] Multiply placed with undivided intensity.

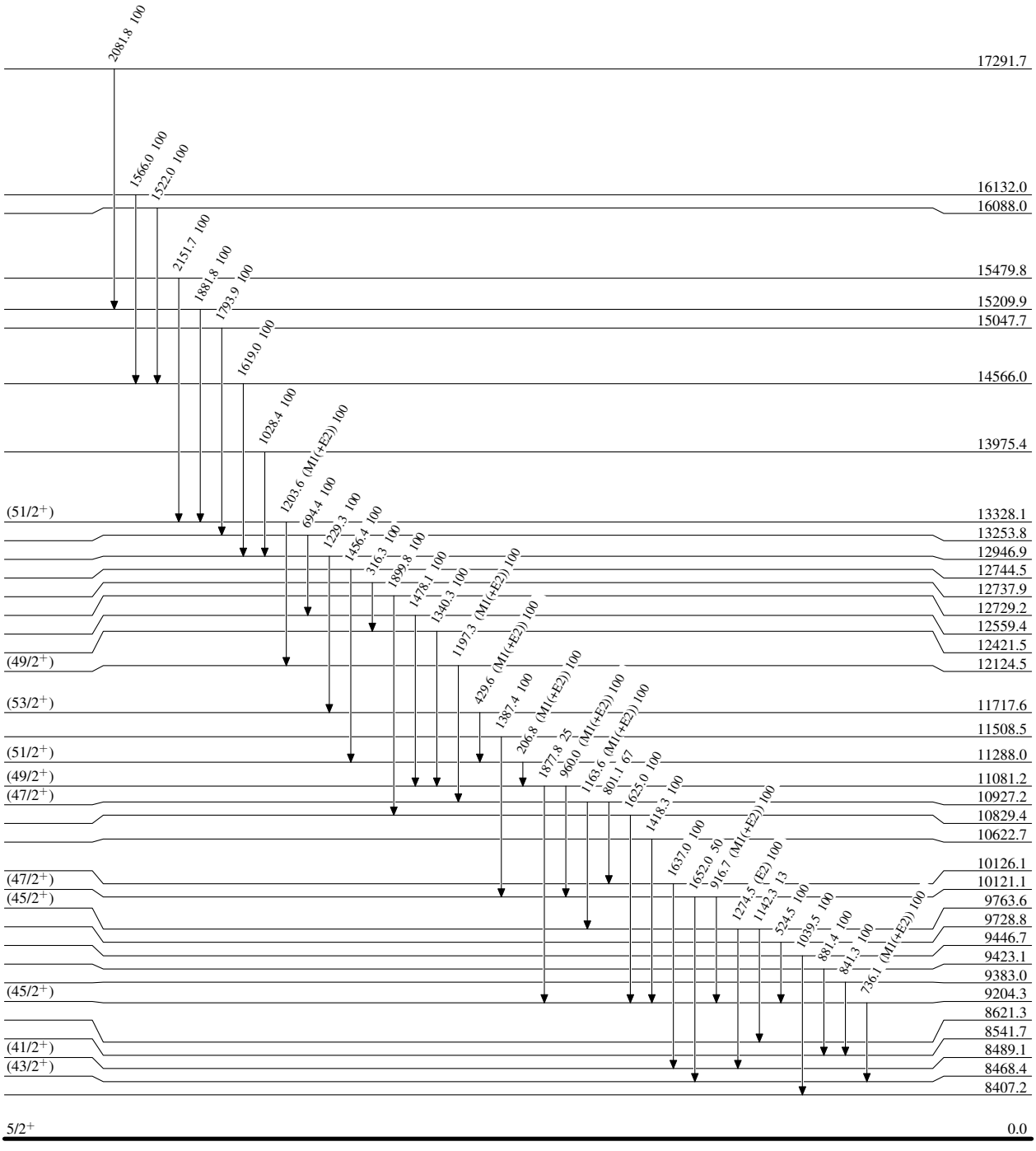
[g] Multiply placed with intensity suitably divided.

$^{97}_{44}Ru_{53}$-20

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

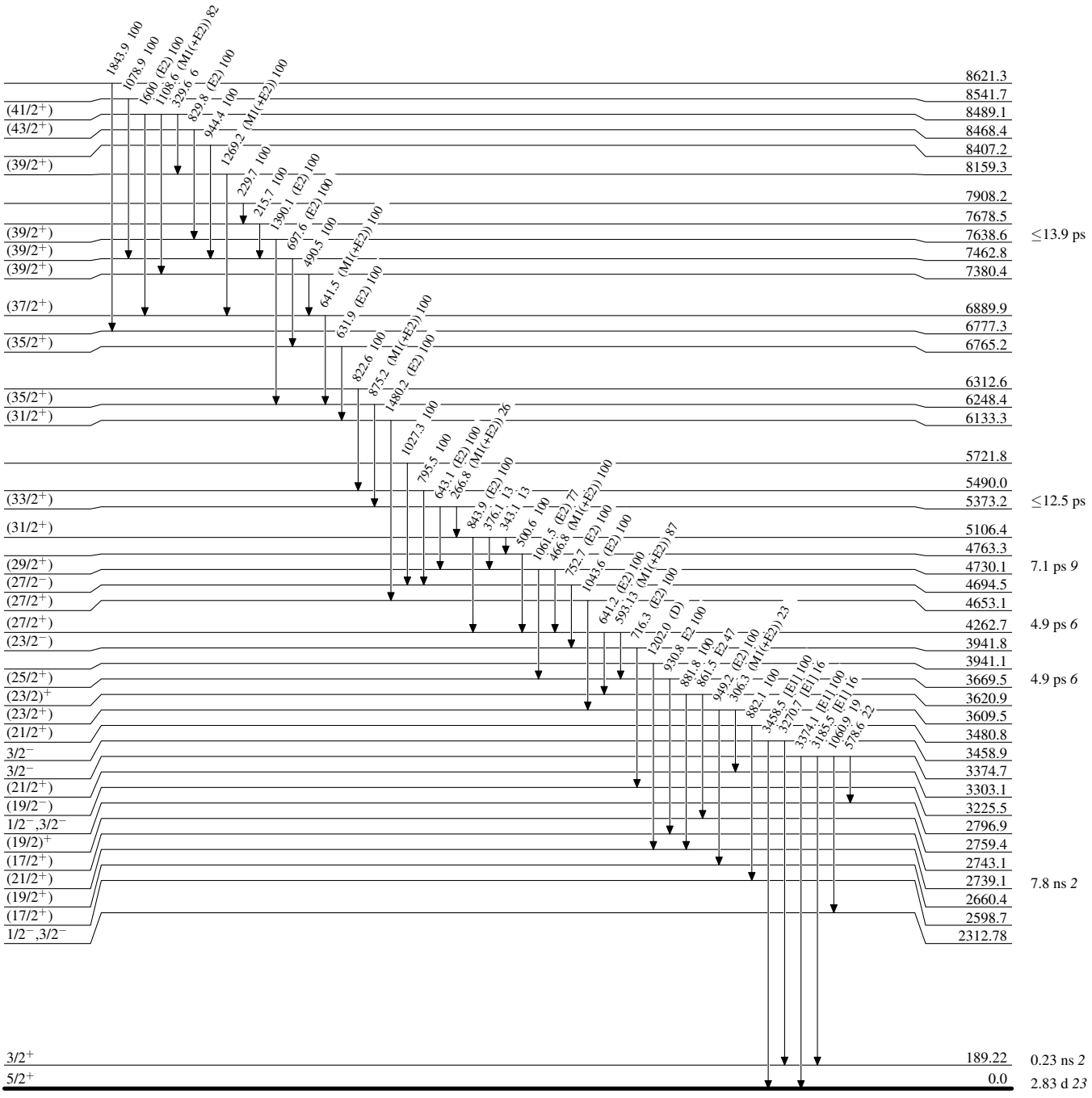


$^{97}_{44}Ru_{53}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

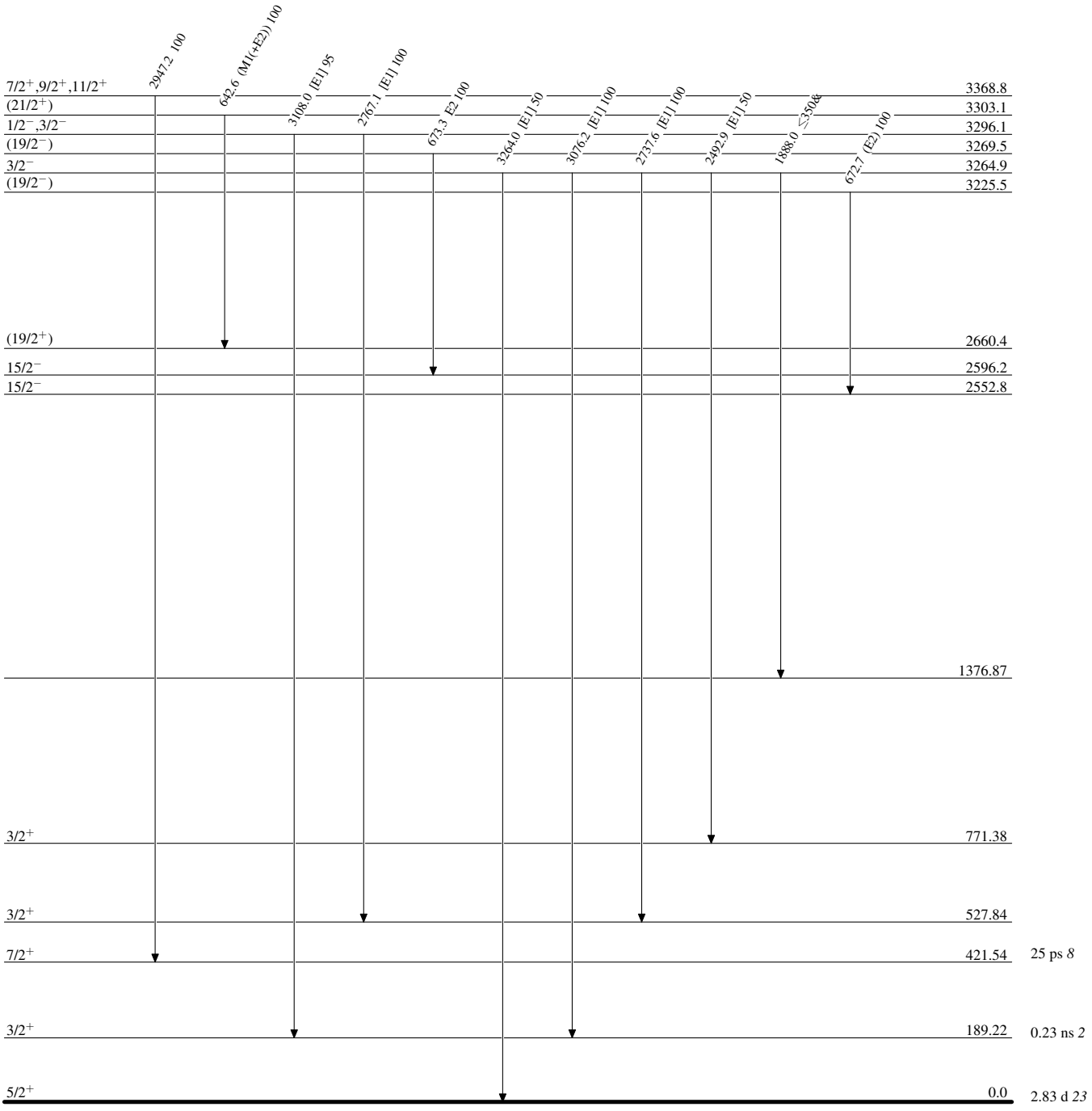


$^{97}_{44}Ru_{53}$

Adopted Levels, Gammas

Level Scheme (continued)

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

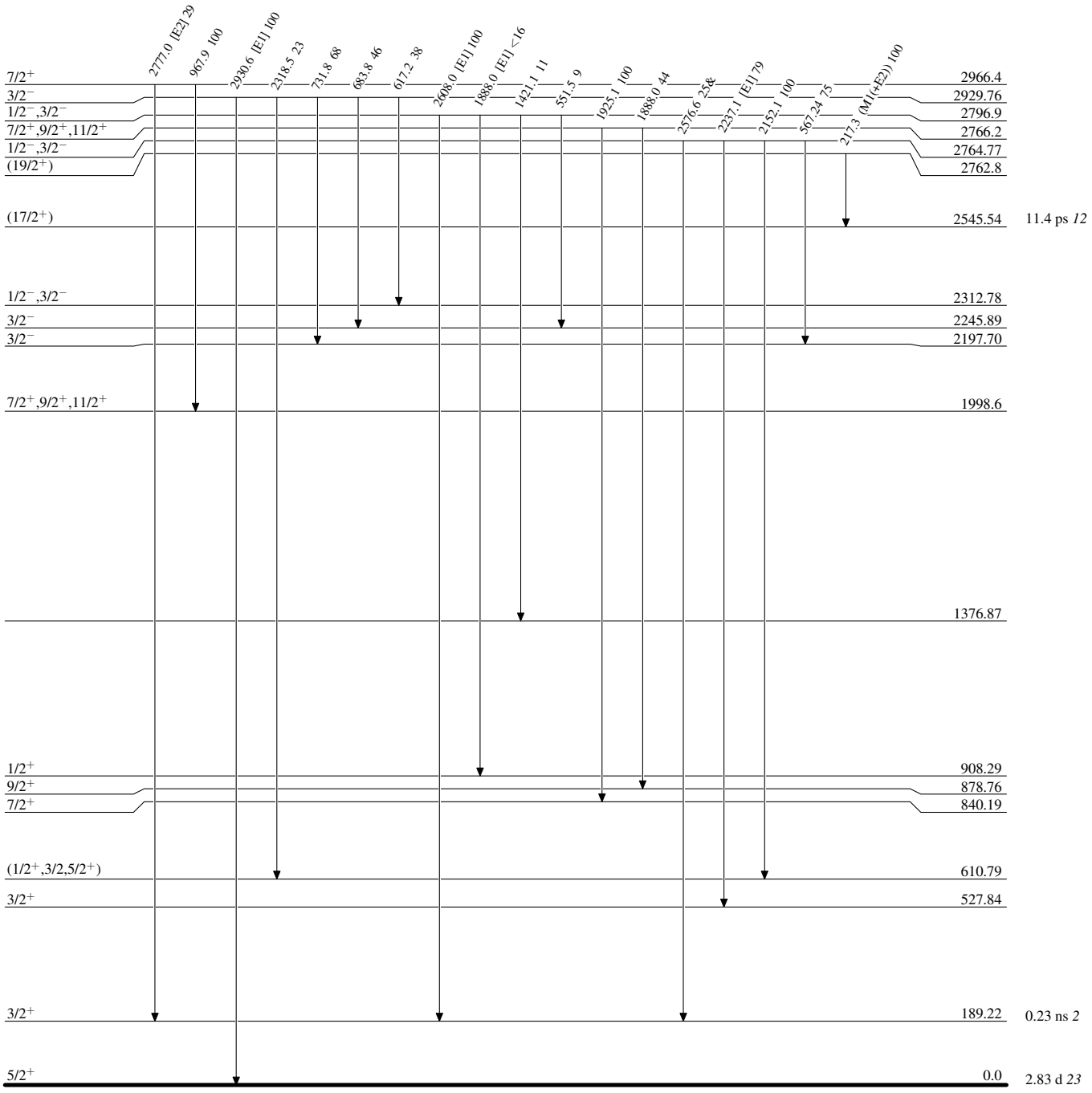


$^{97}_{44}Ru_{53}$

Adopted Levels, Gammas

Level Scheme (continued)

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



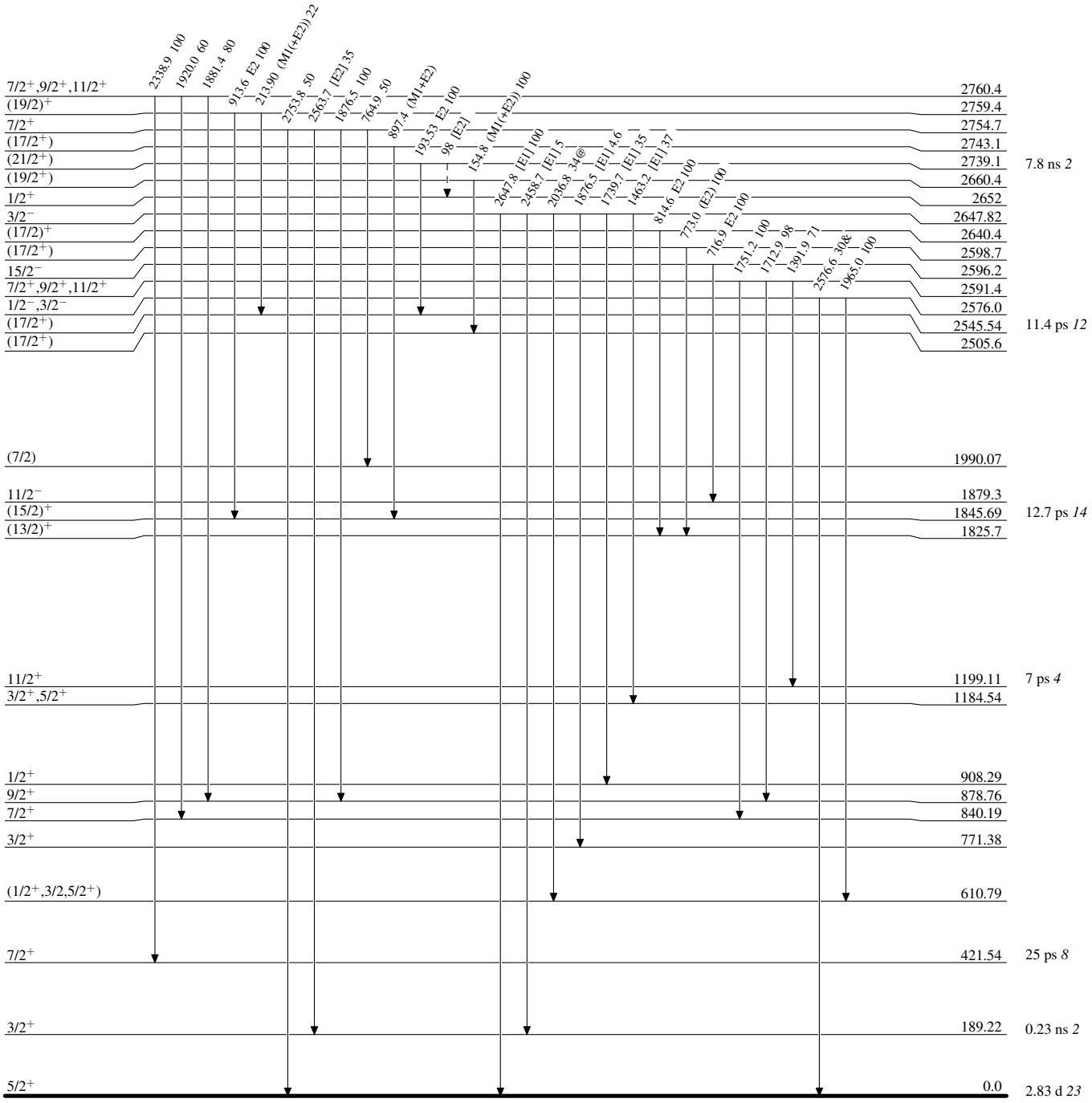
$^{97}_{44}Ru_{53}$

Adopted Levels, Gammas

Level Scheme (continued)

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

Legend: ------► γ Decay (Uncertain)

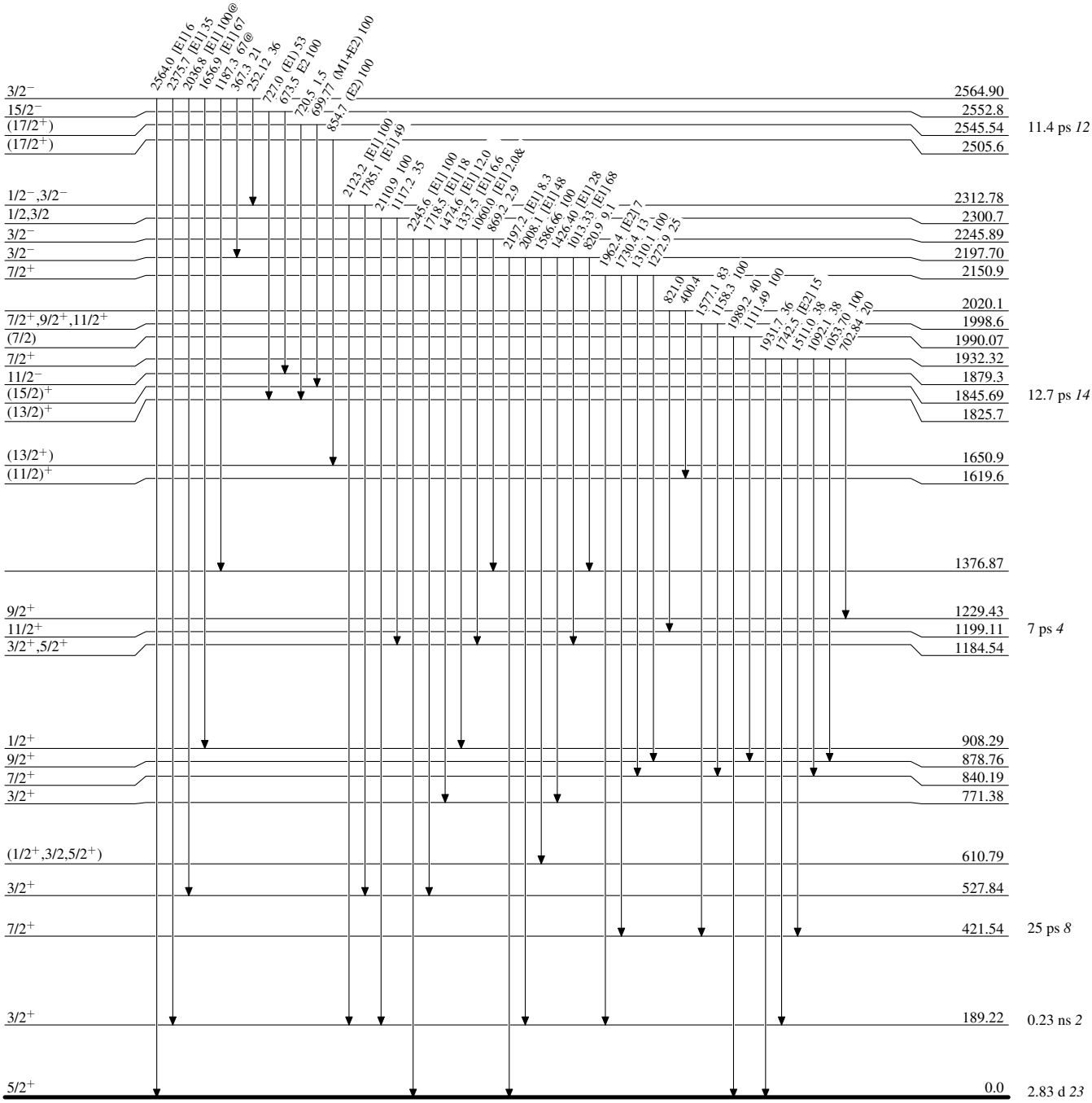


$^{97}_{44}Ru_{53}$

Adopted Levels, Gammas

Level Scheme (continued)

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

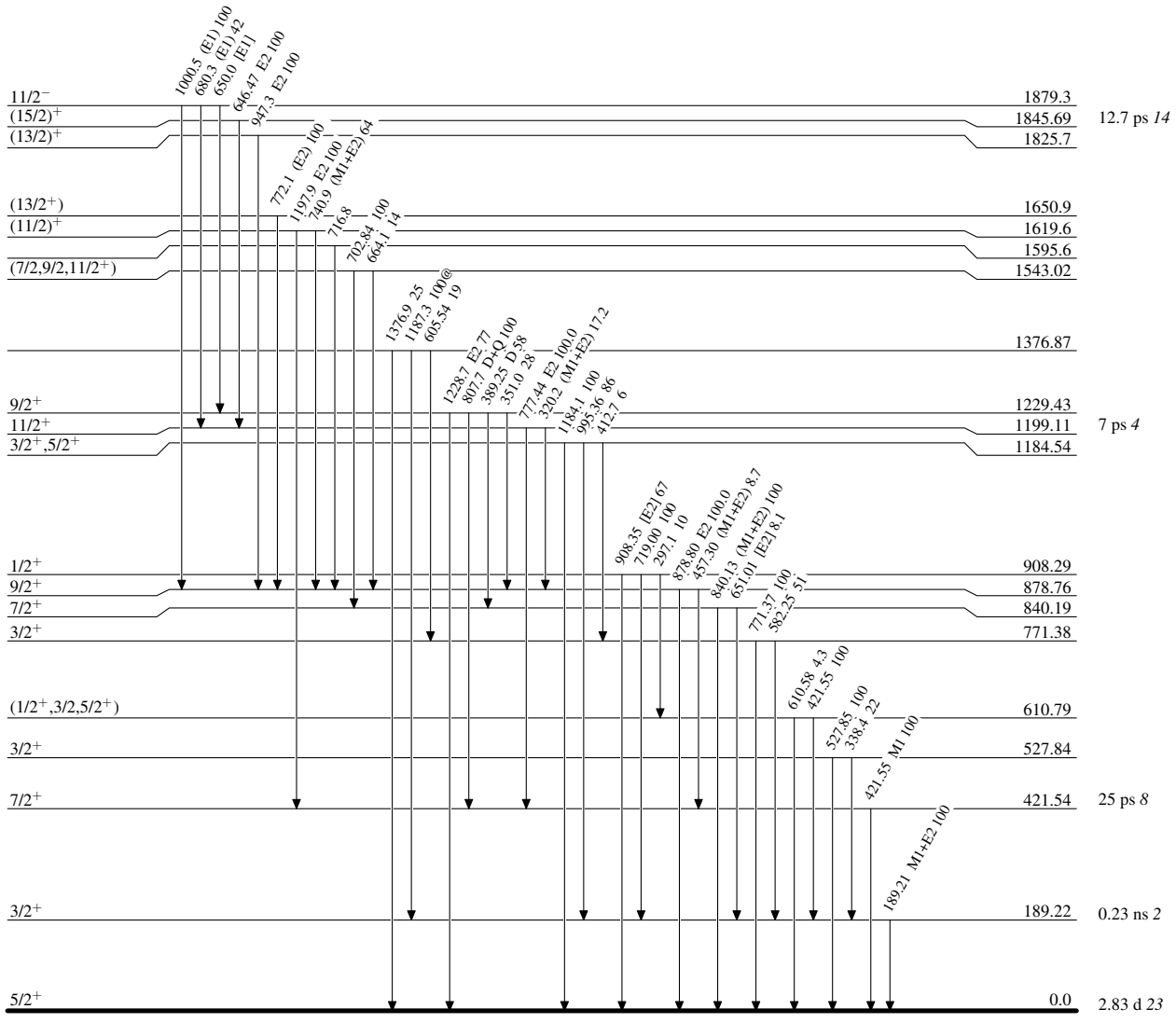


$^{97}_{44}Ru_{53}$

Adopted Levels, Gammas

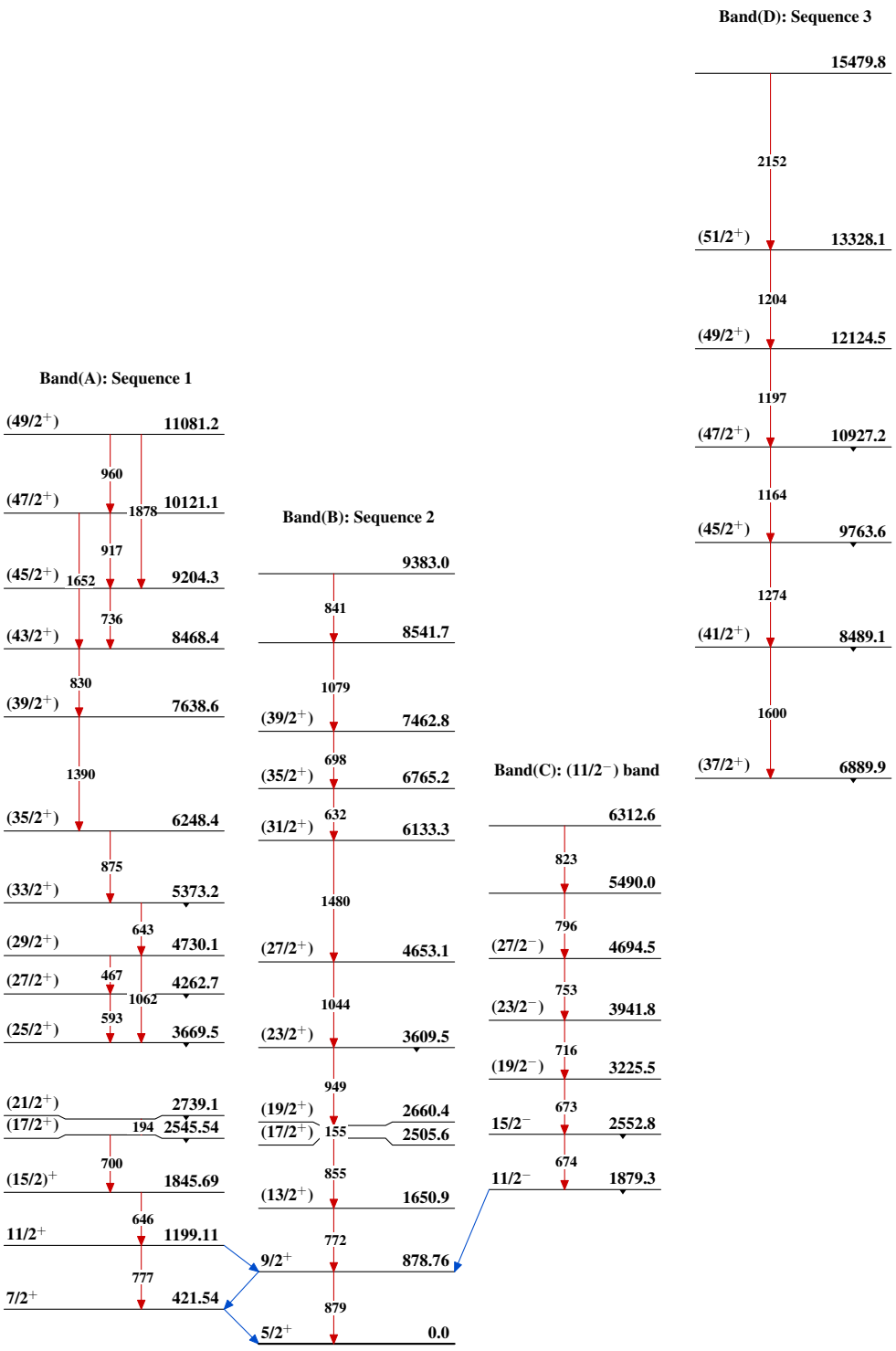
Level Scheme (continued)

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



$^{97}_{44}Ru_{53}$

Adopted Levels, Gammas



$^{97}_{44}Ru_{53}$