Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 110,265 (2009)	15-Nov-2008

Q(β^-)=−2.71×10^3 *3*; S(n)=6959 *21*; S(p)=5.99×10^3 *syst*; Q(α)=2762 *15* 2012Wa38
Note: Current evaluation has used the following Q record −2717 296959 226085 222755 16 2003Au03.
Other reactions:

Fragmentation of 1 GeV/nucleon ^{208}Pb (2000PoZY, 2000Sc32, 2000Wo13, 2001MaZV, 2001Pf03, 2002Pf01, 2002Po15):
Be target, FRS fragment separator, Ge detector array; observed γ rays following production of known 21/2$^+$ (E=1632) and 35/2$^-$ (E=3348) isomers.

^{48}Ca(Xe,X) (2000Po16):
E(^{134}Xe)=535 MeV, E(^{136}Xe)=535, 550 MeV; 80%−90% ^{48}Ca oxide targets, 8π γ-detector array (20 Compton-suppressed Ge detectors + 70−element BGO calorimeter); observed 8 γ rays (out of beam) from known levels with E≤1065; found no evidence for isomers in ^{179}W with a mean life between 6 h and 19 d (i.e., $T_{1/2}$ between 4.2 h and 13 d).

^{179}W Levels

Levels with K>9/2 are interpreted as many-quasiparticle states; see 1994Wa05 for detailed discussion of those assignments.

Cross Reference (XREF) Flags

A	^{179}Re ε decay	D	^{170}Er(^{13}C,4nγ), ^{180}Hf(α,5nγ)
B	^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ)	E	^{179}W IT decay (6.40 min)
C	^{178}Hf(α,3nγ)	F	^{180}W(d,t)

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$[#]	XREF	Comments
0.0[b]	7/2$^-$[c]	37.05[a] min *16*	ABCDEF	%ε+%β^+=100 J$^\pi$,configuration: allowed, unhindered ε decay (log *ft*=4.6) to 30.67 π=− level in ^{179}Ta indicates transition between states with same asymptotic quantum numbers, typically (ν 7/2[514]) to (π 9/2[514]) in this mass region.
119.9127[b] *20*	9/2$^-$[c]		ABCDE	J$^\pi$: intraband M1+E2 γ to 7/2$^-$ g.s.; continuation of 7/2$^-$ band.
221.91[h] *3*	1/2$^-$[i]	6.40 min *7*	ABCDEF	%IT=99.71 *4*; %ε+%β^+=0.29 *4* J$^\pi$: M3 221.9γ to 7/2$^-$ g.s.; no γ to 9/2$^-$ 120. Band based on this level has a decoupling parameter of +0.82, characteristic of the 1/2[521] orbital. $T_{1/2}$: from ^{179}W IT decay (6.40 min).
264.62[b] *4*	11/2$^-$[c]		ABCD	J$^\pi$: stretched E2 intraband 265γ to 7/2$^-$ g.s.; M1+E2 145γ to 9/2$^-$ 120.
304.76[h] *4*	3/2$^-$[i]		ABCD F	XREF: F(305). J$^\pi$: E2(+M1) 83γ to 1/2$^-$ 222; continuation of band built on 1/2$^-$ 222 level.
308.965[e] *4*	9/2$^+$[f]	1.53 ns *10*	ABCD	J$^\pi$: E1 189γ to 9/2$^-$ 120, E1 309γ to 7/2$^-$ g.s., stretched E2 465γ from 5/2$^+$ 774. $T_{1/2}$: from ^{177}Hf(α,2nγ) (1974An11). Other: 1.6 ns *2* from (^{13}C,4nγ).
318.35[h] *3*	5/2$^-$[i]		ABCD F	XREF: F(318). J$^\pi$: E2 γ to 1/2$^-$ 222; continuation of band built on 1/2$^-$ 222 level.
372.825[e] *4*	11/2$^+$[f]		BCD	J$^\pi$: E1 253γ to 9/2$^-$ 120, D 108γ to 11/2$^-$ 265; continuation of band built on 9/2$^+$ 309 level.
≈390			F	
430.20[j] *3*	5/2$^-$		ABC F	J$^\pi$: M1 125γ to 3/2$^-$ 305, M1(+E2) 430γ to 7/2$^-$ g.s.

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Adopted Levels, Gammas (continued)

^{179}W Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
432.636[b] 11	13/2−[c]	BCD	Jπ: stretched E2 313γ to 9/2− 120; continuation of g.s. band.
468.618[e] 11	13/2+[f]	BCD F	Jπ: D+Q 96γ to 11/2+ 373; continuation of band built on 9/2+ 309 level.
477.30[m] 3	7/2+	ABC	Jπ: M1+E2 168γ to 9/2+ 309, M1+E2 296γ from 5/2+ 774. 7/2[633] band, Coriolis mixed with other N=6 orbitals.
508.96[h] 6	7/2−[i]	ABCD F	Jπ: E2 204γ to 3/2− 305; continuation of band built on 1/2− 222 level.
531.47[j] 4	7/2−	ABC F	Jπ: M1+E2 101γ to 5/2− 430; M1 411γ to 9/2− 120.
533.22[h] 6	9/2−[i]	ABCD F	Jπ: E2 215γ to 5/2− 318; continuation of band built on 1/2− 222 level.
≈560		F	
606.058[e] 11	15/2+[f]	BCD	Jπ: E2 233γ to 11/2+ 373; D+Q 137γ to 13/2+ 469.
623.00[b] 7	15/2−[c]	BCD	Jπ: stretched E2 intraband 358γ to 11/2− 265.
634.7[k] 5	(1/2)−	B	Jπ: M1 330γ to 3/2− 305; 413γ to 1/2− 222; probable 1/2[510] bandhead.
654.3[m] 7	(9/2)+	B	Jπ: E2 256γ from (13/2)+ 910; gammas to 7/2+ and 7/2−.
688.81[k] 7	(3/2)−	AB F	Jπ: M1 467γ to 1/2− 222, M1 384γ to 3/2− 305, band assignment.
720.18[l] 3	3/2+	A F	Jπ: E1 498γ to 1/2− 222, E1 290γ to 5/2− 430.
748.187[e] 12	17/2+[f]	BCD F	Jπ: E2 280γ to 13/2+ 469; D+Q 142γ to 15/2+ 606; continuation of 9/2+ band.
773.64[l] 3	5/2+	A	Jπ: E1 242γ to 7/2− 531; M1+E2 53γ to 3/2+ 720.
787.35[k] 7	(5/2)−	AB F	Jπ: M1 482γ to 3/2− 305; 787γ to 7/2− g.s.; band assignment.
809.0[m] 9	(11/2+)	B	Jπ: 155γ to (9/2+) 654; band assignment.
823.38[h] 11	11/2−[i]	BCD F	XREF: F(816). Jπ: E2 314γ to 7/2− 509; continuation of band built on 1/2− 222 level.
834.17[b] 9	17/2−[c]	BCD	
855.101 9	7/2+	A	Jπ: E2 135γ to 3/2+ 720; M1 546γ to 9/2+ 309.
856.98[h] 11	13/2−[i]	BCD	Jπ: (E2) 323γ to 9/2− 533; continuation of band built on 1/2− 222 level.
910.4 8	(13/2)+	B f	Jπ: E2 602γ to 9/2+ 309; 101γ to (11/2+) 809.
913.9[k] 7	(7/2)−	B f	Jπ: E2 609γ to 3/2− 305 level; band assignment.
915.74[m] 10	(13/2+)	D f	Jπ: 543γ to 11/2+ 373; 310γ to 15/2+ 606; band assignment.
958 6		F	
960.81[e] 6	19/2+[f]	BCD	Jπ: stretched E2 355γ to 15/2+ 606; continuation of 9/2+ band.
1029.05 8	(5/2,7/2)+	A F	Jπ: E1 242γ to (5/2)− 787; 720γ to 9/2+ 309.
1064.59[b] 8	19/2−[c]	BCD	Jπ: E2 γ to 15/2− 623; continuation of g.s. band.
1072.27 11	(5/2−)	A F	Jπ: 850γ to 1/2− 222; 595γ to 7/2+ 477; 1072γ to 7/2− g.s.
1089.8[k] 8	(9/2−)	B	Jπ: 176γ to (7/2)− 914; 303γ to (5/2)− 787; band assignment.
1107.7 11	(15/2+)	B	Jπ: (E2) 299γ to (11/2+) 809; 197γ to (13/2)+ 910; no γ to J≤(11/2).
1123.24[e] 6	21/2+[f]	BCD	Jπ: stretched E2 375γ to 17/2+ 748; D+Q 162γ to 19/2+ 961.
1127.29[m] 9	(15/2+)	D	Jπ: 659γ to 13/2+ 469; 379γ to 17/2+ 748; band assignment.
1150.52 8	(13/2+)[@]	D	Jπ: (11/2+,13/2+) from 544γ to 15/2+ 606 and 842γ to 9/2+ 309; possible 527γ to 15/2− 264.
1216.27[m] 8	(17/2+)	D	Jπ: (15/2+,17/2+) from 748γ to 13/2+ 468 and 255γ to 19/2+ 961; band assignment.
1224.77[h] 23	15/2−[i]	BCD	
1272.67[h] 14	17/2−[i]	BCD	Jπ: stretched E2 γ to 13/2− 857; band built on 1/2− 222 level.
1290.8[k] 12	(11/2−)	B F	Jπ: 201γ to (9/2−) 1090; band assignment.
1312.64[b] 12	21/2−[c]	CD	
1425.03[e] 8	23/2+[f]	CD	
1480.30 9	(7/2,9/2)	A	Jπ: gammas to 7/2− and 7/2+ and 9/2− and 9/2+.
1517.23 9	(17/2+)[&]	D	Jπ: 769γ to 17/2+ 748; 367γ to (13/2+) 1150; fragmented deexcitation consistent with level being a band head; band assignment.
1532.46[m] 10	(19/2+)	D	Jπ: 784γ to 15/2+ 606; band assignment.
1539.4[k] 12	(13/2−)	B	Jπ: 248γ to (11/2−) 1291; 450γ to (9/2−) 1090; band assignment.

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Adopted Levels, Gammas (continued)

^{179}W Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
				J^π and band assignment may Be unreliable; multipolarities of deexciting transitions may differ from those assumed by 1975Me21 in (p,3nγ), (α,2nγ).
1575.99[b] 11	23/2−[c]		CD	
1582.91[e] 9	25/2+[f]		CD	
1606.30[n] 6	(3/2)+		A	Jπ: 1385γ to 1/2− 222; M1 833γ to 5/2+ 774. Fragmented deexcitation suggestive of band head.
1631.90[g] 8	(21/2+)	390 ns 30	CD	Jπ: (19/2+,21/2+) from 884γ to 17/2+ 748 and 207γ to 23/2+ 1425; band assignment. g-factor much less than 0.48 and of opposite sign to that for 31/2− 3348 level (1998ByZZ); from DTPAD in (^{13}C,4nγ).
1649.04 12	(7/2)		A	Jπ: log ft=6.7 from (5/2)+; gammas to 7/2− g.s., 9/2− 120, 9/2+ 309.
1680.27 5	(7/2)+		A	Jπ: E1 1680γ to 7/2− g.s.; gammas to 5/2− 430 and 9/2− 120. Possible K^π=7/2+ three-quasiparticle state with configuration (π 9/2[514])+(π 5/2[402])-(ν 7/2[514]) (1975Me20).
1698.3[h] 3	19/2−[i]		CD	
1750.34 7	(3/2,5/2)		A	Jπ: (1/2−,3/2,5/2) based on transitions to 5/2− 430 and (3/2)− 689 and 3/2+ 720; log ft=6.3, log $f^{1u}t$<8.5 from (5/2)+ in ε decay.
1754.73[h] 20	21/2−[i]		BCD	Jπ: E2 482γ to 17/2− 1273; continuation of band built on 1/2− 222 level.
1808.71[n] 5	(7/2)+		A	Jπ: log ft=5.7 from (5/2)+ in ε decay; gammas to 9/2− 120 and 9/2+ 309.
1832.28[d] 14	(23/2−)	<0.5 ns	CD	Jπ: E1 200γ to (21/2+) 1632; band assignment.
1854.17[b] 12	25/2−[c]		CD	
1873.37[g] 14	(23/2+)		CD	Jπ: D+Q 241γ to (21/2+) 1632; band assignment.
1987.59[e] 9	27/2+[f]		CD	
2012.10[o] 14	(23/2+)	<1.0 ns	CD	Jπ: M1 139γ to (23/2+) 1873; 180γ to (23/2−) 1832; 380γ to (21/2+) 1632; band assignment.
2037.86[d] 15	(25/2−)		CD	Jπ: D+Q intraband 206γ to (23/2−) 1832; band assignment.
2088.50[p] 22	(23/2−)	<0.5 ns	D	Jπ: 457γ to (21/2+) 1632; band assignment.
2120.46[e] 10	29/2+[f]		CD	
2137.99[g] 15	(25/2+)		D	Jπ: 265γ to (23/2+) 1873; 506γ to (21/2+) 1632; band assignment.
2141.39[b] 12	27/2−[c]		CD	
2206.25 15	(5/2,7/2+)		A	Jπ: log ft=6.0 from (5/2)+ in ε decay; 1486γ to 3/2+ 720; 1698γ to 7/2− 509, 1729γ to 7/2+ 477.
2222.1[h] 4	23/2−[i]		D	
2261.36[d] 13	(27/2−)		CD	Jπ: D+Q intraband 223γ to (25/2−) 2038; (Q) 429γ to (23/2−) 1832.
2272.89[h] 25	25/2−[i]		CD	Jπ: stretched E2 518γ to 21/2− 1754; band assignment.
2291.73[o] 19	(25/2+)		CD	Jπ: 280γ to (23/2−) 2012; band assignment.
2299.7[p] 3	(25/2−)		D	Jπ: 211γ to (23/2−) 2089; band assignment.
2424.41[g] 17	(27/2+)		D	Jπ: (Q) intraband 551γ to (23/2−) 1873; band assignment.
2442.62[b] 13	29/2−[c]		CD	
2504.84[d] 15	(29/2−)		CD	Jπ: 651γ to 25/2− 1854; 243γ to (27/2−) 2261; band assignment.
2546.8[p] 4	(27/2−)		D	Jπ: 247γ to (25/2−) 2300; band assignment.
2586.31[o] 16	(27/2+)		CD	Jπ: (D+Q) intraband 295γ to (25/2+) 2292; band assignment.
2633.69[e] 23	31/2+[f]		D	
2723.48[e] 18	33/2+[f]		D	
2730.86[g] 17	(29/2+)		D	Jπ: (E2) 593γ to (25/2+) 2138; band assignment.
2738.67[d] 13	(31/2−)		CD	Jπ: 296γ to 29/2− 2443; 598γ to 27/2− 2141; band assignment.
2767.0[h] 5	27/2−[i]		D	
2772.63[b] 14	31/2−[c]		D	

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Adopted Levels, Gammas (continued)

^{179}W Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
2798.3[h] 3	29/2−[i]		D	
2822.1[p] 4	(29/2−)		D	Jπ: intraband gammas to (25/2−) and (27/2−); band assignment.
2893.80[o] 19	(29/2+)		CD	Jπ: 307γ to (27/2+) 2894; 602γ to (25/2+) 2292; band assignment.
3031.95[d] 15	(33/2−)		D	Jπ: 259γ to 31/2− 2773; 589γ to 29/2− 2443; band assignment.
3055.04[g] 21	(31/2+)		D	Jπ: 324γ to (29/2+) 2731; 631γ to (27/2+) 2424; band assignment.
3082.12[b] 16	33/2−[c]		D	
3121.1[p] 5	(31/2−)		D	Jπ: 299γ to (29/2−) 2822; possible 574γ to (27/2−) 2547; band assignment.
3210.55[o] 22	(31/2+)		CD	Jπ: 317γ to (29/2+) 2894; 624γ to (27/2+) 2587; band assignment.
3224.98[q] 17	(31/2+)	<0.5 ns	D	Jπ: 800γ to (27/2+) 2424; D+Q 331γ to (29/2+) 2894; band assignment.
3326.28[d] 15	(35/2−)		D	Jπ: 244γ to 33/2− 3082; 554γ to 31/2− 2773; band assignment.
3328.1[h] 3	33/2−[i]		D	
3343.6[e] 3	35/2+[f]		D	
3346.2[h] 5	31/2−[i]		D	
3348.41[r] 14	(35/2−)	750 ns 80	D	Q=4.0 +8−11 (2001Ba04); μ=8.31 9 μ: From g=0.475 5 (1998ByZZ); from TDPAD measurement in (^{13}C,4nγ). Q: From level-mixing spectroscopy (LEMS) (2001Ba04; see also 1999Vy01, 2001Ba86, 2001Ne06); isomer produced in ^{170}Er(^{13}C,4nγ). Jπ: E2 610γ to (31/2−) 2739; 625γ to 33/2+ 2723; 266γ to 33/2− 3082; band assignment. $T_{1/2}$: other: 710 ns, $\Delta T_{1/2}$ unstated (1978Be15).
3348.58[q] 18	(33/2+)		D	Jπ: 22γ to (35/2−) 3326; intraband 124γ to (31/2+) 3225; possible 608γ to (29/2+) 2731; band assignment.
3370.7[e] 3	37/2+[f]		D	
3391.37[g] 22	(33/2+)		D	Jπ: intraband 336γ to (31/2+) 3055; possible 661γ to (29/2+) 2731; band assignment.
3401.71[b] 19	35/2−[c]		D	
3439.1[p] 5	(33/2−)		D	Jπ: intraband 318γ to (31/2−) 3121; possible intraband 617γ to (29/2−) 2822; band assignment.
3535.0[o] 3	(33/2+)		D	Jπ: intraband 324γ to (31/2+) 3211; possible intraband 641γ to (29/2+) 2894; band assignment.
3535.47[t] 22	(35/2−)		D	Jπ: M1 187γ to (35/2−) 3348; band assignment.
3570.07[q] 20	(35/2+)		D	Jπ: D+Q 221γ to (33/2+) 3349; intraband 345γ to (31/2+) 3225; band assignment.
3582.60[s] 22	(37/2+)	<0.5 ns	D	Jπ: E1 234γ to (35/2−) 3348; band assignment.
3596.53[u] 21	(37/2−)	0.7 ns 2	D	Jπ: D+Q 248γ to (35/2−) 3348; M1 61γ to (35/2−) 3535; band assignment.
3637.85[d] 25	(37/2−)		D	
3711.71[r] 25	(37/2−)		D	
3746.5[g] 3	(35/2+)		D	
3748.2[b] 3	37/2−[c]		D	
3778.12[v] 24	(39/2+)	<0.5 ns	D	Jπ: M1 196γ to (37/2+) 3583.
3779.1?[p] 9	(35/2−)		D	
3827.19[q] 22	(37/2+)		D	
3853.2?[t] 3	(37/2−)		D	
3906.4[s] 3	(39/2+)		D	
3920.06[h] 23	37/2−[i]		D	
3963.68[d] 25	(39/2−)		D	
3968.6[u] 3	(39/2−)		D	
3985.2?[h] 11	(35/2−)[i]		D	Jπ: possible band assignment.
4041.3[e] 4	41/2+[f]		D	

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Adopted Levels, Gammas (continued)

^{179}W Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
4090.5[r] 3	(39/2−)		D	
4091.4[e] 4	39/2+[f]		D	
4094.7[b] 3	39/2−[c]		D	
4117.25[q] 24	(39/2+)		D	
4120.1[v] 4	(41/2+)		D	
4186.2?[t] 3	(39/2−)		D	
4243.4[s] 3	(41/2+)		D	
4305.1[d] 4	(41/2−)		D	
4354.5[u] 3	(41/2−)		D	
4435.6[q] 3	(41/2+)		D	
4464.3[b] 4	41/2−[c]		D	
4476.8[v] 4	(43/2+)		D	
4477.5[r] 3	(41/2−)		D	
4574.4[h] 3	41/2−[i]		D	
4596.9[s] 3	(43/2+)		D	
4609.8[w] 3	(43/2+)	0.7 ns 2	D	Jπ: stretched E2 832γ to (39/2+) 3778; 367γ to (41/2+) 4243.
4666.6[d] 4	(43/2−)		D	
4738.3[e] 4	45/2+[f]		D	
4748.3[u] 4	(43/2−)		D	
4779.3[q] 3	(43/2+)		D	
4800.7[w] 4	(45/2+)		D	
4845.1[b] 4	43/2−[c]		D	
4847.3[e] 4	43/2+[f]		D	
4849.8[v] 4	(45/2+)		D	
4864.5?[r] 8	(43/2−)		D	
4921.5[x] 4	(45/2−)		D	Jπ: 312γ to (43/2+) 4610; band assignment.
4967.8[s] 3	(45/2+)		D	
5036.8[d] 4	(45/2−)		D	
5119.9[w] 4	(47/2+)		D	
5141.3[u] 4	(45/2−)		D	
5147.0[q] 4	(45/2+)		D	
5178.3[x] 4	(47/2−)		D	
5233.3[b] 4	45/2−[c]		D	
5239.6[v] 4	(47/2+)		D	
5278.4?[h] 11	(45/2−)[i]		D	Jπ: possible band assignment.
5357.1[s] 3	(47/2+)		D	
5436.7[d] 4	(47/2−)		D	
5487.1[e] 5	49/2+[f]		D	
5489.6[w] 4	(49/2+)		D	
5497.4[x] 4	(49/2−)		D	
5536.9[q] 4	(47/2+)		D	
5611.3[e] 5	47/2+[f]		D	
5646.4[v] 4	(49/2+)		D	
5648.7[b] 4	47/2−[c]		D	
5764.1[s] 4	(49/2+)		D	
5833.7[d] 5	(49/2−)		D	
5852.0[x] 4	(51/2−)		D	
5895.4[w] 4	(51/2+)		D	

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Adopted Levels, Gammas (continued)

^{179}W Levels (continued)

E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF
5947.6[q] 4	(49/2+)	D	6268.7?[d] 11	(51/2−)	D	6623.4?[x] 8	(55/2−)	D
6069.5?[v] 8	(51/2+)	D	6310.2[e] 5	53/2+[f]	D	6708.7?[d] 11	(53/2−)	D
6234.8[x] 4	(53/2−)	D	6330.7[w] 4	(53/2+)	D	6792.5[w] 5	(55/2+)	D

† Calculated by evaluator from a least-squares fit to adopted Eγ.

‡ Assignments given without comment are based on rotational band properties and on γ-ray multipolarities and decay patterns. Many J^π assignments from (^{13}C,4nγ) are shown in parentheses here because the authors' assignments were based either on weak arguments, or on multipolarities of γ-rays connecting levels with uncertain spin.

From (^{13}C,4nγ), except as noted.

@ Probably a quadrupole or octupole vibration coupled to the 9/2[624] or 7/2[514] configuration, respectively (1994Wa05).

& Possibly a rotational excitation of the K^π=(13/2+), 1150-keV state; could alternatively be a K^π=17/2+ state having configuration=((ν 1/2[521])+(ν 7/2[514])+(ν 9/2[624])) (1994Wa05).

[a] 1963Sa14 report 38 min ±0.5 but same authors, in a subsequent publication (1963Va28), quote this result as 37.5 min 5; evaluator presumes that 1963Sa14 report rounded-off value. Adopted value is weighted average of 37.5 min 5 (1963Sa14,1963Va28) and 37.00 min 17 (1969Bi10). Other values: 1963Ra14 (40 min 2), 1950Wi67, 1956Ro27, 1969Bi10 (39.7 min 3, possibly perturbed by strong x-ray background).

[b] Band(A): ν 7/2[514] band. g.s. band. Rotational parameters: A=13.5, B=−8.5. Nilsson orbital assignment supported by energy systematics for this orbital in ^{175}Yb, ^{177}Hf and ^{181}Os (N=105 isotones) and by (d,t) cross section fingerprint. g_K(exp)=+0.30 7, as expected for this configuration (1994Wa05).

[c] Definite J^π assigned to J≤47/2 members of 7/2[514] band based on band structure and independently determined J^π(g.s.)=7/2− and mult=M1+E2 for intraband 144γ.

[d] Band(B): K^π=23/2− 7/2[514]⊗$(i_{13/2})^2$ band. Three-quasineutron configuration=((ν 7/2[514])(ν 7/2[633])(ν 9/2[624])) exhibiting high alignment. Lies at lower energy than the g.s. band for J≥31/2. Deduced g_K(exp)=+0.24 5 (1994Wa05).

[e] Band(C): ν 9/2[624] band. Coriolis-mixed band. g_K(exp)=+0.08 6; delayed band crossings at ħω≈0.32-0.36 MeV for both signatures; significant alignment (≈2ħ) (1994Wa05). This band is also observed in ^{177}Hf and ^{181}Os (N=105 isotones); see, e.g., 1975Me21.

[f] Definite J^π assigned to J≤53/2 band members based on band structure combined with established J^π=9/2+ for the 309-keV bandhead and mult=E1 for the intraband 253γ.

[g] Band(D): K^π=21/2+ band. Three-quasiparticle configuration=((ν 5/2[512])(ν 7/2[514])(ν 9/2[624])). Deduced g_K(exp)=+0.13 5 (1994Wa05).

[h] Band(E): ν 1/2[521] band. Rotational parameters: A=15.2, B=−10.1, a=+0.82, B_{2K}=−18.7. Nilsson orbital assignment supported by approximate energy expected for bandhead, by (d,t) cross sections (fingerprint), and by the decoupling parameter (=+0.82). Band crossings occur at ħω≈0.26 MeV for both signatures (1994Wa05).

[i] Definite J^π assigned to J≤41/2 band members (J=35/2 member excluded) based on band structure combined with J^π=1/2− for the 222-keV bandhead and mult=E2 for the intraband 96γ and 204γ crossover transitions. Definite J^π for J=1/2 through 11/2 also established based on cross section fingerprint in (d,t).

[j] Band(F): 5/2[512] band. Rotational parameter: A=14.5. Population of J=7/2 (strong) and 5/2 (weak) band members in (d,t) matches cross section fingerprint expected for 5/2[512] band.

[k] Band(G): 1/2[510] band. Rotational parameters: A=18.9, B=−3.3, a=−0.04, B_{2K}=+2.9. Configuration assignment supported by bandhead energy, experimental value (a=−0.04) of the decoupling parameter and (d,t) reaction cross sections (fingerprint) for the J=3/2 and 5/2 band members.

[l] Band(H): K^π=3/2+ band. Three-quasiparticle state with possible configuration=((π 9/2[514])-(π 5/2[402])-(ν 7/2[514])).

[m] Band(I): ν 7/2[633]? band. Significant Coriolis-induced perturbations as expected for a (ν $i_{13/2}$) configuration (1994Wa05).

[n] Band(J): 3/2[651] band.

[o] Band(K): K^π=(23/2)+ band. Three-quasiparticle configuration=((ν 7/2[514])(π 7/2[404])(π 9/2[514])). Deduced g_K(exp)=+0.7 1 (1994Wa05).

[p] Band(L): K^π=(23/2−) band. Three-quasiparticle configuration=((ν 9/2[624])(π 5/2[402])(π 9/2[514])). Deduced g_K(exp)>0.52 or <0.08, alignment ≈2.5ħ (1994Wa05).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{179}W Levels (continued)

[q] Band(M): $K^{\pi}=(31/2^{+})$ band. Five-quasiparticle configuration=(3ν(5/2[512]+7/2[514]+9/2[624]) + 2π(1/2[541]+9/2[514])). Deduced g_K(exp)=+0.24 *5*, alignment ≈5$\hbar$ (1994Wa05).

[r] Band(N): $K^{\pi}=35/2^{-}$ band. Five-quasiparticle configuration=(3ν(5/2[512]+7/2[514]+9/2[624]) + 2π(5/2[402]+9/2[514])). Deduced g_K(exp)=+0.6 *1* or 0.0 *1* (1994Wa05).

[s] Band(O): $K^{\pi}=(37/2^{+})$ band. Five-quasiparticle configuration=(3ν(7/2[514]+7/2[633]+9/2[624]) + 2π(5/2[402]+9/2[514])). Deduced g_K(exp)=+0.54 *6* (1994Wa05).

[t] Band(P): $K^{\pi}=(35/2)^{-}$ band. Five-quasiparticle configuration=(3ν(7/2[514]+7/2[633]+9/2[624]) + 2π(5/2[402]+7/2[404])).

[u] Band(Q): $K^{\pi}=37/2^{-}$ band. Five-quasiparticle configuration=(3ν(5/2[512]+7/2[514]+9/2[624]) + 2π(7/2[404]+9/2[514])). Deduced g_K(exp)=+0.36 *6* or +0.24 *6* (1994Wa05).

[v] Band(R): $K^{\pi}=39/2^{+}$ band. Five quasiparticle configuration=(3ν(7/2[514]+7/2[633]+9/2[624]) + 2π(7/2[404]+9/2[514])). Deduced g_K(exp)=+0.5 *1*, alignment ≈4$\hbar$ (1994Wa05).

[w] Band(S): $K^{\pi}=43/2^{+}$ band. Seven quasiparticle configuration=(3ν(7/2[514]+5/2[512]+9/2[624]) + 4π(1/2[541]+5/2[402]+7/2[404]+9/2[514])) band. Deduced g_K(exp)=+0.46 *7* or +0.14 *7* (1994Wa05).

[x] Band(T): $K^{\pi}=45/2^{(-)}$ band. Seven quasiparticle configuration=(3ν(7/2[514]+7/2[633]+9/2[624]) + 4π(1/2[541]+5/2[402]+7/2[404]+9/2[514])) band. Deduced g_K(exp)=+0.42 *6* or +0.18 *6*, large alignment (1994Wa05).

Adopted Levels, Gammas (continued)

$\gamma(^{179}W)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[a]	Comments
119.9127	9/2$^-$	119.913 *2*	100	0.0	7/2$^-$	M1+E2	2.6	2.04	E_γ: from ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ). Mult.,δ: from ^{179}W IT decay (6.40 min).
221.91	1/2$^-$	101.6 *5*	0.0088 *8*	119.9127	9/2$^-$	[E4]		1.32×10^3 *5*	B(E4)(W.u.)=1.13 *16* I_γ: from ^{179}W IT decay (6.40 min).
		221.93 *5*	100 *8*	0.0	7/2$^-$	M3		10.10	B(M3)(W.u.)=0.00058 *7* E_γ: weighted average from ε decay, IT decay, (α,3nγ) and (^{13}C,4nγ). I_γ,Mult.: from ^{179}W IT decay (6.40 min).
264.62	11/2$^-$	144.66 *6*	19.2 *6*	119.9127	9/2$^-$	M1+E2		1.3 *4*	E_γ: weighted average from ε decay, (α,3nγ) and (^{13}C,4nγ). Mult.: E2(+M1) from ε decay; D+Q from (^{13}C,4nγ) and (α,3nγ). Other Iγ: 10.0 *14* from ε decay.
		264.73 *6*	100 *3*	0.0	7/2$^-$	E2		0.1244	E_γ: weighted average from ε decay, (p,3nγ), (α,3nγ) and (^{13}C,4nγ). Mult.: from ce data in ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ).
304.76	3/2$^-$	82.86 *9*	100	221.91	1/2$^-$	E2(+M1)	>1.9	8.39 *13*	E_γ: weighted average from ε decay, (p,3nγ), (α,3nγ) and (^{13}C,4nγ). Mult.,δ: D+Q from $\gamma(\theta)$ in (α,3nγ); E2(+M1) (δ>1.9) from α(L)exp, subshell ratios consistent with E2 in ε decay.
308.965	9/2$^+$	189.053 *3*	100.0 *16*	119.9127	9/2$^-$	E1		0.0723	B(E1)(W.u.)=1.15×10^{-5} *8* E_γ: from ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ).
		308.951 *11*	70.9 *15*	0.0	7/2$^-$	E1		0.0213	B(E1)(W.u.)=1.86×10^{-6} *13* E_γ,Mult.: from ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ).
318.35	5/2$^-$	96.44 *1*	100	221.91	1/2$^-$	E2		4.52	E_γ: from ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ).
372.825	11/2$^+$	63.859 *2*	52 *11*	308.965	9/2$^+$	M1+E2	0.30 *+13−19*	4.8 *17*	E_γ: from ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ). Mult.,δ: from intensity balance in (^{13}C,4nγ).
		108.25[@] *7*	16.4 *12*	264.62	11/2$^-$	(E1)		0.306	Mult.: D from $\gamma(\theta)$ in (α,3nγ); $\Delta\pi$=yes from level scheme.
		252.97 *6*	100.0 *16*	119.9127	9/2$^-$	E1		0.0347	E_γ: weighted average from (p,3nγ), (α,3nγ) and (^{13}C,4nγ). Mult.: D from (^{13}C,4nγ); E1 from α(L)exp in (p,3nγ), (α,2nγ).
430.20	5/2$^-$	111.854[#] *17*	0.20[#] *4*	318.35	5/2$^-$				
		125.444[#] *17*	0.31[#] *4*	304.76	3/2$^-$	M1		2.48	
		208.295[#] *16*	0.5[#] *3*	221.91	1/2$^-$				

From ENSDF

$^{179}_{74}W_{105}$-8

Adopted Levels, Gammas (continued)

γ(^{179}W) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[a]	Comments
430.20	5/2⁻	310.3[#] *4*	2.3[#] *10*	119.9127	9/2⁻				
		430.12 *19*	100	0.0	7/2⁻	M1(+E2)	≤0.29	0.0817 *24*	Iγ is from ε decay; Eγ is weighted average from ε decay and (p,3nγ). Mult.,δ: from α(K)exp in ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ). Other δ: 0.9 *3* from α(K)exp in ε decay.
432.636	13/2⁻	168.00 *9*	9.2 *13*	264.62	11/2⁻				E_γ: weighted average from ε decay, (p,3nγ) and (α,3nγ).
		312.723 *11*	100 *3*	119.9127	9/2⁻	E2		0.0751	Mult.: from α(K)exp in ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ). Stretched Q from γ(θ) in (α,3nγ).
468.618	13/2⁺	95.79 *1*	100.0 *12*	372.825	11/2⁺	(M1+E2)		5.0 *4*	E_γ: from ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ). Mult.: D+Q intraband transition from (α,3nγ).
		159.68[@] *7*	26.5 *19*	308.965	9/2⁺	[E2]		0.671	I_γ: from (^{13}C,4nγ). Other Iγ: 45.7 *22* in (^{13}C,4nγ) relative to I(96γ)=100 *30*; 21 in (p,3nγ); 38 in (α,3nγ).
		204.1 *2*	14.8 *12*	264.62	11/2⁻				I_γ: from (^{13}C,4nγ). Other Iγ: 43 *13* in (^{13}C,4nγ) relative to I(160γ)=100 *30*.
477.30	7/2⁺	168.38[#] *5*	24.2[#] *12*	308.965	9/2⁺	M1+E2	0.54	0.961	
		357.35[#] *6*	14.6[#] *9*	119.9127	9/2⁻	[E1]		0.01511	
		477.34[#] *6*	100[#] *5*	0.0	7/2⁻	E1		0.00785 *11*	Mult.: from ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ) and ε decay.
508.96	7/2⁻	78.5[#]	<10.5[#]	430.20	5/2⁻				
		190.8 *4*	<26	318.35	5/2⁻				Iγ is from ε decay; Eγ is weighted average from ε decay and (p,3nγ).
		204.22[#] *5*	100[#] *5*	304.76	3/2⁻	E2		0.287	
531.47	7/2⁻	101.18[#] *7*	27.0[#] *25*	430.20	5/2⁻	M1+E2	0.67	4.32 *7*	
		222.7[#] *6*	33[#] *13*	308.965	9/2⁺				
		411.53[#] *8*	100[#] *8*	119.9127	9/2⁻	M1		0.0941	
		531.37[#] *8*	35[#] *4*	0.0	7/2⁻	M1		0.0482	
533.22	9/2⁻	24.3[#]	<44[#]	508.96	7/2⁻				
		214.89 *5*	100 *11*	318.35	5/2⁻	E2		0.243	E_γ: weighted average from ε decay, (p,3nγ), (α,3nγ) and (^{13}C,4nγ). I_γ: from ε decay. Mult.: from α(K)exp in ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ).
606.058	15/2⁺	137.439 *3*	100 *3*	468.618	13/2⁺	(M1+E2)		1.5 *4*	E_γ: from ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ). Mult.: D+Q intraband γ in (^{13}C,4nγ) and (α,3nγ).
		173.73	6.3	432.636	13/2⁻				E_γ,I_γ: from (p,3nγ), (α,2nγ).
		233.36[@] *7*	100 *4*	372.825	11/2⁺	E2		0.186	Other Iγ: 87 in (α,3nγ), 175 in (p,3nγ). Mult.: from ce data in ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ).

From ENSDF

$^{179}_{74}W_{105}$-9

Adopted Levels, Gammas (continued)

γ(^{179}W) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[a]	Comments
623.00	15/2⁻	190.3 *2*	≤5.1	432.636	13/2⁻				
		358.42[@] *9*	100.0 *24*	264.62	11/2⁻	E2		0.0507	Mult.: from α(K)exp in ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ).
634.7	(1/2)⁻	204.24[b]	<476	430.20	5/2⁻				E_γ,I_γ: from (p,3nγ), (α,2nγ) for multiply-placed transition.
		329.69	46	304.76	3/2⁻	M1		0.1699	E_γ,I_γ,Mult.: from (p,3nγ), (α,2nγ).
		412.92	100	221.91	1/2⁻				E_γ,I_γ: from (p,3nγ), (α,2nγ).
654.3	(9/2)⁺	176.90	100	477.30	7/2⁺				E_γ,I_γ: from (p,3nγ), (α,2nγ).
		654.21	79	0.0	7/2⁻				E_γ,I_γ: from (p,3nγ), (α,2nγ).
688.81	(3/2)⁻	384.14[#] *14*	68[#] *6*	304.76	3/2⁻	M1		0.1130	Mult.: from α(K)exp in ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ).
		467.08[#] *15*	100[#] *14*	221.91	1/2⁻	M1		0.0675	Mult.: from α(K)exp in ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ).
720.18	3/2⁺	242.8[#] *4*	3.1[#] *10*	477.30	7/2⁺	(E2)		0.1634	
		289.97[#] *4*	100[#] *5*	430.20	5/2⁻	E1		0.0248	
		401.82[#] *6*	26.8[#] *15*	318.35	5/2⁻	E1		0.01153	
		415.44[#] *6*	39.5[#] *21*	304.76	3/2⁻	E1		0.01069	
		498.28[#] *6*	21.1[#] *10*	221.91	1/2⁻	E1		0.00715 *10*	
748.187	17/2⁺	125.49	12	623.00	15/2⁻				E_γ,I_γ: from (p,3nγ), (α,2nγ).
		142.129 *4*	45.0 *17*	606.058	15/2⁺	(M1+E2)		1.4 *4*	E_γ: from ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ). I_γ: from delayed γ′s in (^{13}C,4nγ). Mult.: D+Q intraband γ in (^{13}C,4nγ) and (α,3nγ).
		279.7 *2*	100 *4*	468.618	13/2⁺	E2		0.1050	Mult.: from ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ).
773.64	5/2⁺	53.45[#] *2*	<6[#]	720.18	3/2⁺	M1+E2	0.43	13.64 *20*	
		242.4[#] *3*	19[#] *3*	531.47	7/2⁻	E1		0.0386	
		296.34[#] *5*	100[#] *5*	477.30	7/2⁺	M1+E2	0.7 *4*	0.18 *4*	
		343.5[#] *3*	0.68[#] *25*	430.20	5/2⁻				
		455.32[#] *6*	16.7[#] *9*	318.35	5/2⁻	(E1)		0.00871 *13*	
		464.75[#] *6*	42.1[#] *22*	308.965	9/2⁺	E2		0.0252	
		468.84[#] *15*	6.0[#] *6*	304.76	3/2⁻				
		773.8[#] *6*	0.57[#] *19*	0.0	7/2⁻				
787.35	(5/2)⁻	152.45		634.7	(1/2)⁻				E_γ: from (p,3nγ), (α,2nγ).
		255.6[#] *3*	5.7[#] *20*	531.47	7/2⁻				
		482.46[#] *15*	53[#] *4*	304.76	3/2⁻	M1		0.0620	
		565.5[#] *3*	7.3[#] *24*	221.91	1/2⁻				
		787.41[#] *9*	100[#] *8*	0.0	7/2⁻				
809.0	(11/2⁺)	154.58	100	654.3	(9/2)⁺				E_γ: from (p,3nγ), (α,2nγ).
823.38	11/2⁻	290.0	47	533.22	9/2⁻				E_γ,I_γ: from (p,3nγ), (α,2nγ).
		314.42[@] *9*	100	508.96	7/2⁻	E2		0.0739	I_γ,Mult.: from (p,3nγ), (α,2nγ).

From ENSDF

$^{179}_{74}W_{105}$-10

Adopted Levels, Gammas (continued)

γ(^{179}W) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[a]	Comments
834.17	17/2⁻	211.16[@] *9*	4.7 *10*	623.00	15/2⁻				
		401.5 *2*	100 *6*	432.636	13/2⁻				
855.101	7/2⁺	135.26[#] *10*	11[#] *3*	720.18	3/2⁺	E2		1.225	
		322.02[#] *15*	13[#] *4*	533.22	9/2⁻				
		323.5[#] *3*	6[#] *3*	531.47	7/2⁻				
		346.26[#] *22*	9[#] *3*	508.96	7/2⁻				
		377.91[#] *8*	41[#] *3*	477.30	7/2⁺	M1		0.1180	
		546.130[#] *8*	100[#] *6*	308.965	9/2⁺	M1		0.0449	
		735.64[#] *20*	15.4[#] *23*	119.9127	9/2⁻				
		855.26[#] *18*	22[#] *6*	0.0	7/2⁻				
856.98	13/2⁻	323.74[@] *9*	100	533.22	9/2⁻	(E2)		0.0679	Mult.: (Q) intraband γ from γ(θ) in (α,3nγ).
910.4	(13/2)⁺	101.24	42 *9*	809.0	(11/2⁺)				E_γ,I_γ: from (p,3nγ), (α,2nγ).
		255.84	100 *20*	654.3	(9/2)⁺	E2		0.1385	E_γ,I_γ,Mult.: from (p,3nγ), (α,2nγ).
		601.66	100 *20*	308.965	9/2⁺	E2		0.01344	E_γ,I_γ,Mult.: from (p,3nγ), (α,2nγ).
913.9	(7/2)⁻	224.89	26	688.81	(3/2)⁻				E_γ,I_γ: from (p,3nγ), (α,2nγ).
		609.12	100	304.76	3/2⁻	E2		0.01306	E_γ,I_γ,Mult.: from (p,3nγ), (α,2nγ).
915.74	(13/2⁺)	309.7 *2*	75 *25*	606.058	15/2⁺				
		447.1 *2*	58 *17*	468.618	13/2⁺				
		543.0 *2*	100 *25*	372.825	11/2⁺				
960.81	19/2⁺	127.30	12	834.17	17/2⁻				E_γ,I_γ: from (p,3nγ), (α,2nγ).
		212.50[@] *9*	32.3 *25*	748.187	17/2⁺	M1(+E2)	≤1.2	0.47 *10*	I_γ: weighted average of 29.8 *16* (prompt γ′s) and 34.8 *23* (delayed γ′s) in (^{13}C,4nγ). Mult.: from α(K)exp in ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ); D+Q from γ(θ) in (^{13}C,4nγ).
		354.74[@] *9*	100 *4*	606.058	15/2⁺	E2		0.0522	Mult.: from α(K)exp in ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ); Q from (^{13}C,4nγ).
1029.05	(5/2,7/2)⁺	241.7[#] *4*	100[#] *29*	787.35	(5/2)⁻	E1		0.0389	
		255.6[#] *3*	4.1[#] *15*	773.64	5/2⁺				
		551.78[#] *9*	53[#] *6*	477.30	7/2⁺				
		719.86[#] *20*	12.6[#] *23*	308.965	9/2⁺				
1064.59	19/2⁻	230.38[@] *9*	2.64 *20*	834.17	17/2⁻				
		316.5 *2*	1.6 *4*	748.187	17/2⁺				
		441.60[@] *9*	100.0 *23*	623.00	15/2⁻	E2		0.0288	Mult.: from α(K)exp in ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ).
1072.27	(5/2⁻)	594.88[#] *20*	60[#] *9*	477.30	7/2⁺				
		850.41[#] *16*	100[#] *23*	221.91	1/2⁻				
		1072.2[#] *6*	34[#] *8*	0.0	7/2⁻				

From ENSDF

$^{179}_{74}W_{105}$-11

Adopted Levels, Gammas (continued)

γ(^{179}W) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[a]	Comments
1089.8	(9/2$^-$)	175.8	25	913.9	(7/2)$^-$			E_γ,I_γ: from (p,3nγ), (α,2nγ).
		302.6	100	787.35	(5/2)$^-$			E_γ,I_γ: from (p,3nγ), (α,2nγ).
1107.7	(15/2$^+$)	197.21	100	910.4	(13/2)$^+$			E_γ,I_γ: from (p,3nγ), (α,2nγ).
		298.74	80	809.0	(11/2$^+$)	(E2)	0.0861	E_γ,I_γ,Mult.: from (p,3nγ), (α,2nγ).
1123.24	21/2$^+$	162.36[@] *9*	14.2 *11*	960.81	19/2$^+$	(M1+E2)	0.9 *3*	Mult.: D+Q intraband γ from (α,3nγ).
		375.10[@] *9*	100.0 *19*	748.187	17/2$^+$	E2	0.0447	Mult.: Q intraband γ in (α,3nγ); Δπ=no from α(K)exp in (p,3nγ), (α,2nγ).
1127.29	(15/2$^+$)	211.5[b] *2*	15 *8*	915.74	(13/2$^+$)			
		379.1 *2*	46 *15*	748.187	17/2$^+$			
		521.3 *2*	62 *15*	606.058	15/2$^+$			
		658.8 *2*	100 *15*	468.618	13/2$^+$			
1150.52	(13/2$^+$)	527[b]	11 *11*	623.00	15/2$^-$			
		544.1 *2*	33 *11*	606.058	15/2$^+$			
		682.0 *2*	100 *33*	468.618	13/2$^+$			
		718.0 *2*	22 *11*	432.636	13/2$^-$			
		777.7 *2*	22 *11*	372.825	11/2$^+$			
		841.6 *2*	22 *11*	308.965	9/2$^+$			
		886.0 *2*	44 *11*	264.62	11/2$^-$			
1216.27	(17/2$^+$)	89.2 *2*	3.7 *19*	1127.29	(15/2$^+$)			
		255.2 *2*	44 *4*	960.81	19/2$^+$			
		300.6 *2*	17 *5*	915.74	(13/2$^+$)			
		467.9 *2*	45 *4*	748.187	17/2$^+$			
		610.2 *2*	100 *6*	606.058	15/2$^+$			
		747.8 *2*	18 *3*	468.618	13/2$^+$			
1224.77	15/2$^-$	401.4 *2*	100	823.38	11/2$^-$			
1272.67	17/2$^-$	415.68[@] *9*	100	856.98	13/2$^-$	E2	0.0338	Mult.: from α(L)exp in ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ); stretched Q from γ(θ) in (^{13}C,4nγ).
1290.8	(11/2$^-$)	200.79	100	1089.8	(9/2$^-$)			E_γ: from (p,3nγ), (α,2nγ).
1312.64	21/2$^-$	248.0 *2*	3.5 *8*	1064.59	19/2$^-$			
		478.5 *2*	100.0 *23*	834.17	17/2$^-$			E_γ: from (^{13}C,4nγ); 477.8 *1* from (α,3nγ) for doubly-placed γ.
1425.03	23/2$^+$	301.72[@] *9*	17 *4*	1123.24	21/2$^+$			
		464.20[@] *9*	100.0 *23*	960.81	19/2$^+$	E2[&]	0.0253	
1480.30	(7/2,9/2)	624.96[#] *25*	8.8[#] *21*	855.101	7/2$^+$			
		947.07[#] *10*	100[#] *8*	533.22	9/2$^-$			
		971.41[#] *12*	77[#] *6*	508.96	7/2$^-$			
		1171.0[#] *3*	<15[#]	308.965	9/2$^+$			I_γ: 12 *3* for doublet.
1517.23	(17/2$^+$)	366.7 *2*	100 *9*	1150.52	(13/2$^+$)			
		389.9 *2*	74 *9*	1127.29	(15/2$^+$)			
		601.5 *2*	43 *13*	915.74	(13/2$^+$)			

From ENSDF

$^{179}_{74}W_{105}$-12

Adopted Levels, Gammas (continued)

γ(^{179}W) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[a]	Comments
1517.23	(17/2$^+$)	769.0 *2*	70 *9*	748.187	17/2$^+$			
		894.4 *2*	39 *13*	623.00	15/2$^-$			
		911.2 *2*	22 *9*	606.058	15/2$^+$			
1532.46	(19/2$^+$)	405.2 *2*	78 *22*	1127.29	(15/2$^+$)			
		409.2 *2*	33 *11*	1123.24	21/2$^+$			
		571.7 *2*	67 *22*	960.81	19/2$^+$			
		784.3 *2*	100 *33*	748.187	17/2$^+$			
1539.4	(13/2$^-$)	248.31	100	1290.8	(11/2$^-$)			E_γ,I_γ: from (p,3nγ), (α,2nγ). Mult.: evaluator presumes E1, suggested in (p,3nγ), (α,2nγ), is erroneous.
		449.83[b]	70	1089.8	(9/2$^-$)			E_γ,I_γ: from (p,3nγ), (α,2nγ). Mult.: mult=E2 suggested in (p,3nγ), (α,2nγ) for line with E2 contaminant.
1575.99	23/2$^-$	263.4 *2*	1.2 *3*	1312.64	21/2$^-$			
		452.6 *2*	0.51 *20*	1123.24	21/2$^+$			
		511.4 *2*	100 *5*	1064.59	19/2$^-$			
1582.91	25/2$^+$	158.00[@] *20*	5.0 *16*	1425.03	23/2$^+$			Other Iγ: 10 from (α,3nγ).
		459.76[@] *9*	100.0 *16*	1123.24	21/2$^+$	E2[&]	0.0260	
1606.30	(3/2)$^+$	534.00[#] *20*	2.9[#] *7*	1072.27	(5/2$^-$)			
		832.63[#] *6*	100[#] *7*	773.64	5/2$^+$	M1	0.01530	
		886.15[#] *8*	84[#] *6*	720.18	3/2$^+$	E2	0.00576 *8*	
		1288.21[#] *25*	7.5[#] *11*	318.35	5/2$^-$			
		1301.3[#] *4*	3.6[#] *9*	304.76	3/2$^-$			
		1384.7[#] *6*	1.7[#] *6*	221.91	1/2$^-$			
1631.90	(21/2$^+$)	99.5 *2*	1.0 *3*	1532.46	(19/2$^+$)			
		114.8 *2*	5.4 *5*	1517.23	(17/2$^+$)			
		206.7 *2*	9.7 *5*	1425.03	23/2$^+$			
		415.6 *2*	41.8 *17*	1216.27	(17/2$^+$)			
		508.6 *2*	32.6 *17*	1123.24	21/2$^+$			
		567.3 *2*	2.3 *7*	1064.59	19/2$^-$			
		671.1 *2*	14.5 *8*	960.81	19/2$^+$			
		883.8 *2*	100 *4*	748.187	17/2$^+$			
1649.04	(7/2)	1340.1 *3*	29 *6*	308.965	9/2$^+$			
		1529.2 *3*	29 *4*	119.9127	9/2$^-$			
		1648.97 *15*	100 *10*	0.0	7/2$^-$			
1680.27	(7/2)$^+$	1148.5[#] *6*	0.32[#] *11*	531.47	7/2$^-$			
		1171.0[#] *3*	<0.77[#]	508.96	7/2$^-$			I_γ: 0.62 *15* for doublet.
		1202.97[#] *25*	0.69[#] *13*	477.30	7/2$^+$			

From ENSDF

$^{179}_{74}W_{105}$-13

Adopted Levels, Gammas (continued)

γ(^{179}W) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[a]	Comments
1680.27	(7/2)$^+$	1249.9[#] *5*	0.65[#] *13*	430.20	5/2$^-$				
		1371.27[#] *10*	8.3[#] *4*	308.965	9/2$^+$				
		1560.37[#] *8*	25.0[#] *15*	119.9127	9/2$^-$				
		1680.27[#] *8*	100[#] *5*	0.0	7/2$^-$	E1		1.04×10^{-3}	
1698.3	19/2$^-$	473.5 *2*	100	1224.77	15/2$^-$	E2[&]		0.0241	
1750.34	(3/2,5/2)	962.87[#] *25*	82[#] *8*	787.35	(5/2)$^-$				
		1030.12[#] *18*	100[#] *11*	720.18	3/2$^+$				
		1061.5[#] *5*	44[#] *8*	688.81	(3/2)$^-$				
		1320.09[#] *7*	77[#] *11*	430.20	5/2$^-$				
		1432.1[#] *5*	<30[#]	318.35	5/2$^-$				I_γ: 24 *6* for doublet.
1754.73	21/2$^-$	482.02[@] *16*	100	1272.67	17/2$^-$	E2		0.0230	Mult.: from α(K)exp, α(L)exp in ^{181}Ta(p,3nγ), ^{177}Hf(α,2nγ); (Q) from γ(θ) in (^{13}C,4nγ).
1808.71	(7/2)$^+$	953.62[#] *25*	11.3[#] *15*	855.101	7/2$^+$				
		1277.5[#] *5*	3.3[#] *10*	531.47	7/2$^-$				
		1331.6[#] *6*	3.8[#] *9*	477.30	7/2$^+$				
		1500.0[#] *3*	8.9[#] *13*	308.965	9/2$^+$				
		1688.94[#] *20*	19.5[#] *20*	119.9127	9/2$^-$				
		1808.88[#] *8*	100[#] *8*	0.0	7/2$^-$				
1832.28	(23/2$^-$)	200.3 *2*	100	1631.90	(21/2$^+$)	E1		0.0624	B(E1)(W.u.)>5.3×10^{-5} Mult.: from I(γ+ce) balance in (^{13}C,4nγ).
1854.17	25/2$^-$	541.52 *9*	100	1312.64	21/2$^-$	E2[&]		0.01726	
1873.37	(23/2$^+$)	241.4 *2*	100	1631.90	(21/2$^+$)	(M1+E2)	≤0	0.396	Mult.: D+Q intraband γ in (^{13}C,4nγ).
1987.59	27/2$^+$	404.70[@] *9*	6.9 *24*	1582.91	25/2$^+$				Other Iγ: 16 in (α,3nγ).
		562.48[@] *9*	100 *4*	1425.03	23/2$^+$	(E2)		0.01575	Mult.: Q from γ(θ) for intraband γ in (^{13}C,4nγ).
2012.10	(23/2$^+$)	138.7 *2*	100 *5*	1873.37	(23/2$^+$)	M1		1.87	B(M1)(W.u.)>0.0059 Mult.: from I(γ+ce) balance in (^{13}C,4nγ).
		179.7 *2*	21 *4*	1832.28	(23/2$^-$)				
		380.4 *2*	18 *5*	1631.90	(21/2$^+$)				
2037.86	(25/2$^-$)	164.3 *2*	8.9 *8*	1873.37	(23/2$^+$)				
		205.6 *2*	100 *6*	1832.28	(23/2$^-$)	(M1+E2)	<0	0.45 *17*	Mult.,δ: D+Q intraband γ in (^{13}C,4nγ).
2088.50	(23/2$^-$)	456.6 *2*	100	1631.90	(21/2$^+$)				
2120.46	29/2$^+$	132.8 *1*	3.9	1987.59	27/2$^+$				E_γ,I_γ: from (α,3nγ).
		537.60[@] *9*	100 *20*	1582.91	25/2$^+$	E2[&]		0.01757	
2137.99	(25/2$^+$)	264.6 *2*	100 *4*	1873.37	(23/2$^+$)				
		506.1 *2*	58 *3*	1631.90	(21/2$^+$)				

From ENSDF

$^{179}_{74}W_{105}$-14

Adopted Levels, Gammas (continued)

γ(^{179}W) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[a]	Comments
2141.39	27/2⁻	287.1 *2*	1.30 *18*	1854.17	25/2⁻				
		558.7 *2*	0.4 *2*	1582.91	25/2⁺				
		565.42[@] *9*	100.0 *22*	1575.99	23/2⁻	(E2)		0.01556	Mult.: Q intraband γ from γ(θ) in (^{13}C,4nγ).
2206.25	(5/2,7/2⁺)	557.19[#] *12*	100[#] *13*	1649.04	(7/2)				
		600.0[#]	13[#] *4*	1606.30	(3/2)⁺				
		1432.1[#] *5*	<37[#]	773.64	5/2⁺				I_γ: 29 *8* for doublet.
		1486.2[#] *6*	34[#] *6*	720.18	3/2⁺				
		1697.8[#] *5*	19[#] *4*	508.96	7/2⁻				
		1728.8[#] *4*	42[#] *9*	477.30	7/2⁺				
2222.1	23/2⁻	523.8 *2*	100	1698.3	19/2⁻				
2261.36	(27/2⁻)	223.4 *2*	100 *5*	2037.86	(25/2⁻)	(M1+E2)	<0	0.491	Mult.,δ: D+Q intraband γ in (^{13}C,4nγ).
		429.1 *2*	100 *5*	1832.28	(23/2⁻)	(E2)		0.0311	Mult.: (Q) intraband γ in (^{13}C,4nγ).
		685.2 *2*	13 *3*	1575.99	23/2⁻				
2272.89	25/2⁻	518.1 *2*	100	1754.73	21/2⁻	E2[&]		0.0192	
2291.73	(25/2⁺)	279.6 *2*	100 *4*	2012.10	(23/2⁺)				
		419[b]	3.2 *12*	1873.37	(23/2⁺)				
2299.7	(25/2⁻)	211.2 *2*	100	2088.50	(23/2⁻)				
2424.41	(27/2⁺)	286.4 *2*	100 *5*	2137.99	(25/2⁺)				
		551.2 *2*	97 *6*	1873.37	(23/2⁺)	(E2)		0.01654	Mult.: (Q) intraband γ from γ(θ) in (^{13}C,4nγ).
2442.62	29/2⁻	588.42[@] *9*	100	1854.17	25/2⁻	(E2)		0.01416	Mult.: (Q) intraband γ from γ(θ) in (α,3nγ).
2504.84	(29/2⁻)	243.3 *2*	43 *12*	2261.36	(27/2⁻)				
		466.9 *2*	100 *5*	2037.86	(25/2⁻)				
		650.9 *2*	56 *10*	1854.17	25/2⁻				
2546.8	(27/2⁻)	247.1 *2*	100	2299.7	(25/2⁻)				
2586.31	(27/2⁺)	294.5 *2*	100 *4*	2291.73	(25/2⁺)	(M1+E2)		0.16 *7*	Mult.: (D+Q) intraband γ from γ(θ) in (^{13}C,4nγ).
		448.3 *2*	8 *3*	2137.99	(25/2⁺)				
		574.3 *2*	13 *5*	2012.10	(23/2⁺)				
2633.69	31/2⁺	513[b]		2120.46	29/2⁺				
		646.1 *2*	100 *25*	1987.59	27/2⁺				
2723.48	33/2⁺	603.1 *2*	100	2120.46	29/2⁺	(E2)		0.01337	Mult.: Q intraband γ from γ(θ) in (^{13}C,4nγ).
2730.86	(29/2⁺)	306.5 *2*	68 *23*	2424.41	(27/2⁺)				
		592.9 *2*	100 *3*	2137.99	(25/2⁺)	(E2)		0.01391	Mult.: (Q) intraband γ from γ(θ) in (^{13}C,4nγ).
2738.67	(31/2⁻)	234[b]	0.4 *2*	2504.84	(29/2⁻)				
		296.0 *2*	1.6 *5*	2442.62	29/2⁻				
		477.4 *2*	1.4 *4*	2261.36	(27/2⁻)				
		597.6[@] *9*	100 *3*	2141.39	27/2⁻				
		618.1 *2*	0.4 *2*	2120.46	29/2⁺				
2767.0	27/2⁻	544.9 *2*	100	2222.1	23/2⁻				

From ENSDF

$^{179}_{74}W_{105}$-15

Adopted Levels, Gammas (continued)

γ(^{179}W) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[a]	Comments
2772.63	31/2$^-$	511.1 *2*	54 *16*	2261.36	(27/2$^-$)			
		631.4 *2*	100 *14*	2141.39	27/2$^-$			
2798.3	29/2$^-$	525.4 *2*	100	2272.89	25/2$^-$			
2822.1	(29/2$^-$)	275.3 *2*	100 *9*	2546.8	(27/2$^-$)			
		523[b]	<57	2299.7	(25/2$^-$)			
2893.80	(29/2$^+$)	307.4 *2*	100 *30*	2586.31	(27/2$^+$)			
		470[b]	3.3 *16*	2424.41	(27/2$^+$)			
		602.1 *2*	33 *5*	2291.73	(25/2$^+$)			
3031.95	(33/2$^-$)	259.3 *2*	11 *3*	2772.63	31/2$^-$			
		527.1 *2*	28 *5*	2504.84	(29/2$^-$)			
		589.3 *2*	100 *17*	2442.62	29/2$^-$			
3055.04	(31/2$^+$)	324.1 *2*	45 *15*	2730.86	(29/2$^+$)			
		630.7 *2*	100 *5*	2424.41	(27/2$^+$)			
3082.12	33/2$^-$	639.4 *2*	100	2442.62	29/2$^-$	(E2)	0.01169	Mult.: (Q) intraband γ from γ(θ) in (^{13}C,4nγ).
3121.1	(31/2$^-$)	299.0 *2*	100 *9*	2822.1	(29/2$^-$)			
		574[b]		2546.8	(27/2$^-$)			
3210.55	(31/2$^+$)	316.7 *2*	100 *8*	2893.80	(29/2$^+$)			
		624.3 *2*	47 *6*	2586.31	(27/2$^+$)			
3224.98	(31/2$^+$)	331.2 *2*	100 *7*	2893.80	(29/2$^+$)	(D+Q)		Mult.: from γ(θ) in (^{13}C,4nγ).
		494.3 *2*	6.6 *22*	2730.86	(29/2$^+$)			
		638.7 *2*	54 *4*	2586.31	(27/2$^+$)			
		800.4[b] *2*	3.7 *15*	2424.41	(27/2$^+$)			
3326.28	(35/2$^-$)	244.0 *2*	1.5 *8*	3082.12	33/2$^-$			
		553.6 *2*	5.7 *13*	2772.63	31/2$^-$			
		587.6 *2*	100 *7*	2738.67	(31/2$^-$)			
3328.1	33/2$^-$	529.7 *2*	100	2798.3	29/2$^-$			
3343.6	35/2$^+$	709.9 *2*	100	2633.69	31/2$^+$	(E2)	0.00925 *13*	Mult.: Q intraband γ from γ(θ) in (^{13}C,4nγ).
3346.2	31/2$^-$	579.2 *2*	100	2767.0	27/2$^-$			
3348.41	(35/2$^-$)	266.3 *2*	0.22 *11*	3082.12	33/2$^-$			
		316.4 *2*	2.7 *5*	3031.95	(33/2$^-$)			
		575.7 *2*	0.87 *22*	2772.63	31/2$^-$			
		609.8 *2*	100 *4*	2738.67	(31/2$^-$)	E2	0.01303	Mult.: from ce data in (^{13}C,4nγ).
		625.0 *2*	0.54 *22*	2723.48	33/2$^+$			
3348.58	(33/2$^+$)	22.1 *2*		3326.28	(35/2$^-$)			
		123.7 *2*	100 *7*	3224.98	(31/2$^+$)			
		617.9[b] *2*	33 *11*	2730.86	(29/2$^+$)			
3370.7	37/2$^+$	647.2 *2*	100	2723.48	33/2$^+$			
3391.37	(33/2$^+$)	336[b]	29 *11*	3055.04	(31/2$^+$)			
		660.5 *2*	100 *29*	2730.86	(29/2$^+$)			
3401.71	35/2$^-$	629.2 *2*	84 *20*	2772.63	31/2$^-$			

From ENSDF

$^{179}_{74}W_{105}$-16

Adopted Levels, Gammas (continued)

γ(^{179}W) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[a]	Comments
3401.71	35/2$^-$	662.9 *2*	100 *20*	2738.67	(31/2$^-$)			
3439.1	(33/2$^-$)	318.0 *2*	100 *32*	3121.1	(31/2$^-$)			
		617[b]		2822.1	(29/2$^-$)			
3535.0	(33/2$^+$)	324.4 *2*	100 *33*	3210.55	(31/2$^+$)			
		641[b]		2893.80	(29/2$^+$)			
3535.47	(35/2$^-$)	187.0 *2*	100	3348.41	(35/2$^-$)	M1	0.804	Mult.: from I(γ+ce) balance in (^{13}C,4nγ).
3570.07	(35/2$^+$)	178.7 *2*	18 *6*	3391.37	(33/2$^+$)			
		221.4 *2*	100 *7*	3348.58	(33/2$^+$)	(M1+E2)	0.36 *15*	Mult.: D+Q intraband γ in (^{13}C,4nγ).
		345.2 *2*	32 *9*	3224.98	(31/2$^+$)			
		514.9[b] *2*	16 *6*	3055.04	(31/2$^+$)			
3582.60	(37/2$^+$)	234.2 *2*	100	3348.41	(35/2$^-$)	E1	0.0420	B(E1)(W.u.)>3.3×10^{-5} Mult.: from I(γ+ce) balance in (^{13}C,4nγ).
3596.53	(37/2$^-$)	61.0 *2*	17 *6*	3535.47	(35/2$^-$)	M1	3.42 *6*	B(M1)(W.u.)=0.020 *10* Mult.: from I(γ+ce) balance in (^{13}C,4nγ).
		248.2 *2*	100 *5*	3348.41	(35/2$^-$)	D+Q		Mult.: from γ(θ) in (^{13}C,4nγ).
3637.85	(37/2$^-$)	605.9 *2*	100	3031.95	(33/2$^-$)			
3711.71	(37/2$^-$)	363.3 *2*	100	3348.41	(35/2$^-$)			
3746.5	(35/2$^+$)	691.5 *2*	100	3055.04	(31/2$^+$)			
3748.2	37/2$^-$	666.1 *2*	100	3082.12	33/2$^-$			
3778.12	(39/2$^+$)	181.6 *2*	100 *4*	3596.53	(37/2$^-$)			
		195.5 *2*	13.5 *9*	3582.60	(37/2$^+$)	M1	0.710	B(M1)(W.u.)>0.00070 Mult.: from I(γ+ce) balance in (^{13}C,4nγ).
3779.1?	(35/2$^-$)	340[b]	100 *38*	3439.1	(33/2$^-$)			
		658[b]		3121.1	(31/2$^-$)			
3827.19	(37/2$^+$)	257.2 *2*	100 *5*	3570.07	(35/2$^+$)			
		478.6 *2*	98 *5*	3348.58	(33/2$^+$)			
3853.2?	(37/2$^-$)	317.7[b] *2*	100	3535.47	(35/2$^-$)			
3906.4	(39/2$^+$)	323.9 *2*	100	3582.60	(37/2$^+$)			
3920.06	37/2$^-$	591.9 *2*	100 *19*	3328.1	33/2$^-$			
		838.0 *2*	63 *13*	3082.12	33/2$^-$			
3963.68	(39/2$^-$)	637.4 *2*	100	3326.28	(35/2$^-$)			
3968.6	(39/2$^-$)	372.0 *2*	100	3596.53	(37/2$^-$)			
3985.2?	(35/2$^-$)	639[b]	100	3346.2	31/2$^-$			
4041.3	41/2$^+$	670.6 *2*	100	3370.7	37/2$^+$	(E2)	0.01049	Mult.: Q intraband γ from γ(θ) in (^{13}C,4nγ).
4090.5	(39/2$^-$)	378.9 *2*	100 *10*	3711.71	(37/2$^-$)			
		742[b]		3348.41	(35/2$^-$)			
4091.4	39/2$^+$	747.8 *2*	100	3343.6	35/2$^+$			
4094.7	39/2$^-$	693.0 *2*	100	3401.71	35/2$^-$			
4117.25	(39/2$^+$)	290.0 *2*	53 *5*	3827.19	(37/2$^+$)			

From ENSDF

$^{179}_{74}W_{105}$-17

Adopted Levels, Gammas (continued)

γ(^{179}W) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[a]	Comments
4117.25	(39/2$^+$)	547.1 *2*	100 *7*	3570.07	(35/2$^+$)			
4120.1	(41/2$^+$)	342.0 *2*	100	3778.12	(39/2$^+$)			
4186.2?	(39/2$^-$)	333.0[b] *2*	100 *27*	3853.2?	(37/2$^-$)			
		650.8[b] *2*	53 *20*	3535.47	(35/2$^-$)			
4243.4	(41/2$^+$)	337.0 *2*	100 *5*	3906.4	(39/2$^+$)			
		660.7 *2*	12.5 *23*	3582.60	(37/2$^+$)			
4305.1	(41/2$^-$)	667.2 *2*	100	3637.85	(37/2$^-$)			
4354.5	(41/2$^-$)	385.8 *2*	100 *11*	3968.6	(39/2$^-$)			
		758.1 *2*	42 *5*	3596.53	(37/2$^-$)			
4435.6	(41/2$^+$)	318.2 *2*	53 *18*	4117.25	(39/2$^+$)			
		608.5 *2*	100 *16*	3827.19	(37/2$^+$)			
4464.3	41/2$^-$	716.1 *2*	100	3748.2	37/2$^-$			
4476.8	(43/2$^+$)	356.6 *2*	100 *6*	4120.1	(41/2$^+$)			
		699	20 *6*	3778.12	(39/2$^+$)			
4477.5	(41/2$^-$)	387.0 *2*	<400	4090.5	(39/2$^-$)			I_γ: I(387γ doublet):I(765.7γ)=23 *2*:6 *2* in (^{13}C,4nγ).
		765.7 *2*	100 *33*	3711.71	(37/2$^-$)			
4574.4	41/2$^-$	654.3 *2*	100	3920.06	37/2$^-$			
4596.9	(43/2$^+$)	353.4 *2*	100 *10*	4243.4	(41/2$^+$)			
		690.6 *2*	24 *8*	3906.4	(39/2$^+$)			
4609.8	(43/2$^+$)	366.5 *2*	25.6 *20*	4243.4	(41/2$^+$)			
		831.7 *2*	100.0 *24*	3778.12	(39/2$^+$)	E2	0.00658 *10*	Mult.: Q from $\gamma(\theta)$ in (^{13}C,4nγ); not M2 from RUL.
4666.6	(43/2$^-$)	702.9 *2*	100	3963.68	(39/2$^-$)			
4738.3	45/2$^+$	697.0 *2*	100	4041.3	41/2$^+$			
4748.3	(43/2$^-$)	394[b]		4354.5	(41/2$^-$)			
		779.7 *2*	100 *10*	3968.6	(39/2$^-$)			
4779.3	(43/2$^+$)	662.1 *2*	100	4117.25	(39/2$^+$)			
4800.7	(45/2$^+$)	190.9 *2*	100	4609.8	(43/2$^+$)			
4845.1	43/2$^-$	750.4 *2*	100	4094.7	39/2$^-$			
4847.3	43/2$^+$	755.9 *2*	100	4091.4	39/2$^+$			
4849.8	(45/2$^+$)	372.9 *2*	100 *33*	4476.8	(43/2$^+$)			
		729.7 *2*	43 *8*	4120.1	(41/2$^+$)			
4864.5?	(43/2$^-$)	387[b]		4477.5	(41/2$^-$)			
		774[b]		4090.5	(39/2$^-$)			
4921.5	(45/2$^-$)	311.6 *2*	100	4609.8	(43/2$^+$)			
4967.8	(45/2$^+$)	370.9 *2*	100 *33*	4596.9	(43/2$^+$)			
		724.4 *2*	53 *10*	4243.4	(41/2$^+$)			
5036.8	(45/2$^-$)	731.7 *2*	100	4305.1	(41/2$^-$)			
5119.9	(47/2$^+$)	319.2 *2*	100 *33*	4800.7	(45/2$^+$)			
		510[b]		4609.8	(43/2$^+$)			

From ENSDF

$^{179}_{74}W_{105}$-18

Adopted Levels, Gammas (continued)

$\gamma(^{179}W)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
5141.3	(45/2$^-$)	393[b]		4748.3	(43/2$^-$)
		786.8 *2*	100 *14*	4354.5	(41/2$^-$)
5147.0	(45/2$^+$)	711.4 *2*	100	4435.6	(41/2$^+$)
5178.3	(47/2$^-$)	256.7 *2*	100 *7*	4921.5	(45/2$^-$)
		377.6 *2*	70 *8*	4800.7	(45/2$^+$)
5233.3	45/2$^-$	769.0 *2*	100	4464.3	41/2$^-$
5239.6	(47/2$^+$)	389.7 *2*	100 *35*	4849.8	(45/2$^+$)
		762.9 *2*	41 *12*	4476.8	(43/2$^+$)
5278.4?	(45/2$^-$)	704[b]	100	4574.4	41/2$^-$
5357.1	(47/2$^+$)	389.2 *2*	100 *35*	4967.8	(45/2$^+$)
		760.2 *2*	25 *10*	4596.9	(43/2$^+$)
5436.7	(47/2$^-$)	770.1 *2*	100	4666.6	(43/2$^-$)
5487.1	49/2$^+$	748.8 *2*	100	4738.3	45/2$^+$
5489.6	(49/2$^+$)	369.7 *2*	100 *16*	5119.9	(47/2$^+$)
		688.9 *2*	39 *13*	4800.7	(45/2$^+$)
5497.4	(49/2$^-$)	319.0 *2*	100 *34*	5178.3	(47/2$^-$)
		576.1 *2*	23 *6*	4921.5	(45/2$^-$)
5536.9	(47/2$^+$)	757.5 *2*	100	4779.3	(43/2$^+$)
5611.3	47/2$^+$	764.0 *2*	100	4847.3	43/2$^+$
5646.4	(49/2$^+$)	406.7 *2*	100 *33*	5239.6	(47/2$^+$)
		796.6 *2*	67 *25*	4849.8	(45/2$^+$)
5648.7	47/2$^-$	803.6 *2*	100	4845.1	43/2$^-$
5764.1	(49/2$^+$)	406.9 *2*	100 *33*	5357.1	(47/2$^+$)
		796.5 *2*	67 *25*	4967.8	(45/2$^+$)
5833.7	(49/2$^-$)	796.9 *2*	100	5036.8	(45/2$^-$)
5852.0	(51/2$^-$)	354.5 *2*	100 *12*	5497.4	(49/2$^-$)
		673.7 *2*	41 *9*	5178.3	(47/2$^-$)
5895.4	(51/2$^+$)	405.7 *2*	100 *15*	5489.6	(49/2$^+$)
		775.5 *2*	62 *12*	5119.9	(47/2$^+$)
5947.6	(49/2$^+$)	800.6 *2*	100	5147.0	(45/2$^+$)
6069.5?	(51/2$^+$)	423[b]	100 *43*	5646.4	(49/2$^+$)
		830[b]	57 *29*	5239.6	(47/2$^+$)
6234.8	(53/2$^-$)	382.6 *2*	100 *11*	5852.0	(51/2$^-$)
		737.5 *2*	63 *16*	5497.4	(49/2$^-$)
6268.7?	(51/2$^-$)	832[b]	100	5436.7	(47/2$^-$)
6310.2	53/2$^+$	823.1 *2*	100	5487.1	49/2$^+$
6330.7	(53/2$^+$)	435.4 *2*	100 *18*	5895.4	(51/2$^+$)
		841.1 *2*	82 *27*	5489.6	(49/2$^+$)
6623.4?	(55/2$^-$)	389[b]		6234.8	(53/2$^-$)
		771[b]		5852.0	(51/2$^-$)
6708.7?	(53/2$^-$)	875[b]	100	5833.7	(49/2$^-$)
6792.5	(55/2$^+$)	462[b]		6330.7	(53/2$^+$)
		897.1 *2*	100 *30*	5895.4	(51/2$^+$)

[†] From ^{170}Er(^{13}C,4nγ), ^{180}Hf(α,5nγ), except as noted. Iγ data from both prompt and delayed measurements have been considered.
[‡] From conversion electron data measured in ^{179}Re ε decay, except as noted.
[#] From ^{179}Re ε decay.
[@] Weighted average from (^{13}C,4nγ) and (α,3nγ).
[&] Q from $\gamma(\theta)$; not M2 from RUL for γ in prompt $\gamma\gamma$ coin in (^{13}C,4nγ).
[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.

From ENSDF

$^{179}_{74}W_{105}$-19

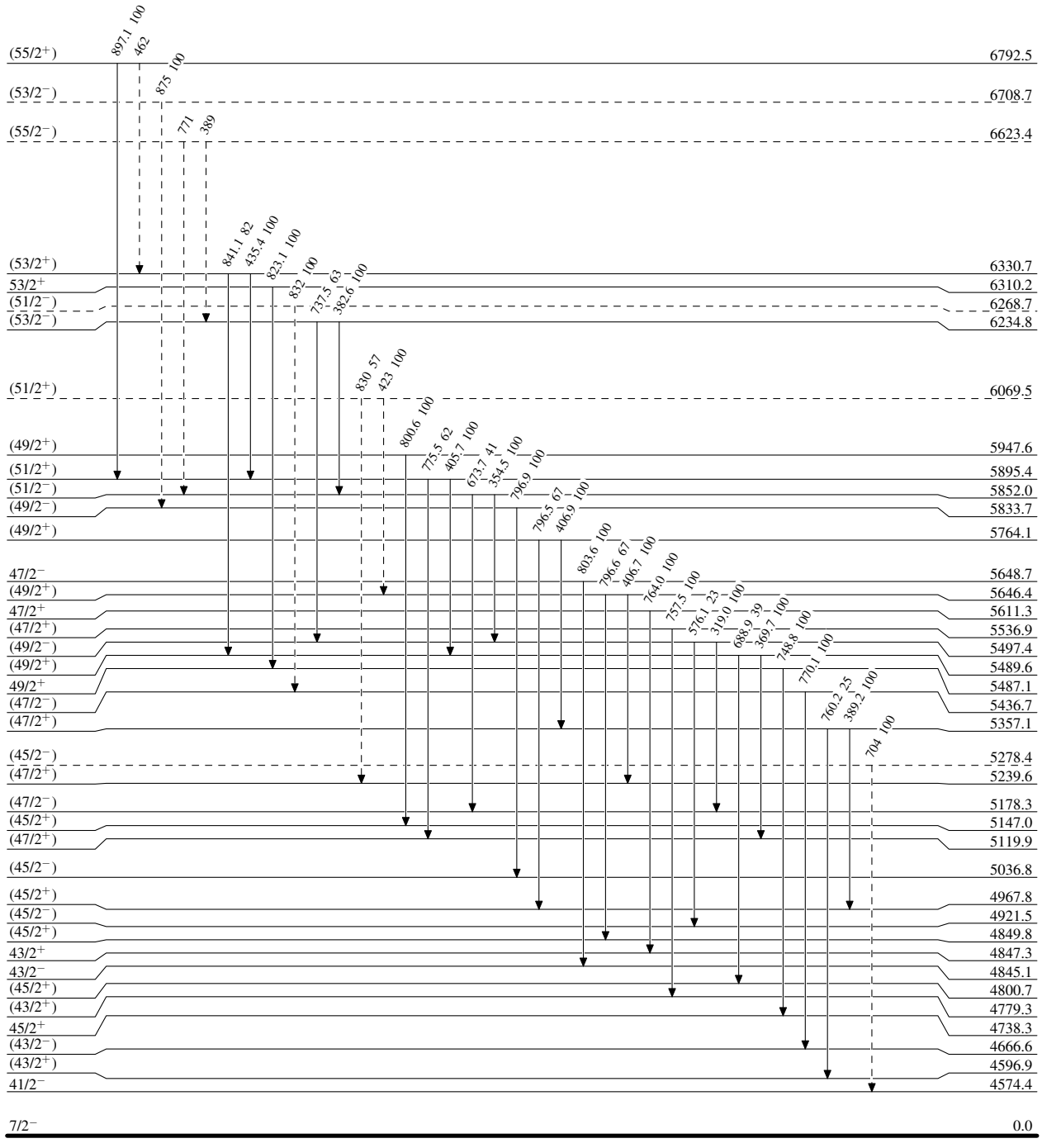
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



37.05 min *16*

$^{179}_{74}W_{105}$

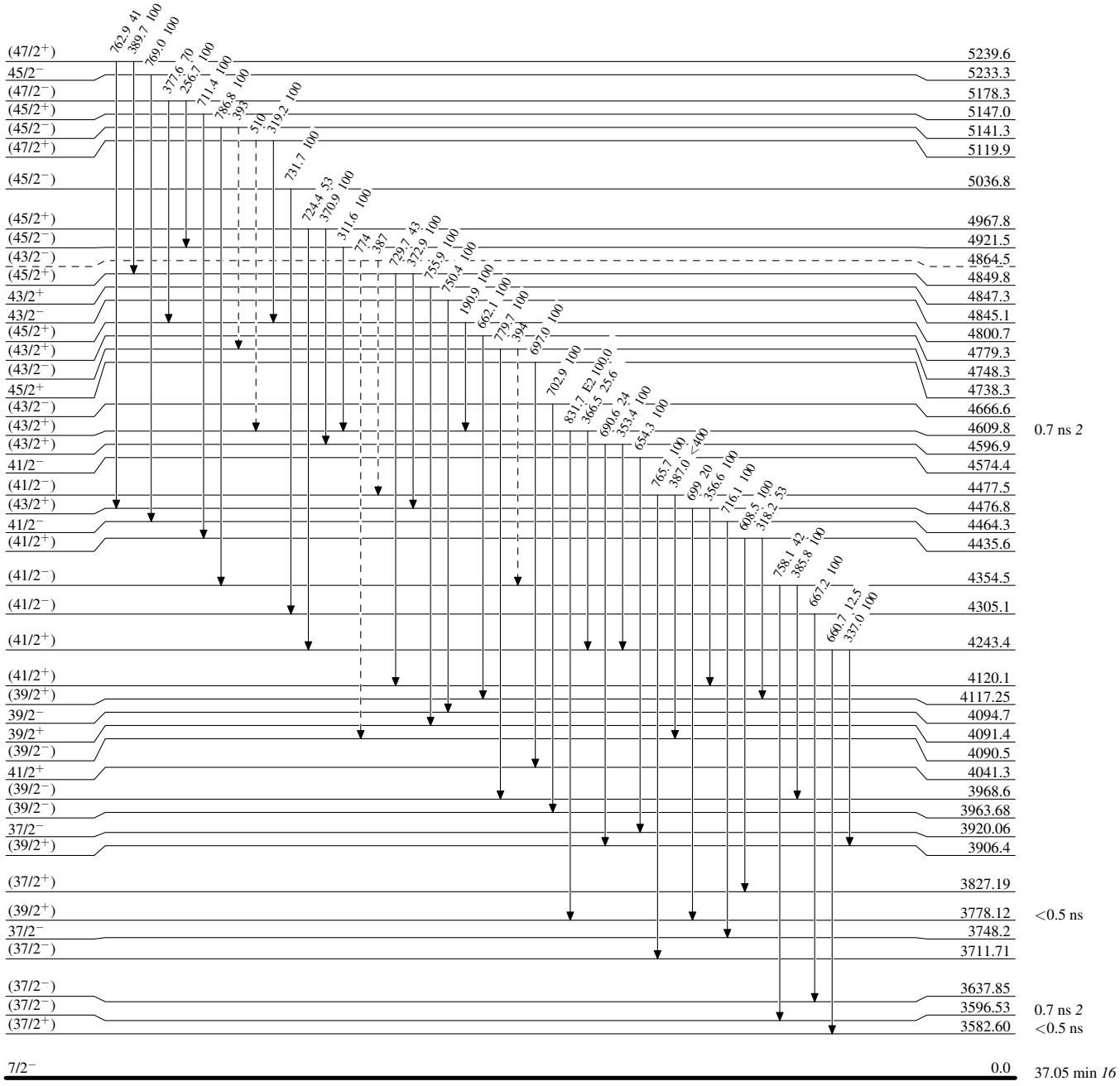
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{179}_{74}W_{105}$

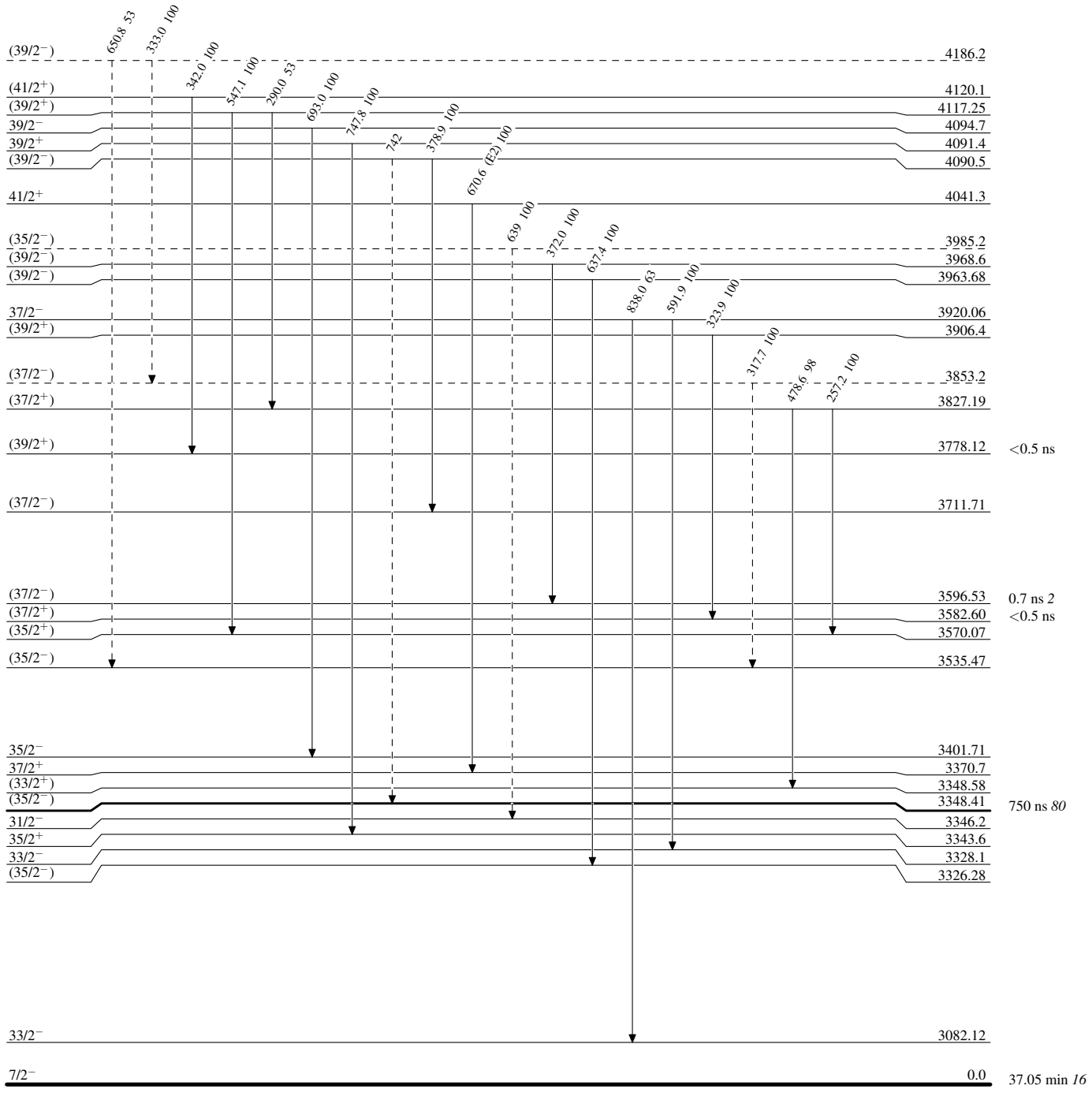
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{179}_{74}W_{105}$

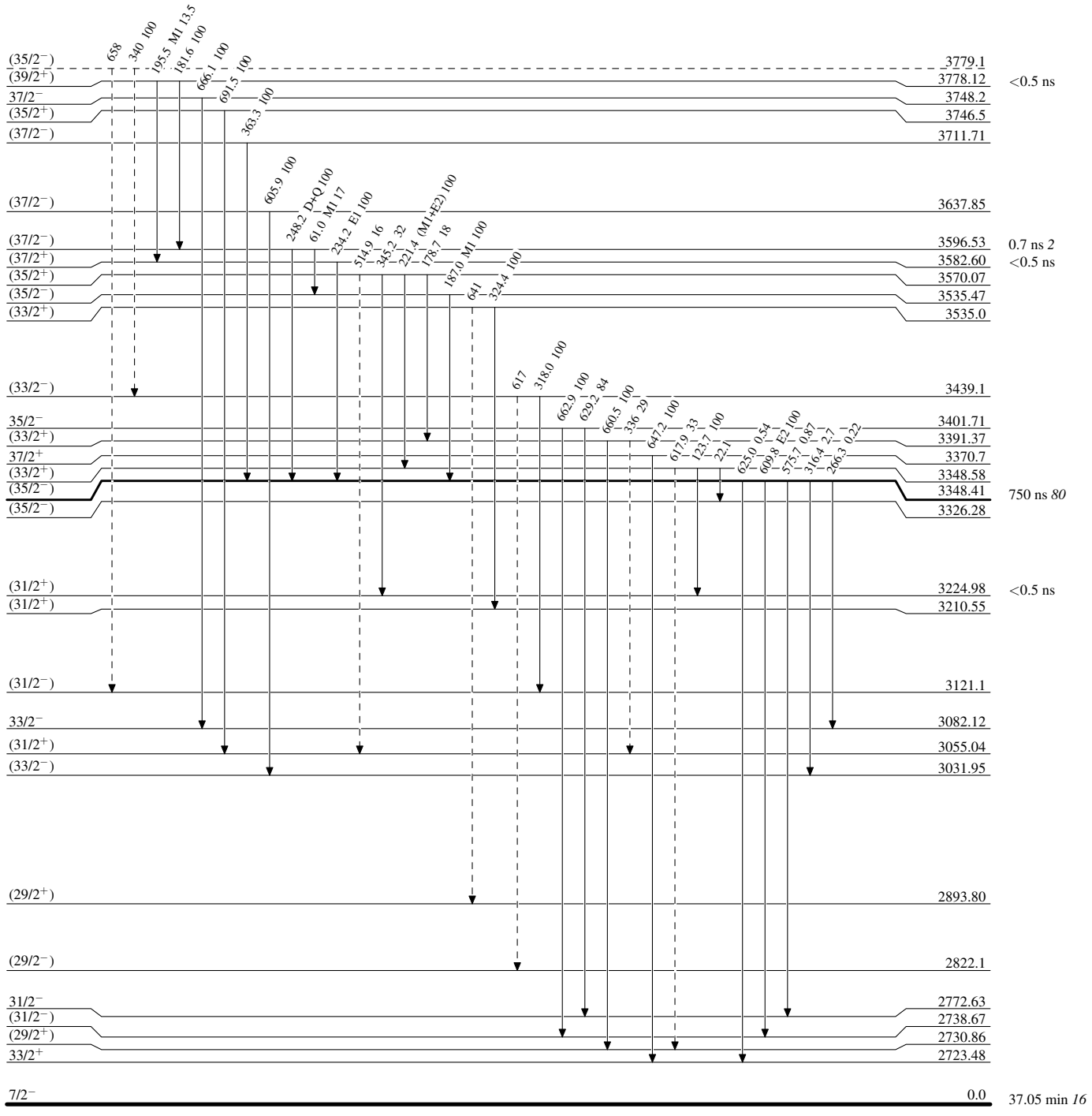
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{179}_{74}W_{105}$

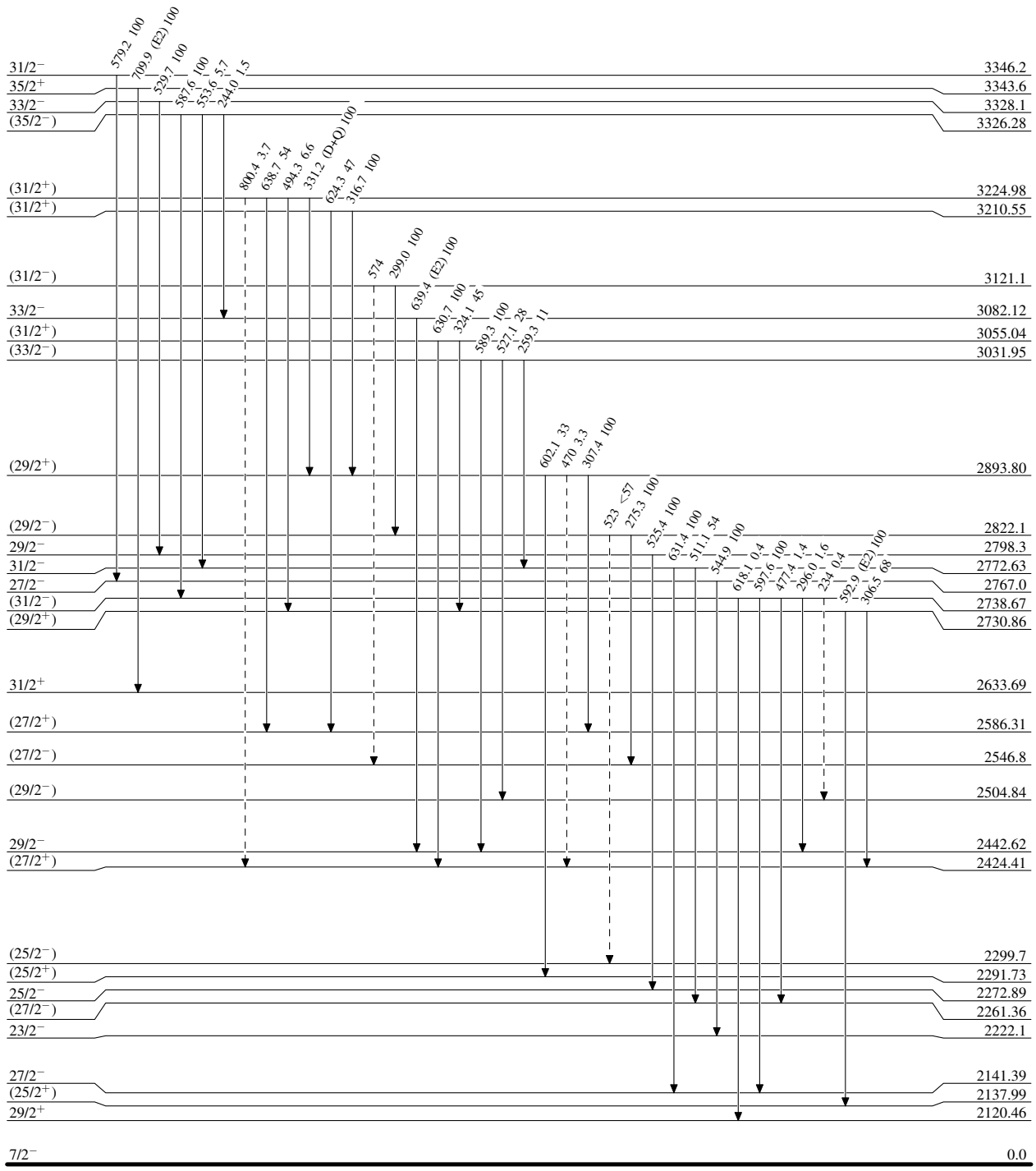
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{179}_{74}W_{105}$

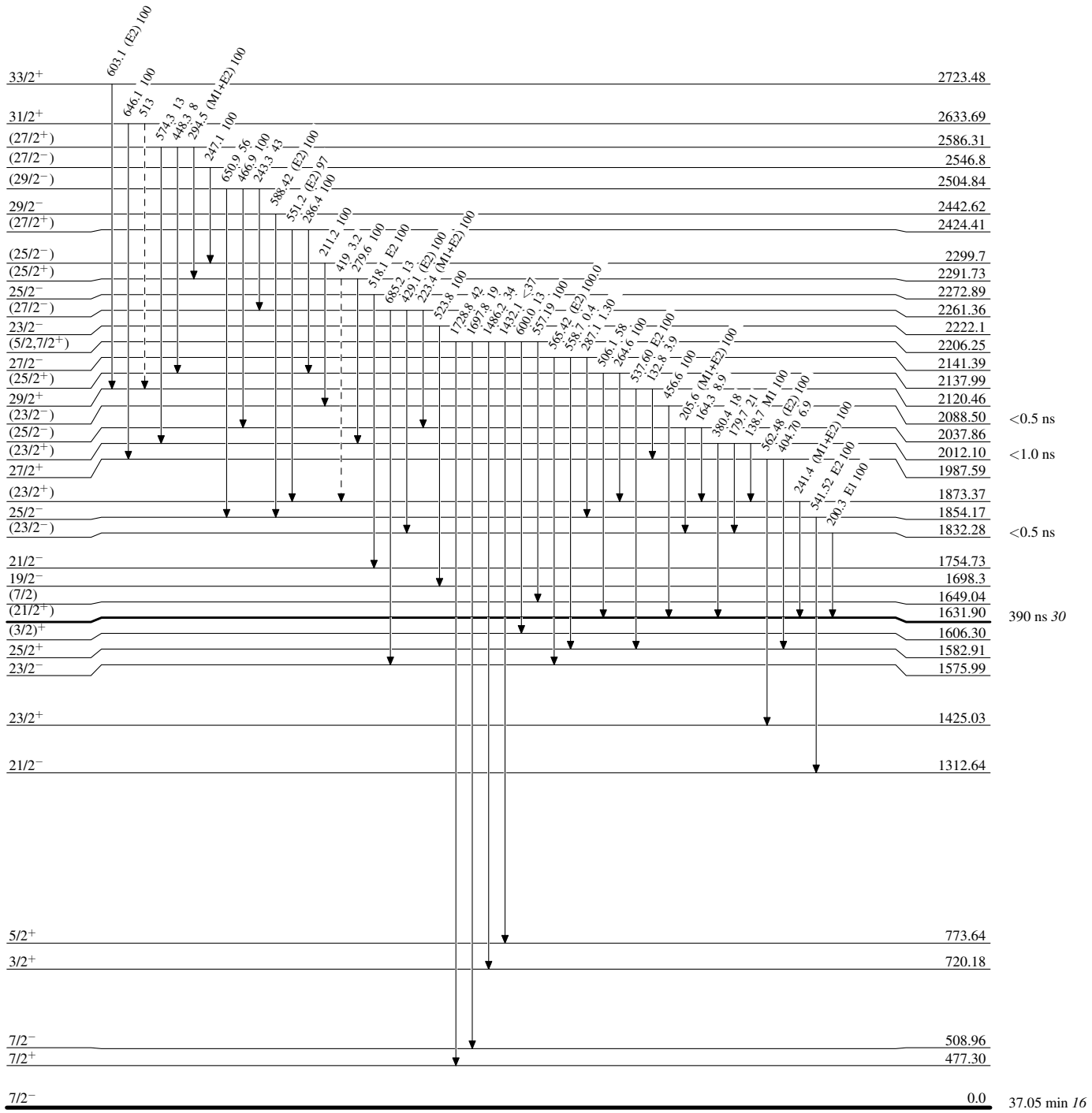
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

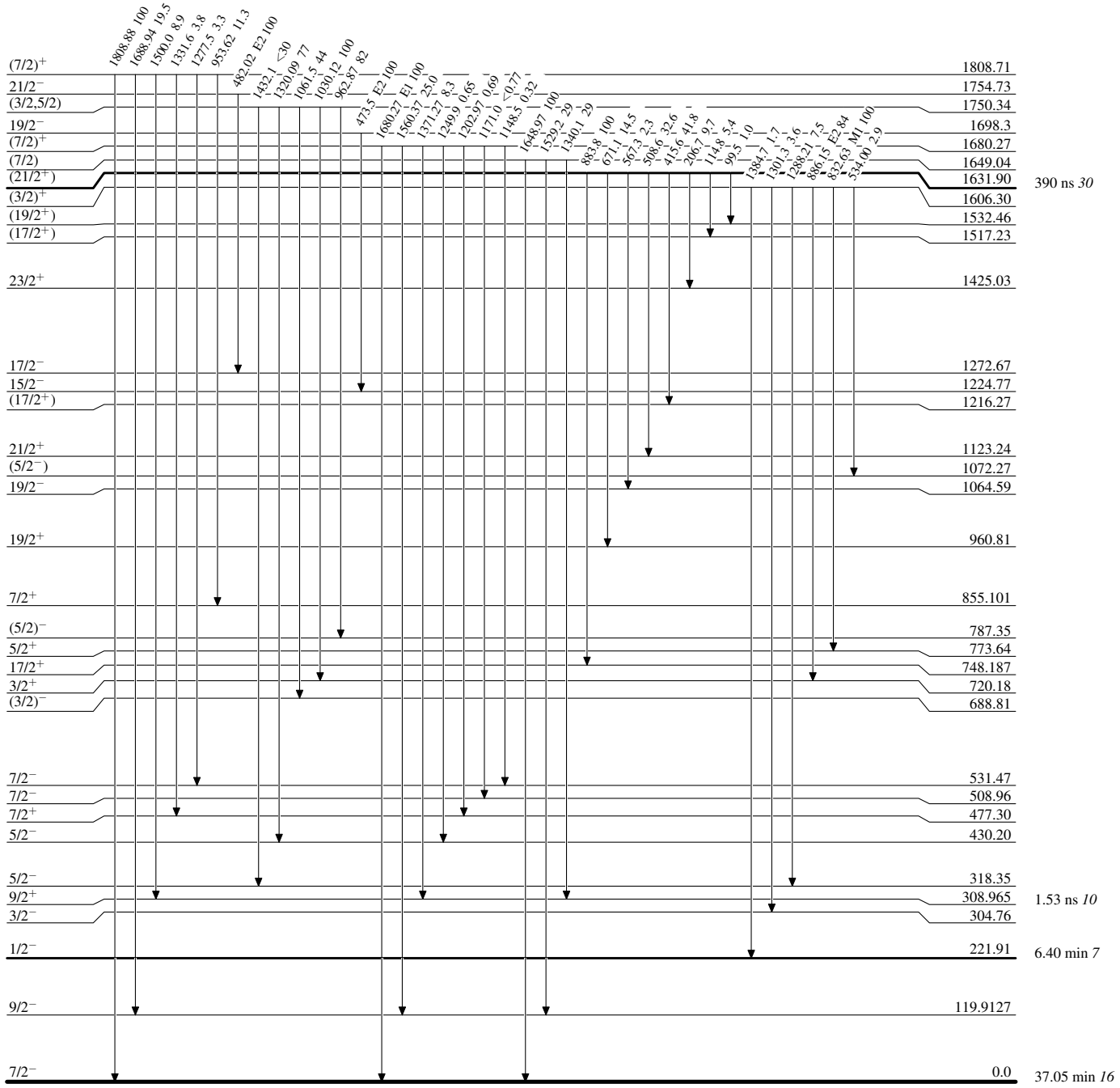


$^{179}_{74}W_{105}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{179}_{74}W_{105}$

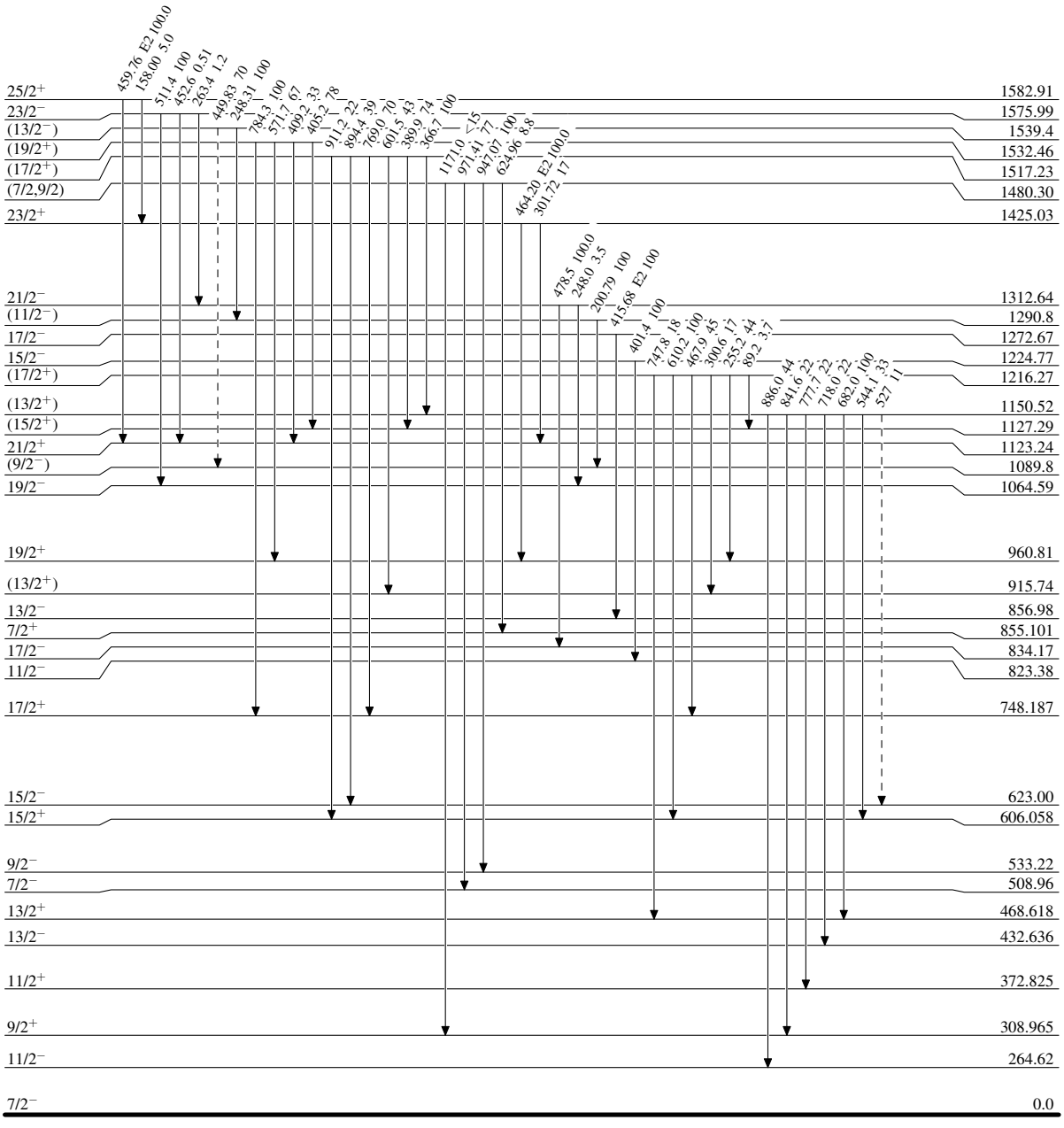
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{179}_{74}W_{105}$

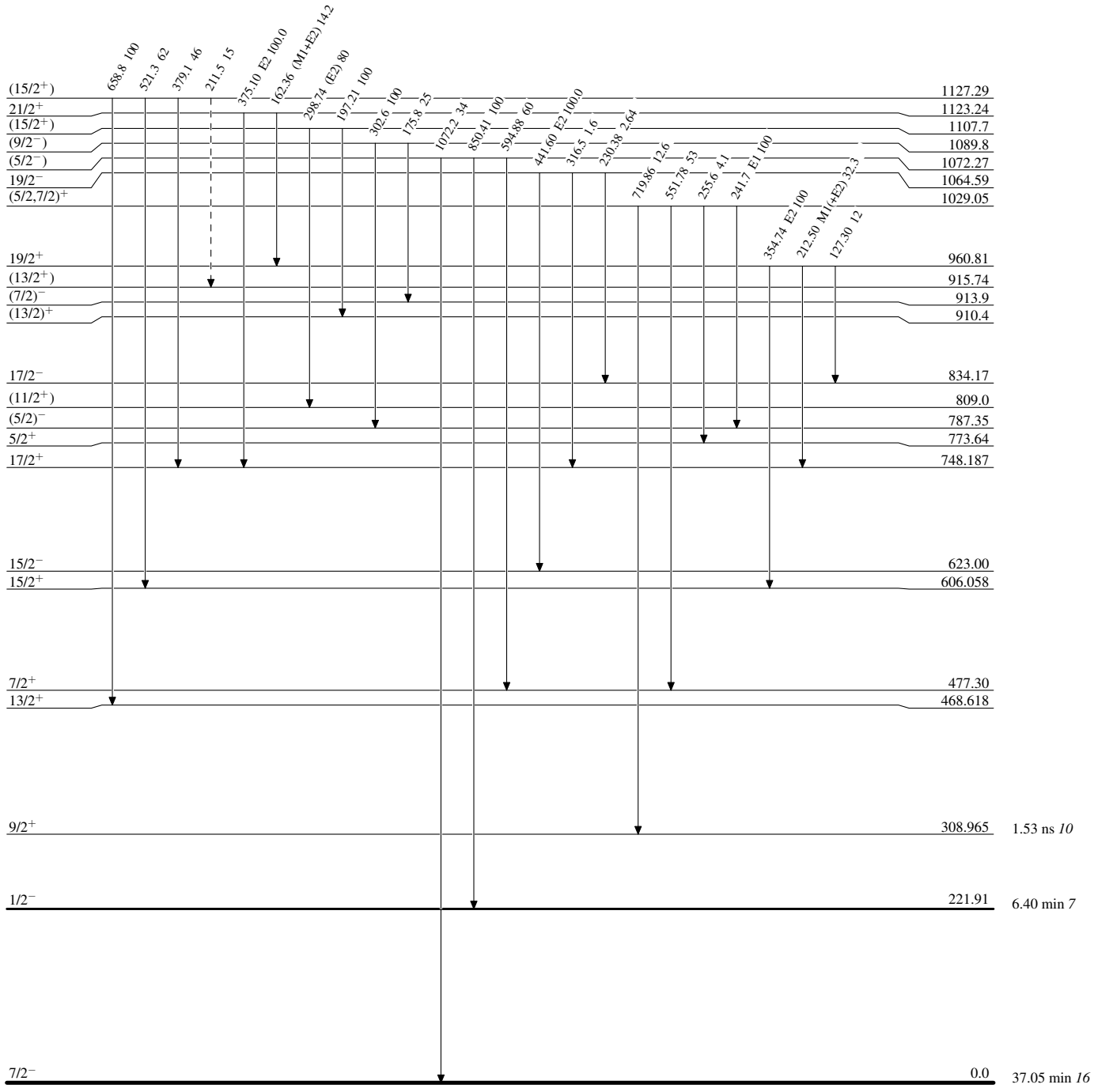
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

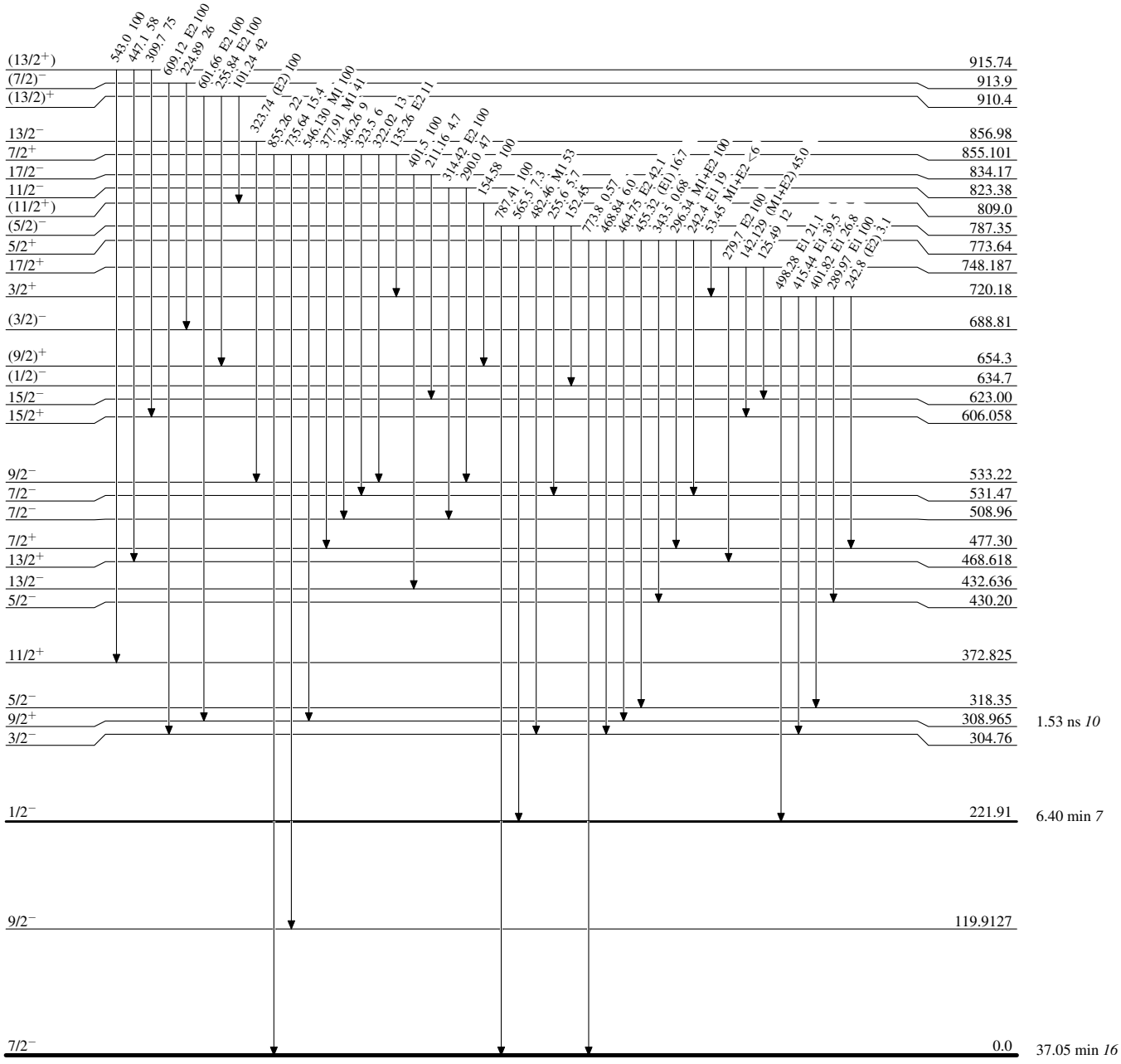


$^{179}_{74}W_{105}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{179}_{74}W_{105}$

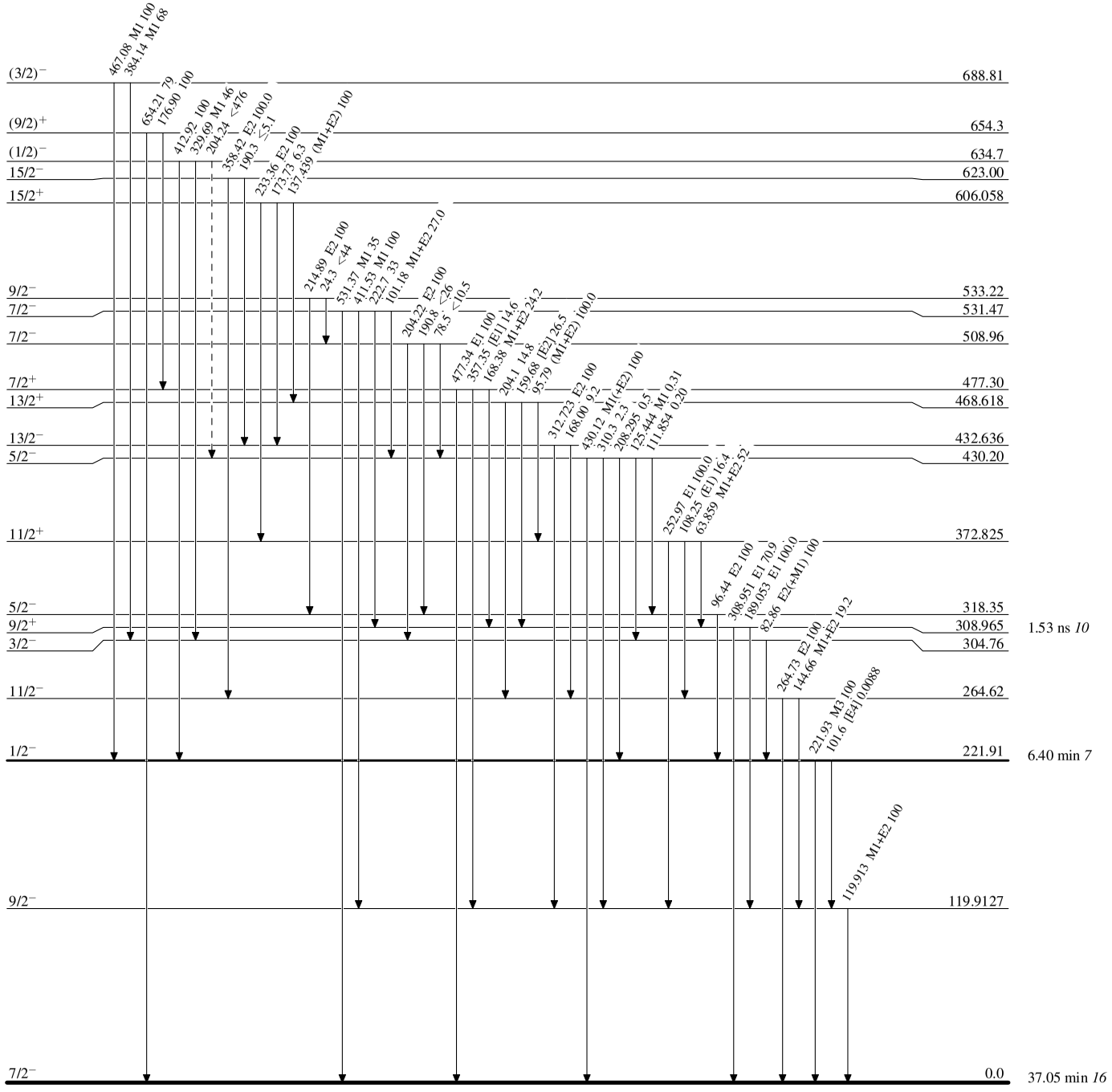
Adopted Levels, Gammas

Legend

Level Scheme (continued)

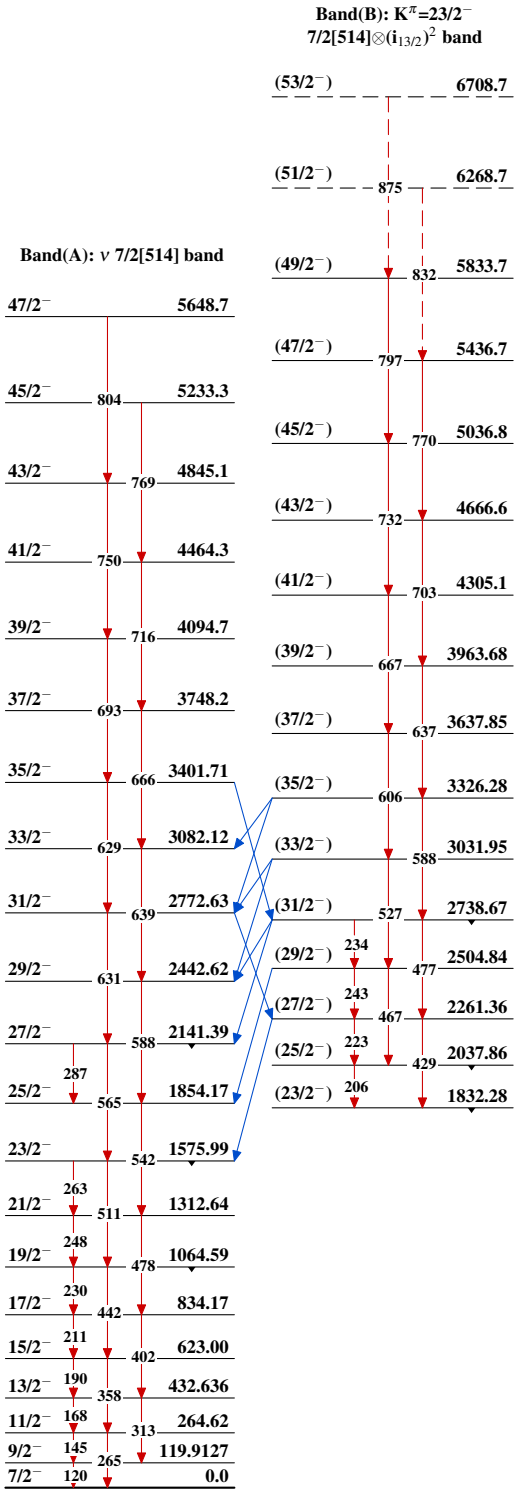
Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



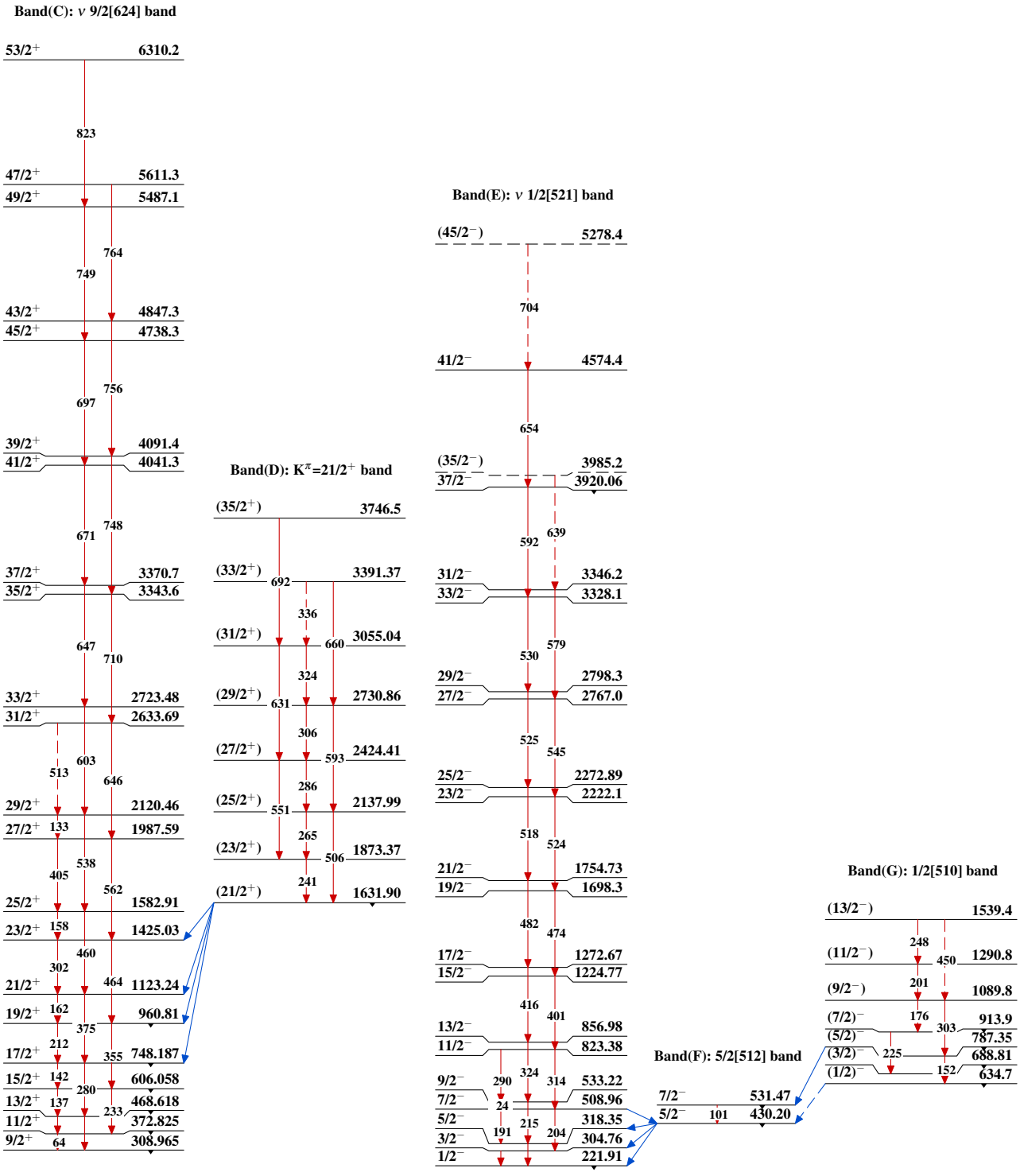
$^{179}_{74}W_{105}$

Adopted Levels, Gammas



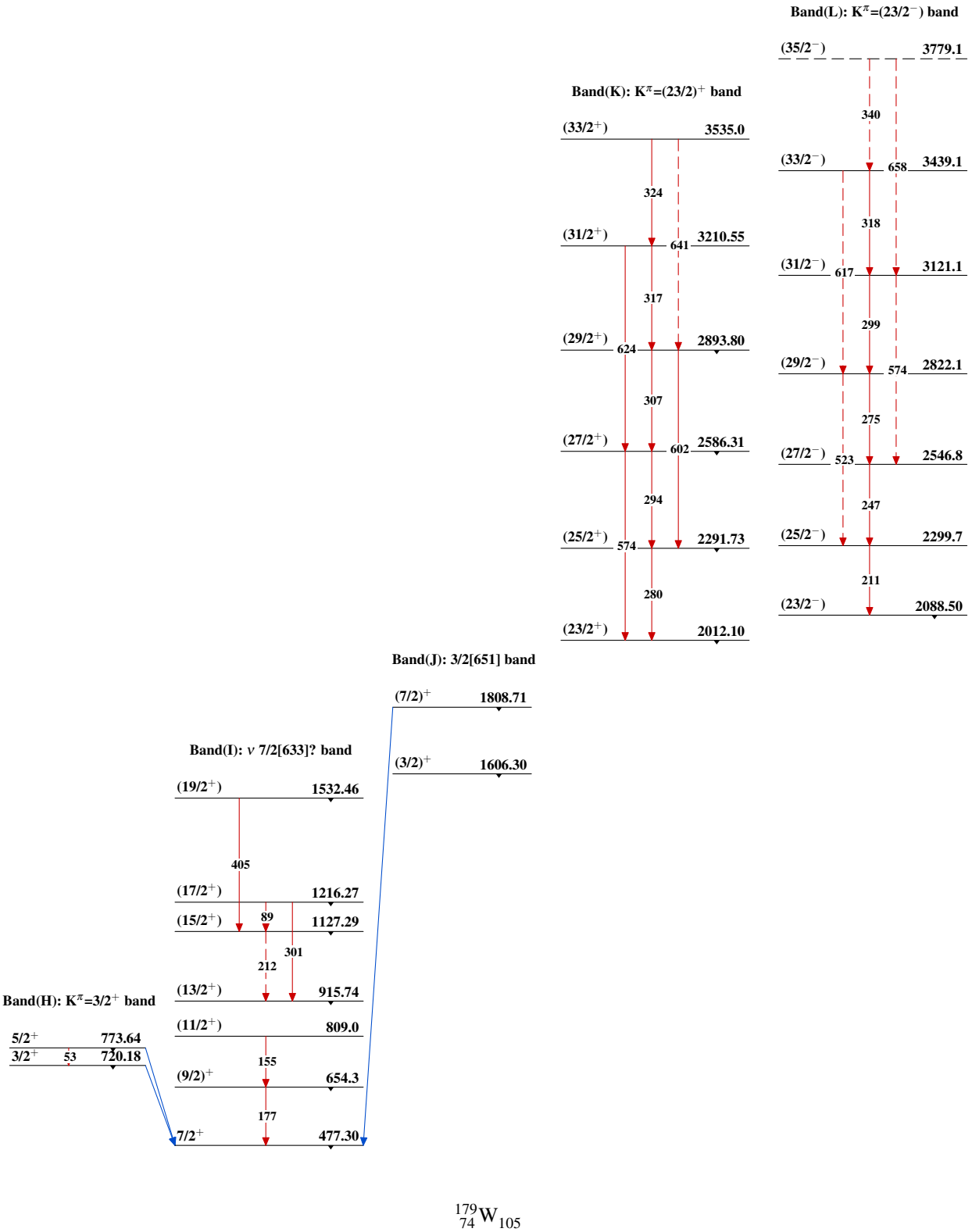
$^{179}_{74}W_{105}$

Adopted Levels, Gammas (continued)



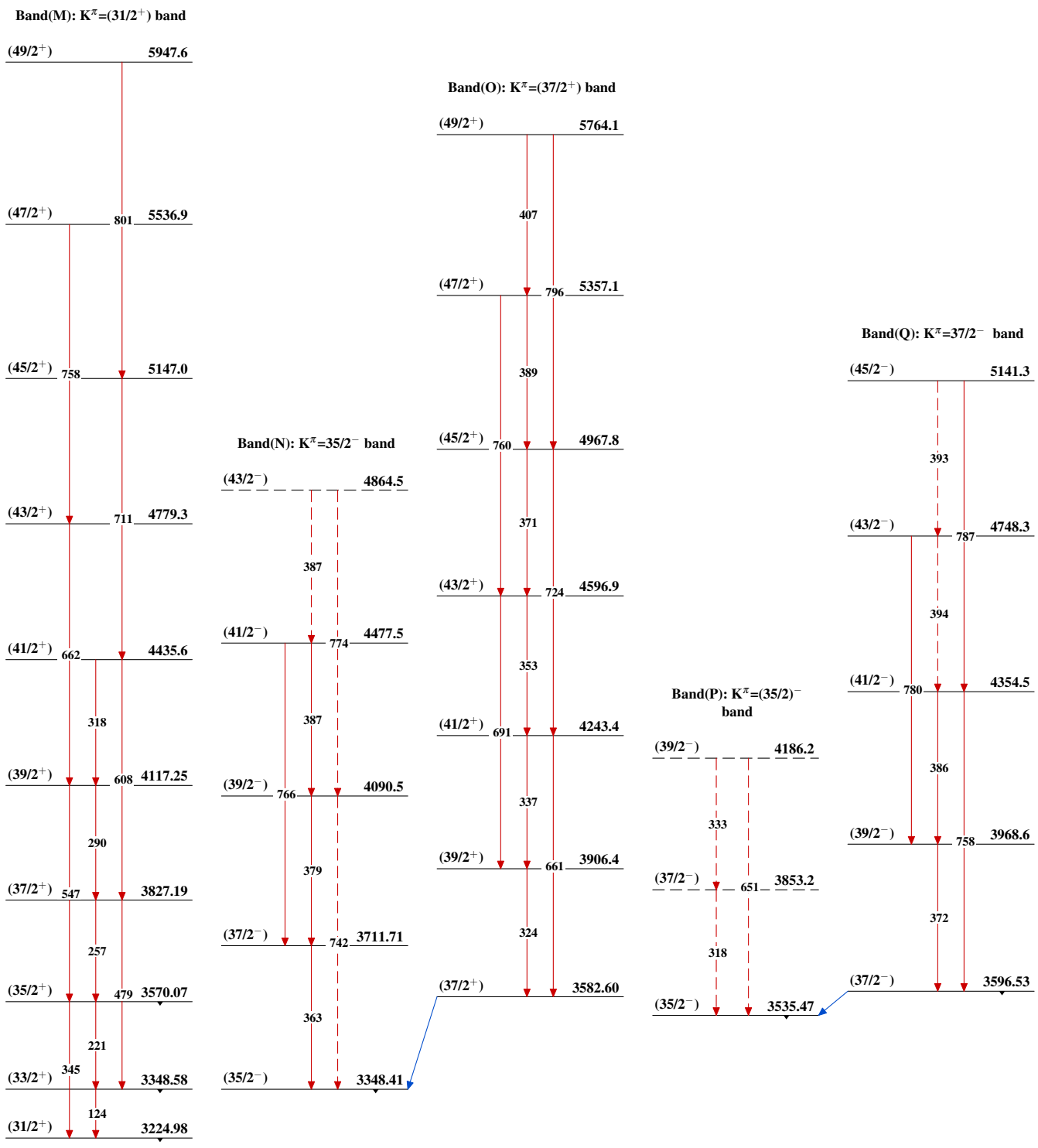
$^{179}_{74}W_{105}$

Adopted Levels, Gammas (continued)

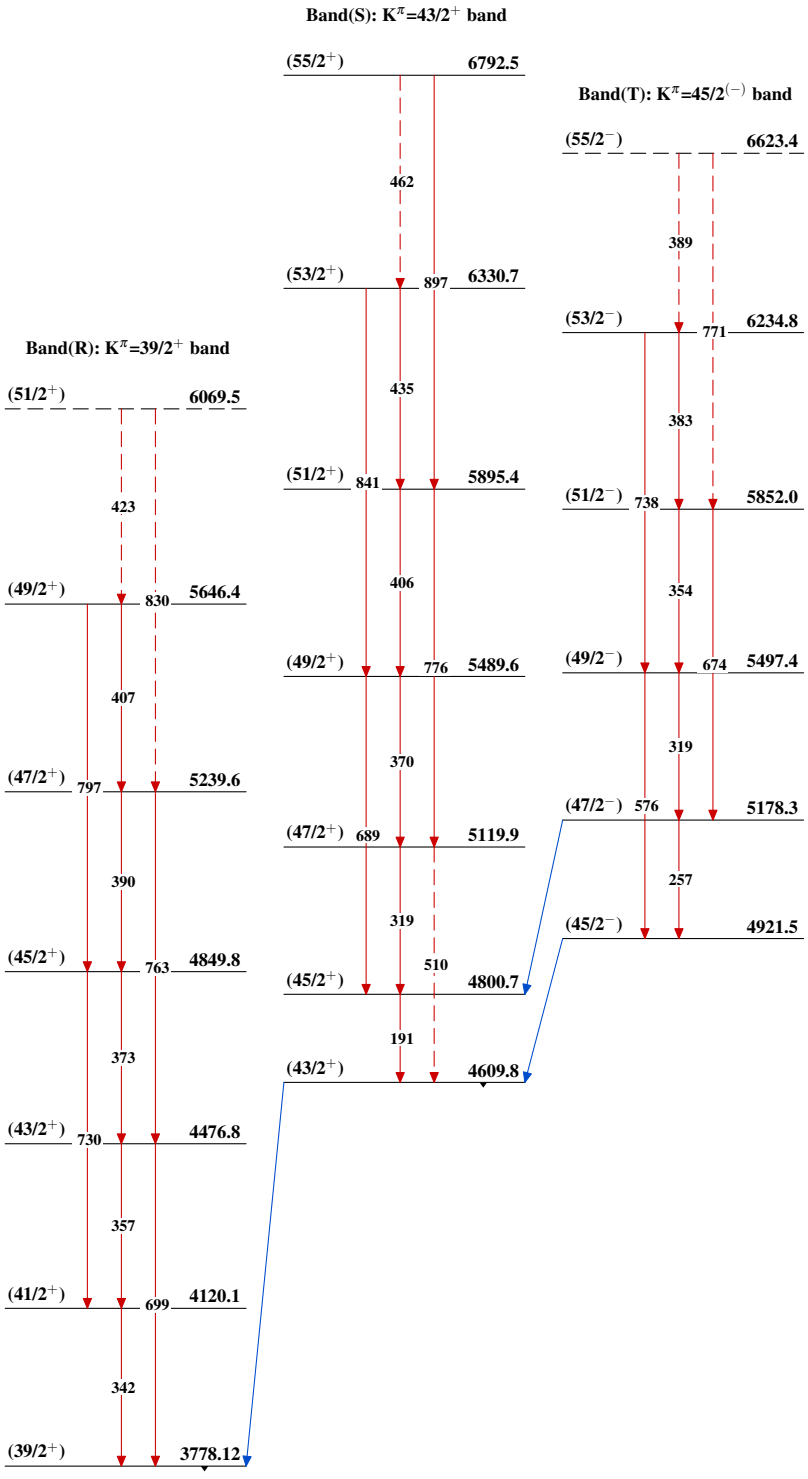


$^{179}_{74}W_{105}$

Adopted Levels, Gammas (continued)



Adopted Levels, Gammas (continued)



$^{179}_{74}W_{105}$