Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Update	Balraj Singh	ENSDF	31-Mar-2022

Q(β^-)=1312.5 *11*; S(n)=5466.76 *4*; S(p)=8590 *60*; Q(α)=950 *30* 2021Wa16
S(2n)=12658.8 *12*, S(2p)=16160 *60* (2021Wa16).

Update of March 31, 2022 (by B. Singh): 1. Decay dataset for ^{187}Ta to ^{187}W from 2022Mu10 added; and the population of 0.0, 77.3, 201.4, and 350.4 levels in ^{187}Ta decay shown in XREF in the Adopted dataset. 2. comments for γ-ray branching ratios from ^{187}Ta decay, and from (n,γ) in 2014Hu02 for γ rays from 201.4 and 350.4 levels given in comments for comparison to present values in the Adopted dataset. 3. half-life of g.s. of ^{187}W revised based on measurement by 2019Kr02. 4. Q values updated to 2021Wa16.

Note by B. Singh, March 31, 2022: 2014Hu02 reference for ^{186}W(n,γ), E=thermal measurement is not incorporated in an update of March 31, 2022. There seem no other new references for ^{187}W since the November 2008 evaluation in literature for ^{187}W structure or decay related information.

There are 173 neutron resonances for the ^{186}W+n reaction in the 18.8 eV to 17.3 keV energy range (2018MuZZ). See ^{186}W(n,γ),(n,n):resonances dataset for details.

^{187}W Levels

Cross Reference (XREF) Flags

A	^{187}Ta β^- decay (283 s)	D	^{186}W(d,p),^{186}W(pol d,p)
B	^{186}W(n,γ),^{186}W(pol n,γ) E=th	E	^{186}W(^{18}O,^{17}Oγ)
C	^{186}W(n,γ) E=2,24 keV:av res	F	^{186}W(^{82}Se,^{81}Seγ)

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	XREF	Comments
0.0[#]	3/2$^-$	23.80 h *3*	ABCDEF	%β^-=100 μ=0.621 *15* (1987Oh10,2019StZV) μ: from 1987Oh10 (NMR). Same value by 1989Ra17 and 2005St24. J$^\pi$: J from atomic beam (1976Fu06), parity from L(d,p)=1. $T_{1/2}$: from 2019Kr02; weighted average of 23.72 h *8* (for 134γ), 23.80 h *6* (for 480γ), 24.01 h *15* (for 552γ), 23.86 h *13* (for 618γ), 23.81 h *6* (for 686γ), and 23.76 h *16* (for 773γ). Uncertainty includes statistical, fitting and systematic. 2019Kr02 point out that their value is in better agreement with 23.72 h *6* from 1964An02 as compared to 24.000 h *4* from 1989Ab05. Others: 22.0 h *2* (1958Gi45), 24.04 h *9* (1957Wr37), 23.85 h *8* (1953Ei02), 24.0 h *1* (1953Co11), 24.0 h *1* (1940Mi05), 24.1 h *1* (1940Fa01). Weighted average of all the values, except a low value in 1958Gi45, and increasing the uncertainty in 1989Ab04 by a factor of 10, is 23.88 h *4* but with reduced χ^2=4.9 as compared to 2.0 at 95% confidence level. Unweighted average of all the values, except that in 1958Gi45, is 23.94 h *5*.
77.289[#] *10*	5/2$^-$		ABCDEF	J$^\pi$: L(d,p)=3, vector-analyzing power (pol d,p) and 77.3γ M1+E2 to 3/2$^-$.
145.848[@] *9*	1/2$^-$		BCDE	J$^\pi$: L(d,p)=1, 145.8γ M1 to 3/2$^-$, J=1/2 from (pol n,γ).
201.449[#] *9*	7/2$^-$[u]		AB DEF	J$^\pi$: L(d,p)=3, 124.2γ M1+E2 to 5/2$^-$, and band member.
204.902[@] *9*	3/2$^-$[v]		BCDE	J$^\pi$: L(d,p)=1, vector-analyzing power (pol d,p) and 127.57γ M1+E2 to 5/2$^-$.
303.353[@] *10*	5/2$^-$[v]		B DE	J$^\pi$: L(d,p)=3, 101.83γ M1 to 7/2$^-$, 226γ M1+E2 to 3/2$^-$ and band member.
330.78[#] *5*	(9/2$^-$)		B DE	J$^\pi$: L(d,p)=(5), band member.
350.431[a] *13*	7/2$^-$	5 ns *1*	AB DEF	J$^\pi$: L=3 in (d,p) and band assignment. $T_{1/2}$: from ^{186}W(n,γ) E=thermal (1972AnZW).
364.22[e] *4*	9/2$^-$[w]	≤15 ns	B DEF	J$^\pi$: L(d,p)=5 and band assignment.

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Adopted Levels, Gammas (continued)

^{187}W Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$	XREF	Comments
410.06[f] 4	(11/2$^+$)	1.38 μs 7	B DEF	$T_{1/2}$: From (^{82}Se,^{81}Seγ). J^{π}: 45.8γ (E1) to 9/2$^-$ state. From the systematics of the neighboring ^{183}W (K^{π}=11/2$^+$ isomer at 309 keV level) and ^{185}W (K^{π}=11/2$^+$ isomer at 197-keV level), the 11/2$^+$ assignment can be considered to be based on the 11/2$^+$[615] Nilsson configuration. $T_{1/2}$: Weighted average of 1.55 μs 13 (^{82}Se,^{81}Seγ) and 1.31 μs 8 (n,γ) E=th.
432.282[@] 25	7/2$^-$		B DE	J^{π}: L(d,p)=3, band member.
510.0 5	(11/2$^-$)		D	J^{π}: (11/2$^-$) is assigned by 2008Bo26 in (d,p),(pol d,p) as a 3/2[512] band member. However, (^{18}O,^{17}Oγ) assigned the (11/2$^-$) member of the 3/2[512] at 538.4 keV.
522.15[a] 7	(9/2$^-$)		B DE	J^{π}: 171.78γ M1(+E2) to 7/2$^-$.
538.45[#] 10	(11/2$^-$)		E	J^{π}: 337.0γ Q to 7/2$^-$, band member.
574.05[e] 10	(11/2$^-$)		DE	J^{π}: L(d,p)=(5), 209.8γ D+Q to 9/2$^-$, band member.
597.24[f] 9	(13/2$^+$)		DE	J^{π}: L(d,p)=6, 187.2γ D+Q to (11/2$^+$), band member.
613.38[@] 9	(9/2$^-$)		E	
640.492[&] 16	5/2$^-$[u]		B DE	J^{π}: L(d,p)=3, vector-analyzing power (pol d,p) and 290γ M1+E2 to 7/2$^-$.
710.78[#] 12	(13/2$^-$)		E	J^{π}: 380.0γ Q to (9/2$^-$), band member.
727.86[a] 10	(11/2$^-$)		DE	J^{π}: 205.7γ D+Q to (9/2$^-$), 377.0γ Q to 7/2$^-$, band member.
741.08[s] 4	(7/2$^+$)		B	J^{π}: 330.99γ to (11/2$^+$).
762.153 20	(1/2$^-$)		BCD	J^{π}: L(d,p)=(1), 557.2γ (M1+E2) to 3/2$^-$ state, 616.4γ to 1/2$^-$ state.
775.60[&] 14	(7/2$^-$)		B D	J^{π}: L(d,p)=(3), band member.
782.290[g] 19	1/2$^-$		BCD	J^{π}: L(d,p)=1, vector-analyzing power (pol d,p), 577.4γ (M1+E2) to 3/2$^-$.
797.03[@] 8	(11/2$^-$)		DE	J^{π}: 364.7γ Q to 7/2$^-$, band member.
798.22[r] 9	(9/2$^+$)		E	J^{π}: Band assignment, 200.7γ to (13/2$^+$), 388.0γ to (11/2$^+$).
803.369 22	(3/2$^-$)		BC	J^{π}: 500γ (M1) to 5/2$^-$ state, 1/2,3/2 from average resonance capture.
809.79[e] 13	(13/2$^-$)		E	J^{π}: 235.7γ D+Q to (11/2$^-$), band member.
811.7 5			B D	J^{π}: J^{π}=15/2$^+$ in (d,p), but 734.4γ to 5/2$^-$.
815.51[f] 11	(15/2$^+$)		E	J^{π}: 218.2γ D+Q to (13/2$^+$), 405.1γ to (11/2$^+$), band member.
816.256[i] 19	3/2$^-$		BCD	J^{π}: L(d,p)=1, vector-analyzing power (pol d,p) and 611.3γ (M1) to 3/2$^-$.
840.205 16	(1/2$^-$)[v]		BC	J^{π}: 840.2γ to 3/2$^-$ state.
852.41[j] 3	3/2$^-$		BCD	J^{π}: L(d,p)=1, band assignment.
860.76[g] 4	(3/2$^-$)		BC	J^{π}: 428.47γ to 7/2$^-$, 860.85γ to 3/2$^-$, band member.
863.29 4	(5/2$^-$)		B D	J^{π}: L(d,p)=3+(1), 717.52γ to 1/2$^-$, 661.86γ to 7/2$^-$.
866.68 4	(1/2$^-$,3/2$^-$)		BC	J^{π}: Populated in (n,γ).
881.77 5	(5/2$^+$)		B	J^{π}: 140.7γ to 7/2$^+$, weaker (n,γ) population (2008Bo26).
884.13[s] 4	(7/2$^+$)		B	J^{π}: 474γ to (11/2$^+$), 533.69γ to 7/2$^-$.
891.93[k] 4	(3/2$^-$)		BCD	J^{π}: from assigned configuration.
901.0 4			B	
908.98 4	1/2,3/2		BC	
910.8 5			B	
914.67[i] 4	(5/2$^-$)		BCD	J^{π}: L(d,p)=3, 392.5γ to (9/2$^-$), band member.
933 1			D	
960.57[j] 4	(5/2$^-$)		B D	J^{π}: L(d,p)=3, 628.7γ to (9/2$^-$), band member.
964.96[a] 16	(13/2$^-$)		E	J^{π}: 236.6γ D+Q to (11/2$^-$), band member.
971.91[k] 4	(5/2$^-$)		B D	J^{π}: L(d,p)=3, 640.99γ to (9/2$^-$), band member.
978.54[r] 9	(11/2$^+$)		E	J^{π}: 180.1γ D+Q to (9/2$^+$), 568.7γ D+Q to (11/2$^+$), band member.
979.42[l] 5	(3/2$^-$)		BCD	J^{π}: Band assignment, 628.97γ to 7/2$^-$.
989.16 8	(3/2$^-$)		BCD	J^{π}: L(d,p)=1, 787.69γ to 7/2$^-$.
999.6 2			D	
1006.45[#] 15	(15/2$^-$)		E	J^{π}: Band member, 468γ to (11/2$^-$) state.

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Adopted Levels, Gammas (continued)

^{187}W Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
1018.51 6	(3/2⁻)	BCD	Jπ: 872.69γ to 1/2⁻, 817.1γ to 7/2⁻.
1033.5 2		D	
1055.17[f] 12	(17/2⁺)	E	Jπ: 239.5γ D+Q to (15/2⁺), 458.1γ Q to (13/2⁺), band member.
1056.8[i] 4	(7/2⁻)	D	Jπ: Band member.
1063.38[@] 22	(13/2⁻)	E	Jπ: 450.0γ Q to (9/2⁻), band member.
1070.1 9	(7/2⁻)	D	Jπ: L(d,p)=3 and on the basis of l=3 shaped angular distributions and analyzing powers.
1072.55[e] 14	(15/2⁻)	E	Jπ: 498.5γ to (11/2⁻), band member.
1082.31 5	1/2,3/2	BC	
1085.7[l] 5	(5/2⁻)	B D	Jπ: L=3 in (d,p), band member.
1094.24 5	1/2⁻,3/2⁻	BC	Jπ: From average resonance capture in (n,γ) E=2,24 keV.
1104.9 3		D	
1114.2 2	(5/2⁻,7/2⁻)	D	Jπ: L(d,p)=(3), Jπ=(7/2⁻) (2008Bo26) as a band member of 3/2[501] (2).
1135.18 4	(3/2⁻)	BC	Jπ: 933γ to 7/2⁻ state; 1/2⁻,3/2⁻ from average resonance capture (n,γ) E=2,24 keV.
1138.16 6	(5/2)	BCD	Jπ: Jπ=(5/2±); L(d,p)=2,(3); J from average neutron capture (2,24 keV) and weaker (n,γ) population-depopulation data (2008Bo26).
1187.5 4		D	
1192.5 2		D	
1199.2 6		D	
1205.54[r] 12	(13/2⁺)	DE	XREF: D(1207.7). Jπ: 407.3γ to (9/2⁺), band member.
1213.58[#] 23	(17/2⁻)	E	Jπ: 502.8γ to (13/2⁻), band member.
1217.126 24	(3/2⁻)	BCD	Jπ: 1015.6γ to 7/2⁻ state; 1/2,3/2 from average resonance capture.
1226.1 9		D	
1229.36[a] 23	(15/2⁻)	E	Jπ: 501.5γ to (11/2⁻), band member.
1233.35[@] 23	(15/2⁻)	E	Jπ: 694.9γ to (11/2⁻), band member.
1234.5[b] 15	(7/2⁻)	D	Jπ: L=3 in (d,p) and on the basis of l=3 shaped angular distributions and analyzing powers (2008Bo26).
1267.50 12	5/2⁻,(7/2⁻)	B D	Jπ: from L(d,p)=3 and on the basis of (n,γ) population-depopulation data (2008Bo26).
1272.40 5	1/2⁻,3/2⁻	BC	
1287.5 6		D	
1306.81 8	(5/2)	B D	Jπ: (d,p)=(3) and weaker (n,γ) population-depopulation data (2008Bo26).
1308.23 4	(3/2⁺)[t]	B	
1311.81[f] 23	(19/2⁺)	E	Jπ: 496.3γ to (15/2⁺), band member.
1312.81[m] 7	(3/2⁻)	BCD	Jπ: L=1 in (d,p), 1111.36γ to 7/2⁻, band member.
1322.0 5		B	
1328.7 5		B	
1330.91 4	(3/2⁺)[t]	BC	
1347.55[h] 5	1/2⁻	BCD	Jπ: L(d,p)=1, 706.85γ to 5/2⁻, band assignment.
1359.3[c] 1	(7/2⁻)	D	Jπ: L(d,p)=3, Jπ=7/2⁻ in (d,p), assigned configuration.
1360.09[e] 24	(17/2⁻)	E	Jπ: Band member, 550.3γ to (13/2⁻).
1363.1 5		B	
1373.64 5	(3/2⁺)[t]	B D	Jπ: L(d,p)=(2).
1384.23[n] 7	(3/2⁻)	BCD	Jπ: L=1 in (d,p), 1033.83γ to 7/2⁻.
1415.23[h] 7	(3/2⁻)	BCD	Jπ: L(d,p)=1, 500.69γ to (5/2⁻), band member.
1424.97[d] 7	(7/2⁻)	D	Jπ: L=3 in (d,p), level configuration: 7/2[503] (4).
1431.72 5	(5/2⁺)	B D	Jπ: 547.59γ to (7/2⁺), weakly populated in (n,γ) (2008Bo26).
1441.8 5		B	
1444.2 5		B	
1450.64[r] 24	(15/2⁺)	E	Jπ: Band member.
1450.92 11	(1/2,3/2)	B D	Jπ: L(d,p)=(1).
1477.2[n] 5	(5/2⁻)	D	Jπ: L=3 in (d,p), band member.
1487.12 9	(3/2⁻)	BCD	Jπ: L(d,p)=1, 1286.4γ to 7/2⁻.
1492.2 8		D	

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Adopted Levels, Gammas (continued)

^{187}W Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
1501.89 *4*	(3/2+)[t]	B D	Jπ: L(d,p)=2.
1527.6[h] *4*	(5/2−)	D	Jπ: L(d,p)=3, band member.
1533.92 *15*	(5/2+)	B D	Jπ: L(d,p)=2; from moderately large (d,p) cross sections and definite analyzing powers, 2008Bo26 assigned Jπ=5/2+ and a configuration of of $i_{13/2}$+$g_{9/2}$. Earlier assignment Jπ=(3/2−) in (Pol d,p) from vector analyzing power analyses (1973Ca09) is revised by 2008Bo26.
1546.03 *10*	1/2,3/2	B	Jπ: Populated in (n,γ) Thermal.
1549.31 *9*	1/2,3/2	B	Jπ: Populated in (n,γ) Thermal.
1555 *1*		D	
1564.82 *8*	1/2−,3/2−	B D	Jπ: L(d,p)=1.
1583.5 *3*		D	
1588.81 *20*	(5/2+)	B D	Jπ: L(d,p)=2, from moderately large (d,p) cross sections and definite analyzing powers, 2008Bo26 assigned Jπ=5/2+ and a configuration of $i_{13/2}$+$g_{9/2}$. Earlier assignment Jπ=3/2− and L=1 from 1972Ca01 is revised by 2008Bo26.
1595.16 *12*	(3/2+)[t]	B	
1596.95[#] *18*	(19/2−)	E	Jπ: Band member.
1600.4 *2*	(1/2−,3/2−)	D	Jπ: L(d,p)=(1).
1612.90 *11*	(3/2+)[t]	B D	Jπ: L(d,p)=(2).
1619.24 *7*	(3/2−)	B D	Jπ: L(d,p)=(1), 1269.2γ to 7/2−.
1633.4 *2*		D	Jπ: L=(3) is reported (d,p) by 1972Ca01, is not confirmed by 1997Bo14.
1643.5 *3*	(1/2,3/2)	B	Jπ: Populated in (n,γ) Thermal.
1648.77 *19*	(5/2+)	B D	Jπ: From weaker population-depopulation data in (n,γ) (2008Bo26).
1650.0[@] *11*	(17/2−)	E	Jπ: Band member.
1657.1 *3*		D	
1663.27 *9*	(3/2−)	B	Jπ: Populated in (n,γ) Thermal, 1230.6γ to 7/2−.
1667.0 *4*		D	
1674.39 *17*	(3/2−)	B D	Jπ: L(d,p)=1, 1472.2γ to 7/2−.
1686.4 *3*		D	
1691.98 *7*	(3/2+)[t]	B D	XREF: D(1693.4). Jπ: L(d,p)=(2).
1706.10 *6*	1/2,3/2	B	
1708.0 *5*		D	E(level): Possibly a doublet (2008Bo26).
1711.38 *15*	(3/2−,5/2)	B D	XREF: D(1712.7). Jπ: 1360.94γ to 7/2−.
1718.6 *2*	5/2−,7/2−	D	Jπ: L(d,p)=3.
1719.31 *18*	(3/2−)	B	Jπ: Populated in (n,γ), 1287.2γ to 7/2− state.
1726.87 *11*	(3/2−)	B	Jπ: Populated in (n,γ), 1524.8γ to 7/2− state.
1729.27 *16*	(1/2−,3/2−)	B D	Jπ: L(d,p)=1,2.
1734.6 *5*		B	
1744.0 *4*		D	
1748.5 *3*		D	L(d,p)=1,2.
1754.8 *5*		B	
1759.65 *17*	1/2,3/2	B	
1771.0 *3*	1/2−,3/2−	B D	Jπ: L(d,p)=1.
1783.7 *3*		D	L(d,p)=1,3.
1784.15[@] *25*	(19/2−)	E	Jπ: Band member.
1806.6 *3*		D	
1816.29 *21*	(3/2−)	B D	Jπ: 1465.9γ to 7/2−.
1824.7 *3*	3/2−	B D	Jπ: L(d,p)=1, 1622.5γ to 7/2−.
1827.2 *5*		B	
1832.2[#] *11*	(21/2−)	E	Jπ: Band member.
1837.5 *3*		D	
1845.64 *16*	1/2−,3/2	B D	Jπ: From (n,γ) population.
1857.63 *16*	1/2,3/2	B D	Jπ: L(d,p)=(0,1).
1872.1 *4*		D	L(d,p)=1,(2,3).

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Adopted Levels, Gammas (continued)

^{187}W Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
1876.2 *5*		D	
1887.77 *15*	(3/2⁻)	B D	Jπ: Populated in (n,γ), 1687.2γ to 7/2⁻.
1891.07 *20*	(1/2⁻,3/2)	B	
1897.2 *5*		B	
1905.66[o] *15*	(3/2⁻)	B D	Jπ: L(d,p)=1, band assignment.
1916.3 *4*	(5/2⁺)	D	Jπ: L(d,p)=(1),2,(3).
1931.78 *13*	1/2⁻,3/2⁻	B D	Jπ: L(d,p)=1.
1937.01[p] *12*	(3/2⁻)	B	Jπ: Populated in (n,γ) Thermal, band assignment.
1941.1 *6*		D	L(d,p)=(1).
1943.9 *3*	(3/2)	B	
1946.8 *8*		D	
1950.34 *23*	(1/2⁻,3/2)	B	Jπ: Populated in (n,γ).
1956.20 *12*	(1/2⁻,3/2⁻)	B D	Jπ: L(d,p)=1.
1962.1 *4*		B	
1965.9 *5*		B D	L(d,p)=(1,2).
1973.44 *12*	(3/2)[t]	B	
1980.84 *16*	(3/2⁺)[t]	B D	Jπ: L(d,p)=(2).
1992.1 *9*		D	
1997.19[q] *9*	(3/2⁻)	B D	Jπ: Populated in (n,γ) Thermal, 1646.7γ to 7/2⁻, level configuration.
2008.9 *4*		D	
2014.4 *5*		B	
2017.7 *4*		D	
2022.4 *3*	(3/2⁺)[t]	B	
2027.5 *9*		D	
2029.8 *5*		B	
2038.6 *5*		D	
2044.72 *17*	(1/2⁻,3/2⁻)	B D	
2059.2 *5*	1/2,3/2	B D	
2062.0 *7*	1/2,3/2	B	
2063.08 *24*	1/2,3/2	B	
2070.05 *23*	(1/2,3/2)	B D	XREF: D(2072.5).
2083.5 *5*		B	
2090.46 *18*	(1/2⁻,3/2⁻)	B	
2092.3 *6*		D	
2099.7 *5*		D	
2117.62 *22*	1/2,3/2	B	
2124.5 *4*	1/2,3/2	B D	XREF: D(2125.9).
2130.0 *5*		B	
2136.7 *6*	1/2,3/2	B	
2139.07 *25*	1/2,3/2	B	
2142.72 *24*	1/2,3/2	B D	XREF: D(2141.7).
2150.4 *3*	1/2,3/2	B	
2153.52 *24*	1/2,3/2	B	
2168.9 *3*	1/2,3/2	B	
2172.1 *3*	1/2,3/2	B	
2180.8 *7*	1/2,3/2	B D	XREF: D(2181.5).
2194.8 *3*		B	
2198.4 *4*	1/2,3/2	B	
2205.8 *5*		B	
2208.44 *25*	1/2,3/2	B	
2229.0 *3*	1/2,3/2	B D	XREF: D(2230.8).
2233.00 *21*	1/2,3/2	B	
2234.6 *5*		B	
2241.79 *18*	(1/2⁻,3/2⁻)	B D	XREF: D(2243.1).
2254.3 *13*		D	
2258.2 *4*		B	

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Adopted Levels, Gammas (continued)

^{187}W Levels (continued)

E(level)†	Jπ‡	XREF	E(level)†	XREF	E(level)†	XREF
2260.20 *13*	(1/2⁻,3/2⁻)	B	2461.4 *3*	B	2660.7 *5*	B
2266.9 *5*		B D	2471.4 *3*	B	2678.8 *3*	B
2269.1 *5*		B	2476.3 *4*	B	2681.3 *5*	B
2272.4 *6*	1/2,3/2	B	2485.01 *10*	B	2686.4 *5*	B
2276.00 *17*	(1/2⁻,3/2⁻)	B	2492.17 *22*	B	2689.82 *18*	B
2281.7 *6*	1/2,3/2	B	2496.9 *4*	B	2699.6 *5*	B
2283.6 *4*	1/2,3/2	B	2503.1 *5*	B	2707.1 *5*	B
2288.0 *5*		B	2509.4 *5*	B	2714.4 *4*	B
2292.9 *4*	1/2,3/2	B	2511.76 *24*	B	2717.8 *4*	B
2296.5 *5*		B	2514.9 *3*	B	2722.6 *3*	B
2300.0 *5*		B	2528.33 *21*	B	2725.7 *5*	B
2301.9 *7*	1/2,3/2	B	2531.7 *3*	B	2728.2 *3*	B
2306.3 *3*	1/2,3/2	B	2534.1 *3*	B	2732.3 *4*	B
2315.2 *4*	1/2,3/2	B	2545.7 *5*	B	2733.7 *5*	B
2322.3 *5*	1/2,3/2	B	2552.40 *15*	B	2736.5 *4*	B
2344.43 *21*	1/2,3/2	B	2556.3 *4*	B	2747.5 *5*	B
2346.6 *5*		B	2557.5 *5*	B	2759.2 *4*	B
2352.09 *14*	1/2⁻,3/2⁻	B	2562.4 *5*	B	2763.5 *5*	B
2356.73 *12*		B	2563.64 *18*	B	2778.3 *5*	B
2367.5 *4*		B	2571.7 *4*	B	2781.1 *3*	B
2370.2 *4*		B	2574.0 *5*	B	2796.8 *4*	B
2375.2 *5*		B	2582.3 *4*	B	2806.4 *5*	B
2381.10 *22*		B	2590.01 *15*	B	2833.4 *5*	B
2385.4 *4*		B	2601.1 *4*	B	2834.8 *4*	B
2394.3 *5*		B	2606.9 *5*	B	2837.7 *3*	B
2399.3 *5*		B	2613.63 *17*	B	2871.4 *4*	B
2411.5 *4*		B	2617.81 *22*	B	2882.3 *3*	B
2414.89 *21*		B	2624.4 *3*	B	2896.5 *4*	B
2426.9 *4*		B	2627.53 *14*	B	2909.50 *15*	B
2429.5 *5*		B	2636.2 *4*	B	2930.3 *4*	B
2433.8 *3*		B	2636.37 *13*	B	3035.7 *4*	B
2436.2 *5*		B	2640.8 *5*	B	3144.59 *16*	B
2438.3 *4*		B	2647.45 *17*	B	3176.3 *7*	B
2447.67 *15*		B	2650.5 *5*	B	3343.8 *3*	B
2457.6 *5*		B	2654.0 *5*	B		

† From a least-squares adjustment to the γ-ray energies. For missing γ-ray uncertainties ΔE=0.5 is assumed by the evaluator in the least-squares adjustment.
‡ From L values (^{186}W(d,p) 1997Bo14), band assignments, average resonance capture or level decay mode or branching (^{186}W(d,p) 1997Bo14).
# Band(A): 3/2⁻[512].
@ Band(B): 1/2⁻[510].
& Band(C): 5/2⁻[503].
[a] Band(D): 7/2⁻[503] (1).
[b] Band(E): 7/2⁻[503] (2).
[c] Band(F): 7/2⁻[503] (3).
[d] Band(G): 7/2⁻[503] (4).
[e] Band(H): 9/2⁻[505].
[f] Band(I): 11/2⁺[615].
[g] Band(J): 1/2⁻[501] based on 782 level.
[h] Band(K): 1/2⁻[501] based on 1348 level.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{187}W Levels (continued)

[i] Band(L): $3/2^-$[501] + vibration based on 816 level.
[j] Band(M): $3/2^-$[501] + vibration based on 852 level.
[k] Band(N): $3/2^-$[501] + vibration based on 892 level.
[l] Band(O): $3/2^-$[501] + vibration based on 979 level.
[m] Band(P): $3/2^-$[501] + vibration based on 1313 level.
[n] Band(Q): $3/2^-$[501] + vibration based on 1384 level.
[o] Band(R): $3/2^-$[501] + vibration based on 1906 level.
[p] Band(S): $3/2^-$[501] + vibration based on 1937 level.
[q] Band(T): $3/2^-$[501] + vibration based on 1997 level.
[r] Band(U): $9/2^+$[624].
[s] Band(V): $7/2^+$ (vibration).
[t] Assignment based on the prompt population from the capture state $1/2^+$ in the (n,γ) reaction and their depopulation to the ($7/2^+$) states of 741 or 884 keV or both (2008Bo26).
[u] From ^{186}W(pol d,p) − vector-analyzing power.
[v] From ^{186}W(pol n,γ) − using the polarization function R, (P=RCosθ, where P is the degree of neutron polarization, θ is the angle between γ-ray emission and neutron spin vector) for R=+1, J=1/2 and R=−0.5, J=3/2.
[w] From the high angular momentum transfer in (d,p) and systematics, 1972Ca01 propose the 366- and 598-keV levels of 13/2+11/2[512] and 9/2-9/2[505] assignments, respectively, with the caution that these assignments may be reversed.

Adopted Levels, Gammas (continued)

γ(^{187}W)

E$_i$(level)	J$^{\pi}_i$	E$_{\gamma}$[†]	I$_{\gamma}$[†]	E$_f$	J$^{\pi}_f$	Mult.[‡]	δ	α[@]	Comments
77.289	5/2$^-$	77.28 *4*	100	0.0	3/2$^-$	M1+E2	0.45 *2*	10.17	α(K)=7.03 *14*; α(L)=2.40 *9*; α(M)=0.580 *23*; α(N+..)=0.159 *6* α(N)=0.138 *6*; α(O)=0.0204 *7*; α(P)=0.000722 *14*
145.848	1/2$^-$	145.86 *1*	100	0.0	3/2$^-$	M1		1.617	α(K)=1.343 *19*; α(L)=0.213 *3*; α(M)=0.0485 *7*; α(N+..)=0.01371 *20* α(N)=0.01167 *17*; α(O)=0.00190 *3*; α(P)=0.0001355 *19*
201.449	7/2$^-$	124.23 *3*	12.6 *2*	77.289	5/2$^-$	M1+E2	1.3 *+6−3*	2.01 *13*	α(K)=1.14 *22*; α(L)=0.66 *7*; α(M)=0.162 *19*; α(N+..)=0.044 *5* α(N)=0.038 *5*; α(O)=0.0055 *6*; α(P)=0.000106 *24* I$_{\gamma}$: others: 24.6 *40* in ^{187}Ta β$^-$ decay (2022Mu10); 18.6 *10* in (n,γ) (2014Hu02). Comment added by B. Singh, March 31, 2022.
		201.42 *1*	100 *3*	0.0	3/2$^-$				
204.902	3/2$^-$	59.2 *1*		145.848	1/2$^-$	M1		3.73	α(L)=2.89 *5*; α(M)=0.658 *10*; α(N+..)=0.186 *3* α(N)=0.1584 *24*; α(O)=0.0258 *4*; α(P)=0.00183 *3*
		127.57 *2*	75 *2*	77.289	5/2$^-$	M1+E2	1.2 *5*	1.87 *23*	α(K)=1.1 *4*; α(L)=0.57 *12*; α(M)=0.14 *3*; α(N+..)=0.038 *8* α(N)=0.033 *8*; α(O)=0.0048 *9*; α(P)=0.00010 *5*
		204.92 *1*	100 *2*	0.0	3/2$^-$				
303.353	5/2$^-$	98.47 *16*	3 *1*	204.902	3/2$^-$				
		101.83 *2*	27 *2*	201.449	7/2$^-$	M1		4.51	α(K)=3.74 *6*; α(L)=0.596 *9*; α(M)=0.1357 *19*; α(N+..)=0.0384 *6* α(N)=0.0327 *5*; α(O)=0.00533 *8*; α(P)=0.000379 *6*
		157.53 *2*	27 *3*	145.848	1/2$^-$				
		226.08 *1*	100 *4*	77.289	5/2$^-$	M1+E2	2.5 *6*	0.243 *22*	α(K)=0.159 *22*; α(L)=0.0638 *9*; α(M)=0.0156 *3*; α(N+..)=0.00426 *7* α(N)=0.00371 *6*; α(O)=0.000537 *8*; α(P)=1.39×10^{-5} *24*
		303.37 *2*	66 *5*	0.0	3/2$^-$	D+Q			Mult.: From (^{18}O,^{17}Oγ).
330.78	(9/2$^-$)	129.1 *2*	4 *3*	201.449	7/2$^-$				E$_{\gamma}$: From (^{18}O,^{17}Oγ).
		253.2 *1*	100 *9*	77.289	5/2$^-$	Q			E$_{\gamma}$,Mult.: From (^{18}O,^{17}Oγ).
350.431	7/2$^-$	148.96 *4*	11.4 *3*	201.449	7/2$^-$	D+Q			I$_{\gamma}$: others: 14.4 *8* in ^{187}Ta β$^-$ decay (2022Mu10); 15.3 *9* in (n,γ) (2014Hu02). Comment added by B. Singh, March 31, 2022. Mult.: From (^{18}O,^{17}Oγ).
		273.14 *1*	100 *1*	77.289	5/2$^-$	D+Q			Mult.: From (^{18}O,^{17}Oγ).
		350.40 *11*	2.5 *2*	0.0	3/2$^-$				I$_{\gamma}$: others: 3.4 *8* in ^{187}Ta β$^-$ decay (2022Mu10); 1.64 *19* in (n,γ) (2014Hu02). Comment added by B. Singh, March 31, 2022.
364.22	9/2$^-$	162.7 *3*	≤60	201.449	7/2$^-$				
		286.88 *15*	100 *20*	77.289	5/2$^-$				
410.06	(11/2$^+$)	45.8 *3*	100	364.22	9/2$^-$	(E1)		0.594 *14*	α(L)=0.460 *11*; α(M)=0.1060 *25*; α(N+..)=0.0283 *7* α(N)=0.0247 *6*; α(O)=0.00349 *8*; α(P)=0.000136 *3* B(E1)(W.u.)=9.8×10^{-7} *6* E$_{\gamma}$,Mult.: From (^{82}Se,^{81}Seγ). Mult assignment from extracted α(exp)=0.8 *1* data, assuming both the 148.97γ and 273.14γ of M1 character.
432.282	7/2$^-$	128.92[&] *12*	41[&] *3*	303.353	5/2$^-$				
		227.45 *9*	30 *4*	204.902	3/2$^-$				

$\gamma(^{187}W)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ	α[@]	Comments
432.282	7/2⁻	230.9 *5*	7 *2*	201.449	7/2⁻				
		355.02 *3*	100 *3*	77.289	5/2⁻				
		432.4 *5*	5.4 *15*	0.0	3/2⁻				
522.15	(9/2⁻)	171.78 *8*	100	350.431	7/2⁻	M1(+E2)	1.3 *7*	0.71 *19*	α(K)=0.47 *22*; α(L)=0.177 *25*; α(M)=0.043 *8*; α(N+..)=0.0118 *19* α(N)=0.0102 *17*; α(O)=0.00149 *18*; α(P)=4.4×10^{-5} *24*
538.45	(11/2⁻)	337.0 *1*	100	201.449	7/2⁻	Q			E_γ,Mult.: From (^{18}O,$^{17}O\gamma$).
574.05	(11/2⁻)	209.8 *1*	100	364.22	9/2⁻	D+Q			E_γ,Mult.: From (^{18}O,$^{17}O\gamma$).
597.24	(13/2⁺)	187.2 *1*	100	410.06	(11/2⁺)	D+Q			E_γ,Mult.: From (^{18}O,$^{17}O\gamma$).
613.38	(9/2⁻)	282.5[#] *2*	20[#] *5*	330.78	(9/2⁻)				
		310.1[#] *1*	100[#] *10*	303.353	5/2⁻				
		410.8[#] *5*	≈2.6[#]	201.449	7/2⁻				
640.492	5/2⁻	276.25 *10*	24 *3*	364.22	9/2⁻				
		290.06 *1*	100 *4*	350.431	7/2⁻	M1+E2	1.0 *6*	0.17 *6*	α(K)=0.13 *5*; α(L)=0.028 *3*; α(M)=0.0065 *5*; α(N+..)=0.00181 *15* α(N)=0.00156 *12*; α(O)=0.00024 *3*; α(P)=1.3×10^{-5} *6*
		438.9[a]	5 *1*	201.449	7/2⁻				
		563.3 *4*	14 *4*	77.289	5/2⁻				
		640.23 *22*	22 *4*	0.0	3/2⁻				
710.78	(13/2⁻)	380.0 *1*	100	330.78	(9/2⁻)	Q			E_γ,Mult.: From (^{18}O,$^{17}O\gamma$).
727.86	(11/2⁻)	205.7[#] *1*	100[#] *7*	522.15	(9/2⁻)	D+Q			Mult.: From (^{18}O,$^{17}O\gamma$).
		377.0[#] *2*	84[#] *13*	350.431	7/2⁻	Q			Mult.: From (^{18}O,$^{17}O\gamma$).
741.08	(7/2⁺)	218.86 *13*	8 *2*	522.15	(9/2⁻)				
		330.99 *7*	42 *4*	410.06	(11/2⁺)				
		376.86 *2*	100 *2*	364.22	9/2⁻				
		390.67 *6*	38 *3*	350.431	7/2⁻				
		539.4 *3*	5 *1*	201.449	7/2⁻				
		663.8 *5*	42 *2*	77.289	5/2⁻				
762.153	(1/2⁻)	557.25 *2*	100 *2*	204.902	3/2⁻	(M1+E2)	1.3 *7*		
		616.40 *9*	51 *2*	145.848	1/2⁻				
		762.0 *5*	5 *1*	0.0	3/2⁻				
775.60	(7/2⁻)	253.50 *16*	100 *13*	522.15	(9/2⁻)				
		411.28 *23*	80 *10*	364.22	9/2⁻				
782.290	1/2⁻	577.39 *2*	100 *1*	204.902	3/2⁻	(M1+E2)	0.7 *9*	0.031 *10*	α(K)=0.026 *9*; α(L)=0.0042 *10*; α(M)=0.00095 *22*; α(N+..)=0.00027 *7* α(N)=0.00023 *6*; α(O)=3.7×10^{-5} *9*; α(P)=2.5×10^{-6} *9*
		636.5 *3*	4.3 *4*	145.848	1/2⁻				
		704.9 *4*	1.5 *2*	77.289	5/2⁻				
		782.25 *6*	69 *1*	0.0	3/2⁻				
797.03	(11/2⁻)	364.7[#] *1*	78[#] *7*	432.282	7/2⁻	Q			
		466.3[#] *1*	100[#] *11*	330.78	(9/2⁻)				
798.22	(9/2⁺)	200.7[#] *2*	8.2[#] *10*	597.24	(13/2⁺)				
		388.0[#] *1*	100[#] *18*	410.06	(11/2⁺)				

From ENSDF

$\gamma(^{187}W)$ (continued)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.‡	α@	Comments
803.369	(3/2⁻)	500.07 *4*	36 *4*	303.353	5/2⁻	(M1)	0.0564	α(K)=0.0471 *7*; α(L)=0.00725 *11*; α(M)=0.001645 *23*; α(N+..)=0.000466 *7* α(N)=0.000396 *6*; α(O)=6.48×10⁻⁵ *9*; α(P)=4.66×10⁻⁶ *7*
		598.54 *8*	19 *2*	204.902	3/2⁻			
		657.52 *4*	100 *2*	145.848	1/2⁻			
		725.99 *4*	26 *1*	77.289	5/2⁻			
		803.35 *7*	14 *8*	0.0	3/2⁻			
809.79	(13/2⁻)	235.7# *1*	33# *4*	574.05	(11/2⁻)	D+Q		
		445.7# *2*	100# *6*	364.22	9/2⁻			
811.7		734.4	100	77.289	5/2⁻			
815.51	(15/2⁺)	218.2# *1*	100# *5*	597.24	(13/2⁺)	D+Q		
		405.1# *2*	43# *9*	410.06	(11/2⁺)	Q		
816.256	3/2⁻	176.6 *6*	2 *1*	640.492	5/2⁻			
		384.3 *6*	2 *1*	432.282	7/2⁻			
		465.78 *11*	13 *2*	350.431	7/2⁻			
		512.7 *3*	15 *5*	303.353	5/2⁻			
		611.31 *3*	68 *2*	204.902	3/2⁻	(M1)	0.0336	α(K)=0.0280 *4*; α(L)=0.00429 *6*; α(M)=0.000972 *14*; α(N+..)=0.000275 *4* α(N)=0.000234 *4*; α(O)=3.83×10⁻⁵ *6*; α(P)=2.76×10⁻⁶ *4*
		670.41 *4*	54 *2*	145.848	1/2⁻			
		738.95 *5*	43 *2*	77.289	5/2⁻			
		816.31 *4*	100 *2*	0.0	3/2⁻			
840.205	(1/2⁻)	536.9 *4*	1.8 *4*	303.353	5/2⁻			
		635.40 *12*	16 *1*	204.902	3/2⁻			
		694.38 *3*	33 *1*	145.848	1/2⁻			
		762.87 *4*	28 *1*	77.289	5/2⁻			
		840.20 *2*	100 *2*	0.0	3/2⁻			
852.41	3/2⁻	502.0 *6*	7 *3*	350.431	7/2⁻			
		549.0 *5*	10 *4*	303.353	5/2⁻			
		647.64 *10*	46 *4*	204.902	3/2⁻			
		651.0 *5*	7 *3*	201.449	7/2⁻			
		706.58 *4*	100 *3*	145.848	1/2⁻			
		775.10 *5*	88 *3*	77.289	5/2⁻			
		852.41 *8*	82 *3*	0.0	3/2⁻			
860.76	(3/2⁻)	428.47 *7*	32 *2*	432.282	7/2⁻			
		655.90 *6*	100 *2*	204.902	3/2⁻			
		659.20 *12*	44 *5*	201.449	7/2⁻			
		783.5 *4*	39 *5*	77.289	5/2⁻			
		860.85 *14*	39 *4*	0.0	3/2⁻			
863.29	(5/2⁻)	≈513	24 *10*	350.431	7/2⁻			
		532.41 *7*	39 *10*	330.78	(9/2⁻)			
		560.07 *12*	49 *14*	303.353	5/2⁻			
		658.0 *3*	17 *8*	204.902	3/2⁻			
		661.86 *6*	38 *14*	201.449	7/2⁻			

$^{187}_{74}W_{113}$-10

$\gamma(^{187}W)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f
863.29	(5/2⁻)	717.52 *5*	21 *8*	145.848	1/2⁻
		785.8 *4*	33 *10*	77.289	5/2⁻
		863.4 *3*	100 *12*	0.0	3/2⁻
866.68	(1/2⁻,3/2⁻)	563.51 *6*	10 *5*	303.353	5/2⁻
		661.6 *6*	29 *8*	204.902	3/2⁻
		789.23 *7*	100 *2*	77.289	5/2⁻
		866.59 *20*	95 *2*	0.0	3/2⁻
881.77	(5/2⁺)	140.7 *3*	14 *2*	741.08	(7/2⁺)
		449.1 *4*	4 *2*	432.282	7/2⁻
		531.31 *11*	94 *8*	350.431	7/2⁻
		676.96 *15*	34 *7*	204.902	3/2⁻
		680.36 *7*	11 *4*	201.449	7/2⁻
		803.7 *4*	≈8	77.289	5/2⁻
		881.74 *12*	100 *8*	0.0	3/2⁻
884.13	(7/2⁺)	143.12 *9*	14 *1*	741.08	(7/2⁺)
		243.6 *6*	≈1	640.492	5/2⁻
		451.6 *7*	2.2 *7*	432.282	7/2⁻
		474.07 *2*	100 *2*	410.06	(11/2⁺)
		533.69 *8*	32 *1*	350.431	7/2⁻
891.93	(3/2⁻)	460.1 *8*	1.7 *6*	432.282	7/2⁻
		541.46 *13*	14 *1*	350.431	7/2⁻
		588.67 *11*	20 *1*	303.353	5/2⁻
		687.1		204.902	3/2⁻
		690.5 *7*	2 *1*	201.449	7/2⁻
		746.10 *10*	44 *2*	145.848	1/2⁻
		814.72 *14*	30 *2*	77.289	5/2⁻
		891.93 *7*	100 *2*	0.0	3/2⁻
901.0		597.7		303.353	5/2⁻
		823.6		77.289	5/2⁻
908.98	1/2,3/2	605.64 *12*	11 *2*	303.353	5/2⁻
		704.2 *7*	7 *2*	204.902	3/2⁻
		831.69 *6*	49 *3*	77.289	5/2⁻
		908.98 *14*	100 *4*	0.0	3/2⁻
910.8		910.8	100	0.0	3/2⁻
914.67	(5/2⁻)	392.5 *4*	3 *1*	522.15	(9/2⁻)
		564.4 *3*	11 *5*	350.431	7/2⁻
		611.35 *23*	89 *7*	303.353	5/2⁻
		709.5 *3*	41 *5*	204.902	3/2⁻
		713.10 *19*	39 *5*	201.449	7/2⁻
		768.9 *3*	12 *5*	145.848	1/2⁻
		837.43 *5*	49 *10*	77.289	5/2⁻
		914.67 *14*	100 *7*	0.0	3/2⁻
960.57	(5/2⁻)	528.36 *6*	100 *10*	432.282	7/2⁻

$^{187}_{74}W_{113}$-11

$\gamma(^{187}W)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	Comments
960.57	(5/2−)	628.7 *3*	20 *9*	330.78	(9/2−)		
		657.3 *3*	19 *12*	303.353	5/2−		
		755.9 *3*	22 *9*	204.902	3/2−		
		759.11 *5*	44 *10*	201.449	7/2−		
		960.47 *18*	25 *9*	0.0	3/2−		
964.96	(13/2−)	236.6# *2*	94# *12*	727.86	(11/2−)	D+Q	Mult.: From (^{18}O,$^{17}O\gamma$).
		443.3# *2*	100# *18*	522.15	(9/2−)		
971.91	(5/2−)	449.9 *3*	17 *8*	522.15	(9/2−)		
		539.77 *8*	54 *8*	432.282	7/2−		
		621.44 *5*	45 *8*	350.431	7/2−		
		640.99 *21*	9 *2*	330.78	(9/2−)		
		668.57 *20*	18 *7*	303.353	5/2−		
		767.0 *3*	41 *8*	204.902	3/2−		
		770.48 *21*	67 *9*	201.449	7/2−		
		894.59 *10*	100 *9*	77.289	5/2−		
		972.0 *6*	23 *9*	0.0	3/2−		
978.54	(11/2+)	180.1# *1*	100# *7*	798.22	(9/2+)	D+Q	Mult.: From (^{18}O,$^{17}O\gamma$).
		568.7# *1*	39# *13*	410.06	(11/2+)	D+Q	Mult.: From (^{18}O,$^{17}O\gamma$).
979.42	(3/2−)	628.97 *6*	85 *4*	350.431	7/2−		
		774.6 *3*	25 *7*	204.902	3/2−		
		778.0 *3*	11 *5*	201.449	7/2−		
		833.57 *24*	100 *7*	145.848	1/2−		
		901.9 *9*	≈8	77.289	5/2−		
		979.39 *7*	74 *3*	0.0	3/2−		
989.16	(3/2−)	557.0 *6*	25 *7*	432.282	7/2−		
		784.4		204.902	3/2−		
		787.69 *18*	100 *9*	201.449	7/2−		
		911.87 *23*	74 *9*	77.289	5/2−		
		989.18 *9*	87 *10*	0.0	3/2−		
1006.45	(15/2−)	468.0# *1*	100#	538.45	(11/2−)		
1018.51	(3/2−)	715.16 *24*	15 *2*	303.353	5/2−		
		813.61 *17*	53 *3*	204.902	3/2−		
		817.1 *5*	19 *3*	201.449	7/2−		
		872.69 *8*	100 *2*	145.848	1/2−		
		941.24 *17*	33 *2*	77.289	5/2−		
		1018.45 *11*	82 *2*	0.0	3/2−		
1055.17	(17/2+)	239.5# *1*	100# *21*	815.51	(15/2+)	D+Q	Mult.: From (^{18}O,$^{17}O\gamma$).
		458.1# *1*	71# *13*	597.24	(13/2+)	Q	Mult.: From (^{18}O,$^{17}O\gamma$).
1063.38	(13/2−)	450.0# *2*	100# *2*	613.38	(9/2−)	Q	
1072.55	(15/2−)	498.5# *1*	100#	574.05	(11/2−)		
1082.31	1/2,3/2	190.4 *6*	1.9 *5*	891.93	(3/2−)		

$\gamma(^{187}W)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f
1082.31	1/2,3/2	215.7 *3*	3.8 *5*	866.68	$(1/2^-,3/2^-)$
		242.4 *5*	3.6 *6*	840.205	$(1/2^-)$
		266.5 *7*	1.9 *5*	816.256	$3/2^-$
		778.9 *6*	4.6 *11*	303.353	$5/2^-$
		877.42 *6*	54 *2*	204.902	$3/2^-$
		936.4 *5*	9 *1*	145.848	$1/2^-$
		1082.27 *10*	100 *3*	0.0	$3/2^-$
1085.7	$(5/2^-)$	782.3	100	303.353	$5/2^-$
1094.24	$1/2^-,3/2^-$	253.9 *8*	10 *3*	840.205	$(1/2^-)$
		790.6 *4*	12 *3*	303.353	$5/2^-$
		889.40 *7*	100 *3*	204.902	$3/2^-$
		949 *1*	≈9	145.848	$1/2^-$
		1016.6 *3*	16 *5*	77.289	$5/2^-$
		1094.19 *8*	74 *4*	0.0	$3/2^-$
1135.18	$(3/2^-)$	244 *1*	4 *1*	891.93	$(3/2^-)$
		268.5 *4*	7 *1*	866.68	$(1/2^-,3/2^-)$
		295.0 *3*	13 *2*	840.205	$(1/2^-)$
		702.9 *4*	3 *1*	432.282	$7/2^-$
		831.80 *24*	18 *4*	303.353	$5/2^-$
		930.3 *3*	24 *4*	204.902	$3/2^-$
		933.69 *7*	15 *2*	201.449	$7/2^-$
		989.39 *7*	42 *3*	145.848	$1/2^-$
		1057.88 *5*	100 *4*	77.289	$5/2^-$
		1135.15 *21*	59 *3*	0.0	$3/2^-$
1138.16	(5/2)	254.0 *3*	≈2	884.13	$(7/2^+)$
		787.77 *23*	13 *2*	350.431	$7/2^-$
		936.70 *7*	43 *6*	201.449	$7/2^-$
		1060.86 *14*	94 *18*	77.289	$5/2^-$
		1138.4 *4*	100 *12*	0.0	$3/2^-$
1205.54	$(13/2^+)$	227.0# *1*	100# *20*	978.54	$(11/2^+)$
		407.3# *2*	28# *4*	798.22	$(9/2^+)$
1213.58	$(17/2^-)$	502.8 *2*	100	710.78	$(13/2^-)$
1217.126	$(3/2^-)$	237.7 *9*	1.0 *4*	979.42	$(3/2^-)$
		325.2 *4*	2.6 *4*	891.93	$(3/2^-)$
		364.9 *8*	1.5 *4*	852.41	$3/2^-$
		376.93 *14*	9.8 *16*	840.205	$(1/2^-)$
		400.6 *7*	2.1 *4*	816.256	$3/2^-$
		434.8 *8*	1.7 *4*	782.290	$1/2^-$
		577.0 *5*	4.0 *15*	640.492	$5/2^-$
		913.7 *3*	9.5 *6*	303.353	$5/2^-$
		1012.29 *4*	64 *1*	204.902	$3/2^-$
		1015.6 *4*	8.3 *8*	201.449	$7/2^-$
		1071.24 *3*	100 *2*	145.848	$1/2^-$

$^{187}_{74}W_{113}$-13

Adopted Levels, Gammas (continued)

γ(^{187}W) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Comments
1217.126	(3/2$^-$)	1139.73 *20*	25 *2*	77.289	5/2$^-$	
		1216.9 *5*	4.6 *7*	0.0	3/2$^-$	
1229.36	(15/2$^-$)	501.5 *2*	100	727.86	(11/2$^-$)	
1233.35	(15/2$^-$)	694.9 *2*	100	538.45	(11/2$^-$)	
1267.50	5/2$^-$,(7/2$^-$)	835.20 *13*	96 *9*	432.282	7/2$^-$	
		917.2 *4*	23 *7*	350.431	7/2$^-$	
		1066.1 *3*	100 *17*	201.449	7/2$^-$	
		1190.0 *6*	93 *40*	77.289	5/2$^-$	
1272.40	1/2$^-$,3/2$^-$	363.43 *15*	25 *3*	908.98	1/2,3/2	
		380.51 *7*	54 *6*	891.93	(3/2$^-$)	
		405.78 *13*	28 *3*	866.68	(1/2$^-$,3/2$^-$)	
		420.02 *9*	45 *4*	852.41	3/2$^-$	
		456.2 *3*	23 *5*	816.256	3/2$^-$	
		469.03 *15*	20 *5*	803.369	(3/2$^-$)	
		1067.53 *24*	79 *12*	204.902	3/2$^-$	
		1126.5 *4*	47 *7*	145.848	1/2$^-$	
		1193.8 *8*	22 *5*	77.289	5/2$^-$	
		1272.18 *11*	100 *7*	0.0	3/2$^-$	
1306.81	(5/2)	874.67 *20*	48 *6*	432.282	7/2$^-$	
		956.27 *12*	54 *5*	350.431	7/2$^-$	
		1105.41 *12*	66 *5*	201.449	7/2$^-$	
		1307.0[a]	100 *11*	0.0	3/2$^-$	
1308.23	(3/2$^+$)	393.6 *4*	5 *2*	914.67	(5/2$^-$)	
		424.00 *10*	100 *3*	884.13	(7/2$^+$)	
		441.8 *6*	≈2	866.68	(1/2$^-$,3/2$^-$)	
		447.4 *3*	4 *2*	860.76	(3/2$^-$)	
		468.0 *3*	4 *2*	840.205	(1/2$^-$)	
		525.9 *3*	11 *2*	782.290	1/2$^-$	
		546.16 *5*	30 *2*	762.153	(1/2$^-$)	
		567.14 *5*	21 *2*	741.08	(7/2$^+$)	
		1004.3 *3*	8 *2*	303.353	5/2$^-$	
		1103.3 *3*	10 *2*	204.902	3/2$^-$	
		1162.33 *20*	9 *2*	145.848	1/2$^-$	
		1231.2 *3*	23 *3*	77.289	5/2$^-$	
1311.81	(19/2$^+$)	496.3 *2*	100	815.51	(15/2$^+$)	E_γ: From (^{18}O,^{17}Oγ).
1312.81	(3/2$^-$)	450.0 *3*	9 *2*	863.29	(5/2$^-$)	
		451.9 *3*	7 *2*	860.76	(3/2$^-$)	
		1009.2 *5*	3 *1*	303.353	5/2$^-$	
		1107.87 *9*	100 *6*	204.902	3/2$^-$	
		1111.36 *11*	8 *3*	201.449	7/2$^-$	
		1235.9 *5*	11 *4*	77.289	5/2$^-$	
1322.0		1018.6	100	303.353	5/2$^-$	
1328.7		1025.3	100	303.353	5/2$^-$	

From ENSDF

$^{187}_{74}W_{113}$-14

γ(^{187}W) (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Comments
1330.91	(3/2+)	446.75 7	40 4	884.13	(7/2+)	
		464.4 3	14 3	866.68	(1/2−,3/2−)	
		467.73 10	45 4	863.29	(5/2−)	
		527.69 15	15 4	803.369	(3/2−)	
		548.65 5	100 8	782.290	1/2−	
		568.76 17	17 4	762.153	(1/2−)	
		589.7 4	7 2	741.08	(7/2+)	
		1027.39 15	84 8	303.353	5/2−	
		1184.80 11	63 7	145.848	1/2−	
		1330 1	40 13	0.0	3/2−	
1347.55	1/2−	368.1 8	5 2	979.42	(3/2−)	
		455.6 6	7 2	891.93	(3/2−)	
		483.6 7	4 2	863.29	(5/2−)	
		495.21 6	59 3	852.41	3/2−	
		507.3 4	11 4	840.205	(1/2−)	
		531.28 7	100 4	816.256	3/2−	
		565.22 23	24 3	782.290	1/2−	
		706.85 12	60 8	640.492	5/2−	
		1142.3 9	8 5	204.902	3/2−	
		1201.6 6	11 3	145.848	1/2−	
		1270.4 9	6 2	77.289	5/2−	
		1347.5 3	34 4	0.0	3/2−	
1360.09	(17/2−)	550.3 2	100	809.79	(13/2−)	E_γ: From (^{18}O,^{17}Oγ).
1363.1		1285.8	100	77.289	5/2−	
1373.64	(3/2+)	464.6 3	11 3	908.98	1/2,3/2	
		489.51 4	100 5	884.13	(7/2+)	
		570.7 7	4 2	803.369	(3/2−)	
		632.4 3	11 3	741.08	(7/2+)	
		1297.1 8	38 16	77.289	5/2−	
1384.23	(3/2−)	469.6 4	31 4	914.67	(5/2−)	
		492.3 5	24 5	891.93	(3/2−)	
		517.6 4	30 4	866.68	(1/2−,3/2−)	
		531.8 4	16 4	852.41	3/2−	
		601.92 10	90 6	782.290	1/2−	
		744.2 8	9 4	640.492	5/2−	
		1033.83 13	80 6	350.431	7/2−	
		1080.8 9	25 6	303.353	5/2−	
		1179.31 22	100 7	204.902	3/2−	
		1238.3 4	69 8	145.848	1/2−	
		1306.7 6	33 6	77.289	5/2−	
		1384.2 8	33 7	0.0	3/2−	
1415.23	(3/2−)	500.69 9	100 7	914.67	(5/2−)	
		562.64 24	26 5	852.41	3/2−	

Adopted Levels, Gammas (continued)

$\gamma(^{187}W)$ (continued)

E_i(level)	J^{π}_i	E_{γ}†	I_{γ}†	E_f	J^{π}_f
1415.23	(3/2⁻)	598.86 10	46 10	816.256	3/2⁻
		632.77 24	22 3	782.290	1/2⁻
		774.91 23	34 5	640.492	5/2⁻
1431.72	(5/2⁺)	547.59 3	100 4	884.13	(7/2⁺)
		690.61 22	10 2	741.08	(7/2⁺)
		791.34 23	14 2	640.492	5/2⁻
1441.8		1138.4	100	303.353	5/2⁻
1444.2		1366.9	100	77.289	5/2⁻
1450.64	(15/2⁺)	245.1# 2	100#	1205.54	(13/2⁺)
1450.92	(1/2,3/2)	810.8 4	≈2	640.492	5/2⁻
		1147.4 9	≈6	303.353	5/2⁻
		1305.0 9	6 2	145.848	1/2⁻
		1373.5 4	17 3	77.289	5/2⁻
		1450.75 13	100 7	0.0	3/2⁻
1487.12	(3/2⁻)	528.0 5	8 3	960.57	(5/2⁻)
		578.3 9	≈11	908.98	1/2,3/2
		595.4 8	7 3	891.93	(3/2⁻)
		1282.6 7	100 24	204.902	3/2⁻
		1286.4 4	27 6	201.449	7/2⁻
		1341.17 9	53 10	145.848	1/2⁻
		1409.4 4	35 16	77.289	5/2⁻
		1487.6 4	77 30	0.0	3/2⁻
1501.89	(3/2⁺)	170.8 9	5 2	1330.91	(3/2⁺)
		189.3 5	10 2	1312.81	(3/2⁻)
		229.7 5	13 2	1272.40	1/2⁻,3/2⁻
		522.14 19	18 3	979.42	(3/2⁻)
		592.90 8	20 3	908.98	1/2,3/2
		617.83 5	56 5	884.13	(7/2⁺)
		635.0 6	15 4	866.68	(1/2⁻,3/2⁻)
		661.73 20	8 1	840.205	(1/2⁻)
		719.49 12	20 3	782.290	1/2⁻
		739.6 3	15 5	762.153	(1/2⁻)
		760.71 21	8 1	741.08	(7/2⁺)
		1198.7 5	12 2	303.353	5/2⁻
		1296.97 12	100 7	204.902	3/2⁻
		1355.95 13	39 3	145.848	1/2⁻
		1501.8 3	35 3	0.0	3/2⁻
1533.92	(5/2⁺)	625.0 5	4 2	908.98	1/2,3/2
		892.2 4	6 2	640.492	5/2⁻
		1329.28 20	100 11	204.902	3/2⁻
		1332.6 3	7 2	201.449	7/2⁻
		1533.4 8	40 6	0.0	3/2⁻
1546.03	1/2,3/2	653.8 4	3 1	891.93	(3/2⁻)
1546.03	1/2,3/2	679.58 17	7 2	866.68	(1/2⁻,3/2⁻)
		729.0 9	≈3	816.256	3/2⁻
		763.2 9	5 2	782.290	1/2⁻
		783.0 9	4 2	762.153	(1/2⁻)
		1341.11 21	30 4	204.902	3/2⁻
		1400.19 22	100 5	145.848	1/2⁻
		1545.9 5	17 4	0.0	3/2⁻
1549.31	1/2,3/2	657.7 3	7 3	891.93	(3/2⁻)
		709.1 4	8 3	840.205	(1/2⁻)
		787.2 7	≈3	762.153	(1/2⁻)
		1245.5 9	19 11	303.353	5/2⁻
		1344.3 5	55 11	204.902	3/2⁻
		1403.43 10	100 7	145.848	1/2⁻
		1472.1 6	23 8	77.289	5/2⁻
		1549 2	≈15	0.0	3/2⁻
1564.82	1/2⁻,3/2⁻	672.97 21	7 2	891.93	(3/2⁻)
		698.25 22	7 2	866.68	(1/2⁻,3/2⁻)
		748.53 11	32 4	816.256	3/2⁻
		760.6 5	2 1	803.369	(3/2⁻)
		1359.95 12	100 5	204.902	3/2⁻
		1418.9 9	6 3	145.848	1/2⁻
		1564.7 9	9 3	0.0	3/2⁻
1588.81	(5/2⁺)	280 1	19 9	1308.23	(3/2⁺)
		772 2	22 17	816.256	3/2⁻
		1286 2	34 25	303.353	5/2⁻
		1383.97 22	100 22	204.902	3/2⁻
		1588.5 6	60 22	0.0	3/2⁻
1595.16	(3/2⁺)	711 1	4 2	884.13	(7/2⁺)
		833 1	≈3	762.153	(1/2⁻)
		1390.2 6	8 4	204.902	3/2⁻
		1449.31 12	100 6	145.848	1/2⁻
1596.95	(19/2⁻)	590.5 1	100	1006.45	(15/2⁻)
1612.90	(3/2⁺)	641.1 3	10 4	971.91	(5/2⁻)
		704.3 3	8 2	908.98	1/2,3/2
		729.2 3	30 4	884.13	(7/2⁺)
		730.9 6	26 4	881.77	(5/2⁺)
		871.6 3	10 4	741.08	(7/2⁺)
		1309.3 3	20 4	303.353	5/2⁻
		1407.9 3	100 9	204.902	3/2⁻
		1466.7 3	42 8	145.848	1/2⁻
		1535.8 8	23 4	77.289	5/2⁻
		1612.8 8	53 15	0.0	3/2⁻
1619.24	(3/2⁻)	640.0 6	2 1	979.42	(3/2⁻)

From ENSDF

$^{187}_{74}W_{113}$-16

Adopted Levels, Gammas (continued)

γ(^{187}W) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f
1619.24	(3/2⁻)	802.7 *3*	3 *1*	816.256	3/2⁻
		815.0 *4*	2 *1*	803.369	(3/2⁻)
		1269.2 *7*	2 *1*	350.431	7/2⁻
		1414.37 *7*	100 *4*	204.902	3/2⁻
		1473.3 *4*	6 *1*	145.848	1/2⁻
		1542.0 *6*	6 *2*	77.289	5/2⁻
		1619.2 *3*	17 *2*	0.0	3/2⁻
1643.5	(1/2,3/2)	1438.6 *3*	100 *28*	204.902	3/2⁻
		1497.9 *8*	40 *20*	145.848	1/2⁻
		1566.4 *9*	30 *15*	77.289	5/2⁻
		1643.5 *9*	23 *6*	0.0	3/2⁻
1648.77	(5/2⁺)	340.7 *3*	58 *13*	1308.23	(3/2⁺)
		764.5 *3*	51 *10*	884.13	(7/2⁺)
		1216.5 *4*	47 *15*	432.282	7/2⁻
		1345.1 *9*	100 *24*	303.353	5/2⁻
1650.0	(17/2⁻)	587[a]	100	1063.38	(13/2⁻)
1663.27	(3/2⁻)	796.7 *5*	12 *5*	866.68	(1/2⁻,3/2⁻)
		859.9 *5*	≈8	803.369	(3/2⁻)
		880.95 *10*	69 *9*	782.290	1/2⁻
		901.0 *4*	12 *5*	762.153	(1/2⁻)
		1230.6 *6*	10 *5*	432.282	7/2⁻
		1360.1 *9*	10 *7*	303.353	5/2⁻
		1458.6 *3*	76 *10*	204.902	3/2⁻
		1517.5 *3*	100 *10*	145.848	1/2⁻
		1586.0 *6*	76 *9*	77.289	5/2⁻
		1663.2 *9*	32 *10*	0.0	3/2⁻
1674.39	(3/2⁻)	913.0 *8*	8 *4*	762.153	(1/2⁻)
		1371.43 *20*	100 *11*	303.353	5/2⁻
		1471.7 *4*	15 *4*		
		1472.2 *5*	94 *32*	201.449	7/2⁻
		1595 *2*	≈28	77.289	5/2⁻
1691.98	(3/2⁺)	383.88 *13*	50 *5*	1308.23	(3/2⁺)
		807.85 *10*	64 *11*	884.13	(7/2⁺)
		875.9 *3*	32 *5*	816.256	3/2⁻
		888.8 *3*	12 *3*	803.369	(3/2⁻)
		929.63 *24*	16 *3*	762.153	(1/2⁻)
		1051.26 *22*	17 *3*	640.492	5/2⁻
		1388.4 *8*	30 *9*	303.353	5/2⁻
		1486.8 *4*	88 *16*	204.902	3/2⁻
		1614.5 *7*	50 *9*	77.289	5/2⁻
		1691.8 *3*	100 *17*	0.0	3/2⁻
1706.10	1/2,3/2	611.9 *4*	≈7	1094.24	1/2⁻,3/2⁻
		797.5 *5*	7 *2*	908.98	1/2,3/2
1706.10	1/2,3/2	865.89 *6*	84 *6*	840.205	(1/2⁻)
		1501.2 *7*	22 *6*	204.902	3/2⁻
		1629 *1*	≈10	77.289	5/2⁻
		1706.00 *19*	100 *9*	0.0	3/2⁻
1711.38	(3/2⁻,5/2)	802.8 *9*	≈6	908.98	1/2,3/2
		1360.94 *15*	53 *5*	350.431	7/2⁻
		1634 *1*	≈47	77.289	5/2⁻
		1711 *1*	≈100	0.0	3/2⁻
1719.31	(3/2⁻)	747 *2*	27 *16*	971.91	(5/2⁻)
		1287.2 *3*	100 *24*	432.282	7/2⁻
		1415.8 *3*	85 *22*	303.353	5/2⁻
		1514.4 *4*	71 *25*	204.902	3/2⁻
		1573.4 *6*	≤38	145.848	1/2⁻
		1641.9 *8*	54 *23*	77.289	5/2⁻
1726.87	(3/2⁻)	708 *1*	9 *3*	1018.51	(3/2⁻)
		818.1 *8*	13 *3*	908.98	1/2,3/2
		887.3 *9*	12 *4*	840.205	(1/2⁻)
		910.4 *3*	≈11	816.256	3/2⁻
		1086.5 *9*	11 *3*	640.492	5/2⁻
		1423.4 *4*	72 *13*	303.353	5/2⁻
		1522.2 *3*	65 *8*	204.902	3/2⁻
		1524.8 *3*	14 *3*	201.449	7/2⁻
		1581.17 *16*	100 *11*	145.848	1/2⁻
		1649 *2*	≈7	77.289	5/2⁻
		1726.9 *9*	38 *7*	0.0	3/2⁻
1729.27	(1/2⁻,3/2⁻)	416.3 *4*	20 *6*	1312.81	(3/2⁻)
		739.9 *8*	24 *6*	989.16	(3/2⁻)
		913.3 *3*	28 *5*	816.256	3/2⁻
		967.0 *3*	16 *6*	762.153	(1/2⁻)
		1425.5 *8*	62 *10*	303.353	5/2⁻
		1524.5 *8*	80 *29*	204.902	3/2⁻
		1583.5 *6*	100 *12*	145.848	1/2⁻
		1651.7 *8*	20 *6*	77.289	5/2⁻
		1729.3 *7*	75 *11*	0.0	3/2⁻
1734.6		1734.6	100	0.0	3/2⁻
1754.8		1754.8	100	0.0	3/2⁻
1759.65	1/2,3/2	892.9 *6*	5 *3*	866.68	(1/2⁻,3/2⁻)
		956.3 *3*	8 *3*	803.369	(3/2⁻)
		997.5 *4*	7 *3*	762.153	(1/2⁻)
		1554.4 *5*	29 *10*	204.902	3/2⁻
		1613.9 *3*	100 *17*	145.848	1/2⁻
1771.0	1/2⁻,3/2⁻	688.6 *6*	≈7	1082.31	1/2,3/2
		954.7 *5*	35 *6*	816.256	3/2⁻

$^{187}_{74}W_{113}$-17

Adopted Levels, Gammas (continued)

γ(^{187}W) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$†	I$_\gamma$†	E$_f$	J$^\pi_f$
1771.0	1/2⁻,3/2⁻	1566.1 6	67 8	204.902	3/2⁻
		1771.0 5	100 10	0.0	3/2⁻
1784.15	(19/2⁻)	777.7 2	100	1006.45	(15/2⁻)
1816.29	(3/2⁻)	1012.6 5	≈13	803.369	(3/2⁻)
		1054.2 5	22 8	762.153	(1/2⁻)
		1465.9 3	42 11	350.431	7/2⁻
		1611.5 5	100 24	204.902	3/2⁻
1824.7	3/2⁻	1184.4 3	77 33	640.492	5/2⁻
		1622.5 6	11 5	201.449	7/2⁻
		1825 1	100 36	0.0	3/2⁻
1827.2		1827.2	100	0.0	3/2⁻
1832.2	(21/2⁻)	619[a]	100	1213.58	(17/2⁻)
1845.64	1/2⁻,3/2	936.3 6	53 15	908.98	1/2,3/2
		1042.0 4	32 11	803.369	(3/2⁻)
		1083.3 3	84 16	762.153	(1/2⁻)
		1205.1 3	28 10	640.492	5/2⁻
		1543.8		303.353	5/2⁻
		1640.7 7	100 18	204.902	3/2⁻
		1699.4 9	36 15	145.848	1/2⁻
		1845.2 9	≈24	0.0	3/2⁻
1857.63	1/2,3/2	775.4 3	23 6	1082.31	1/2,3/2
		965.7 3	23 6	891.93	(3/2⁻)
		1017.4 4	23 6	840.205	(1/2⁻)
		1711.7 3	100 14	145.848	1/2⁻
1887.77	(3/2⁻)	436.4 4	13 4	1450.92	(1/2,3/2)
		979.8 5	12 5	908.98	1/2,3/2
		1027.3 3	45 26	860.76	(3/2⁻)
		1083.9 3	47 14	803.369	(3/2⁻)
		1124.9 4	100 17	762.153	(1/2⁻)
		1585.2		303.353	5/2⁻
		1687.2 6	13 6	201.449	7/2⁻
		1742.2 7	42 10	145.848	1/2⁻
		1810.1 9	48 21	77.289	5/2⁻
		1887.7 9	33 15	0.0	3/2⁻
1891.07	(1/2⁻,3/2)	911.0 8	18 6	979.42	(3/2⁻)
		998.9 6	23 9	891.93	(3/2⁻)
		1025.2 6	35 5	866.68	(1/2⁻,3/2⁻)
		1050.8 6	31 4	840.205	(1/2⁻)
		1074.4 8	27 5	816.256	3/2⁻
		1108.5 9	14 3	782.290	1/2⁻
		1588 1	26 6	303.353	5/2⁻
		1686.2 4	100 11	204.902	3/2⁻
		1745.1 9	18 7	145.848	1/2⁻

E$_i$(level)	J$^\pi_i$	E$_\gamma$†	I$_\gamma$†	E$_f$	J$^\pi_f$
1891.07	(1/2⁻,3/2)	1813.8		77.289	5/2⁻
		1891 2	23 13	0.0	3/2⁻
1897.2		1897.2	100	0.0	3/2⁻
1905.66	(3/2⁻)	286 1	≈2	1619.24	(3/2⁻)
		521.4 9	≈3	1384.23	(3/2⁻)
		926.3 9	5 2	979.42	(3/2⁻)
		990.9 9	≈5	914.67	(5/2⁻)
		1013.7 9	7 2	891.93	(3/2⁻)
		1039.2 9	4 2	866.68	(1/2⁻,3/2⁻)
		1052.8 9	4 2	852.41	3/2⁻
		1089.3 7	12 3	816.256	3/2⁻
		1102.1 9	6 3	803.369	(3/2⁻)
		1123.4 5	20 3	782.290	1/2⁻
		1555.2 9	8 3	350.431	7/2⁻
		1602.5 8	16 3	303.353	5/2⁻
		1700.9 3	70 4	204.902	3/2⁻
		1759.9 3	100 6	145.848	1/2⁻
		1828.2 6	21 3	77.289	5/2⁻
		1905.6 5	31 3	0.0	3/2⁻
1931.78	1/2⁻,3/2⁻	659.2 5	11 3	1272.40	1/2⁻,3/2⁻
		848.3 9	≈2	1082.31	1/2,3/2
		943.1 4	8 3	989.16	(3/2⁻)
		1022.2 4	7 3	908.98	1/2,3/2
		1065.9 9	8 4	866.68	(1/2⁻,3/2⁻)
		1071.4 3	62 5	860.76	(3/2⁻)
		1092.3 9	11 4	840.205	(1/2⁻)
		1115.0 6	22 4	816.256	3/2⁻
		1149.2 9	6 3	782.290	1/2⁻
		1169.3 3	100 5	762.153	(1/2⁻)
		1292.3 9	8 4	640.492	5/2⁻
		1628.8 4	39 4	303.353	5/2⁻
		1726.1 9	24 7	204.902	3/2⁻
		1728.6 9	18 6	201.449	7/2⁻
		1784.8 7	37 17		
		1786.8 7	32 18	145.848	1/2⁻
		1932.5 6	34 4	0.0	3/2⁻
1937.01	(3/2⁻)	719.9 5	40 7	1217.126	(3/2⁻)
		947.5 8	19 8	989.16	(3/2⁻)
		957.7 8	18 8	979.42	(3/2⁻)
		965.3 6	28 9	971.91	(5/2⁻)
		976.5 9	21 9	960.57	(5/2⁻)
		1070.3 4	29 6	866.68	(1/2⁻,3/2⁻)
		1084.8 4	15 8	852.41	3/2⁻

Adopted Levels, Gammas (continued)

γ(^{187}W) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$†	I$_\gamma$†	E$_f$	J$^\pi_f$
1937.01	(3/2$^-$)	1096.8 7	13 7	840.205	(1/2$^-$)
		1120.6 4	51 9	816.256	3/2$^-$
		1154.7 6	23 5	782.290	1/2$^-$
		1161.4 9	14 5	775.60	(7/2$^-$)
		1175.2 4	25 6	762.153	(1/2$^-$)
		1296.5 3	91 10	640.492	5/2$^-$
		1505 1	29 9	432.282	7/2$^-$
		1586.5 4	49 11	350.431	7/2$^-$
		1633.5 3	100 13	303.353	5/2$^-$
		1731.9 9	41 16	204.902	3/2$^-$
		1791.0 9	30 16	145.848	1/2$^-$
		1859.5 7	81 12	77.289	5/2$^-$
		1937.0 8	64 13	0.0	3/2$^-$
1943.9	(3/2)	570 1	18 7	1373.64	(3/2$^+$)
		613.0 3	100 20	1330.91	(3/2$^+$)
		1640.6 5	72 24	303.353	5/2$^-$
1950.34	(1/2$^-$,3/2)	1041.2 8	22 5	908.98	1/2,3/2
		1083 1	≈8	866.68	(1/2$^-$,3/2$^-$)
		1147.2 6	18 6	803.369	(3/2$^-$)
		1188.3 9	10 6	762.153	(1/2$^-$)
		1647.0 3	100 18	303.353	5/2$^-$
		1873.0 8	20 13	77.289	5/2$^-$
		1950 2	≤8	0.0	3/2$^-$
1956.20	(1/2$^-$,3/2$^-$)	995.5 5	34 6	960.57	(5/2$^-$)
		1041.6 5	42 9	914.67	(5/2$^-$)
		1093.2 7	44 13	863.29	(5/2$^-$)
		1115.9 5	18 5	840.205	(1/2$^-$)
		1140.0 3	93 7	816.256	3/2$^-$
		1152.7 3	12 5	803.369	(3/2$^-$)
		1174.1 5	19 6	782.290	1/2$^-$
		1193.9 3	14 4	762.153	(1/2$^-$)
		1316 1	15 5	640.492	5/2$^-$
		1652.9 3	84 8	303.353	5/2$^-$
		1751.4 7	39 7	204.902	3/2$^-$
		1810.1 9	19 6	145.848	1/2$^-$
		1878.9 5	64 8	77.289	5/2$^-$
		1956.3 4	100 10	0.0	3/2$^-$
1962.1		1816.4		145.848	1/2$^-$
		1884.7		77.289	5/2$^-$
1965.9		1965.9	100	0.0	3/2$^-$
1973.44	(3/2)	599.8 8	11 3	1373.64	(3/2$^+$)
		625.0 8	11 4	1347.55	1/2$^-$
		879.7 7	26 6	1094.24	1/2$^-$,3/2$^-$
1973.44	(3/2)	891.7 6	16 3	1082.31	1/2,3/2
		995 1	18 4	979.42	(3/2$^-$)
		1002 1	17 4	971.91	(5/2$^-$)
		1063.7 7	16 5	908.98	1/2,3/2
		1089.7 6	8 3	884.13	(7/2$^+$)
		1113.5 4	25 5	860.76	(3/2$^-$)
		1133.5 4	60 5	840.205	(1/2$^-$)
		1158.0 4	38 5	816.256	3/2$^-$
		1169.3 3	57 7	803.369	(3/2$^-$)
		1210.7 3	64 5	762.153	(1/2$^-$)
		1670.0 5	17 7	303.353	5/2$^-$
		1769.4 7	53 9	204.902	3/2$^-$
		1825 1	24 9		
		1828.5 7	62 9	145.848	1/2$^-$
		1896.7 5	100 8	77.289	5/2$^-$
		1974.0 5	74 8	0.0	3/2$^-$
1980.84	(3/2$^+$)	992.0 8	23 10	989.16	(3/2$^-$)
		1020.3 6	16 5	960.57	(5/2$^-$)
		1071.7 4	10 3	908.98	1/2,3/2
		1096.7 4	22 3	884.13	(7/2$^+$)
		1164.6 4	29 6	816.256	3/2$^-$
		1218.8 3	28 4	762.153	(1/2$^-$)
		1677.5 6	100 15	303.353	5/2$^-$
		1775.5 9	≤14	204.902	3/2$^-$
		1980.4 9	37 13	0.0	3/2$^-$
1997.19	(3/2$^-$)	546.6 9	5 2	1450.92	(1/2,3/2)
		729.8 7	8 2	1267.50	5/2$^-$,(7/2$^-$)
		862.0 3	48 3	1135.18	(3/2$^-$)
		979 1	≈2	1018.51	(3/2$^-$)
		1017.7 3	30 4	979.42	(3/2$^-$)
		1025.2 3	30 3	971.91	(5/2$^-$)
		1037.3 9	5 2	960.57	(5/2$^-$)
		1082.5 8	11 2	914.67	(5/2$^-$)
		1105.3 3	33 2	891.93	(3/2$^-$)
		1130.6 5	18 2	866.68	(1/2$^-$,3/2$^-$)
		1134.2 4	26 3	863.29	(5/2$^-$)
		1156.9 3	32 3	840.205	(1/2$^-$)
		1180.9 3	30 3	816.256	3/2$^-$
		1214.9 3	17 2	782.290	1/2$^-$
		1564.8 3	39 4	432.282	7/2$^-$
		1646.7 3	31 3	350.431	7/2$^-$
		1693.9 8	13 2	303.353	5/2$^-$
		1792.3 3	100 4	204.902	3/2$^-$

$^{187}_{74}W_{113}$-19

Adopted Levels, Gammas (continued)

γ(^{187}W) (continued)

E$_i$(level)	J^π_i	E$_\gamma$†	I$_\gamma$†	E$_f$	J^π_f
1997.19	($3/2^-$)	1851.2 *5*	10 *4*	145.848	$1/2^-$
		1920.0 *4*	60 *3*	77.289	$5/2^-$
		1997.1 *5*	35 *2*	0.0	$3/2^-$
2014.4		1868.5	100	145.848	$1/2^-$
2022.4	($3/2^+$)	715.0 *7*	30 *10*	1308.23	($3/2^+$)
		1107.7 *6*	40 *16*	914.67	($5/2^-$)
		1281.0 *9*	40 *16*	741.08	($7/2^+$)
		1718.6 *5*	100 *24*	303.353	$5/2^-$
		1817.4 *9*	41 *19*	204.902	$3/2^-$
		1878 *2*	60 *23*	145.848	$1/2^-$
		2023 *2*	48 *24*	0.0	$3/2^-$
2029.8		1726.4	100	303.353	$5/2^-$
2044.72	($1/2^-$,$3/2^-$)	1055.6 *4*	27 *8*	989.16	($3/2^-$)
		1083.5 *9*	≤8	960.57	($5/2^-$)
		1129.8 *9*	18 *10*	914.67	($5/2^-$)
		1135.7 *4*	38 *10*	908.98	1/2,3/2
		1241.4 *3*	26 *9*	803.369	($3/2^-$)
		1741.4 *9*	40 *10*	303.353	$5/2^-$
		1839.8 *9*	23 *8*	204.902	$3/2^-$
		1898.7 *9*	≤28	145.848	$1/2^-$
		1967.5 *6*	100 *13*	77.289	$5/2^-$
		2044.8 *6*	66 *12*	0.0	$3/2^-$
2059.2	1/2,3/2	1854.1 *9*	56 *20*	204.902	$3/2^-$
		1913.5 *9*	≈28	145.848	$1/2^-$
		1981.8 *8*	100 *30*	77.289	$5/2^-$
2062.0	1/2,3/2	1984.9 *9*	100 *40*	77.289	$5/2^-$
		2061.7 *9*	≈80	0.0	$3/2^-$
2063.08	1/2,3/2	1153.9 *3*	125 *40*	908.98	1/2,3/2
		1260.1 *9*	68 *24*	803.369	($3/2^-$)
		1759.7 *6*	91 *35*	303.353	$5/2^-$
		1986.7 *9*	≈32	77.289	$5/2^-$
		2063.6 *9*	100 *30*	0.0	$3/2^-$
2070.05	(1/2,3/2)	618.1 *4*	9 *4*	1450.92	(1/2,3/2)
		1766.1 *8*	30 *12*	303.353	$5/2^-$
		1924.8 *3*	100 *26*	145.848	$1/2^-$
		2070.5 *9*	≤13	0.0	$3/2^-$
2083.5		1937.6	100	145.848	$1/2^-$
2090.46	($1/2^-$,$3/2^-$)	1287.0 *7*	7 *2*	803.369	($3/2^-$)
		1328.4 *3*	18 *3*	762.153	($1/2^-$)
		1449.9 *6*	20 *6*	640.492	$5/2^-$
		1786 *2*	≤4	303.353	$5/2^-$
		1885.4 *5*	34 *10*	204.902	$3/2^-$
		1944.9 *9*	13 *3*	145.848	$1/2^-$

E$_i$(level)	J^π_i	E$_\gamma$†	I$_\gamma$†	E$_f$	J^π_f
2090.46	($1/2^-$,$3/2^-$)	2013.3 *9*		77.289	$5/2^-$
		2090.4 *3*	100 *5*	0.0	$3/2^-$
2117.62	1/2,3/2	1256.9 *5*	24 *6*	860.76	($3/2^-$)
		1314.2 *9*	12 *5*	803.369	($3/2^-$)
		1335.3 *6*	20 *5*	782.290	$1/2^-$
		1355.5 *4*	34 *5*	762.153	($1/2^-$)
		1814 *1*	40 *7*	303.353	$5/2^-$
		1912.8 *9*	18 *11*	204.902	$3/2^-$
		1971.7 *9*	28 *5*	145.848	$1/2^-$
		2117.6 *5*	100 *11*	0.0	$3/2^-$
2124.5	1/2,3/2	1919.5 *5*	54 *13*	204.902	$3/2^-$
		1978.6 *6*	100 *12*	145.848	$1/2^-$
		2048 *1*	35 *12*	77.289	$5/2^-$
		2124.5 *8*	54 *11*	0.0	$3/2^-$
2130.0		1925.1	100	204.902	$3/2^-$
2136.7	1/2,3/2	1147 *1*	77 *14*	989.16	($3/2^-$)
		2059.7 *9*	54 *17*	77.289	$5/2^-$
		2136.9 *9*	100 *19*	0.0	$3/2^-$
2139.07	1/2,3/2	1335.6 *4*	17 *7*	803.369	($3/2^-$)
		1934.0 *9*	24 *7*	204.902	$3/2^-$
		1993.3 *9*	19 *7*	145.848	$1/2^-$
		2062.1 *9*	23 *11*	77.289	$5/2^-$
		2139.1 *4*	100 *14*	0.0	$3/2^-$
2142.72	1/2,3/2	641.0 *3*	30 *14*	1501.89	($3/2^+$)
		1937.4		204.902	$3/2^-$
		1997.9 *9*	100 *37*	145.848	$1/2^-$
		2064.2 *9*	87 *37*	77.289	$5/2^-$
2150.4	1/2,3/2	1170.1 *9*	27 *9*	979.42	($3/2^-$)
		1847.2 *6*	25 *10*	303.353	$5/2^-$
		1945.6 *4*	100 *17*	204.902	$3/2^-$
		2004.6 *7*	77 *18*	145.848	$1/2^-$
		2151 *2*	8 *4*	0.0	$3/2^-$
2153.52	1/2,3/2	1181.6 *5*	47 *15*	971.91	($5/2^-$)
		1286.8 *9*	≈40	866.68	($1/2^-$,$3/2^-$)
		1371.4 *4*	88 *17*	782.290	$1/2^-$
		1390.4 *9*	37 *11*	762.153	($1/2^-$)
		1851 *2*	22 *10*	303.353	$5/2^-$
		1948.7 *9*	53 *21*	204.902	$3/2^-$
		2076.2 *7*	100 *22*	77.289	$5/2^-$
		2153.4 *9*	81 *22*	0.0	$3/2^-$
2168.9	1/2,3/2	1866 *1*	30 *8*	303.353	$5/2^-$
		1964.2 *8*	42 *14*	204.902	$3/2^-$
		2022.9 *4*	65 *14*	145.848	$1/2^-$

$^{187}_{74}$W$_{113}$-20

Adopted Levels, Gammas (continued)

$\gamma(^{187}W)$ (continued)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π
2168.9	1/2,3/2	2091.5 8	77 17	77.289	5/2⁻
		2168.9 6	100 18	0.0	3/2⁻
2172.1	1/2,3/2	841.1 3	50 17	1330.91	(3/2⁺)
		1868.8 9	≈30	303.353	5/2⁻
		2026.6 6	100 56	145.848	1/2⁻
2180.8	1/2,3/2	1975.9 9	100 29	204.902	3/2⁻
		2035.0 9	86 35	145.848	1/2⁻
2194.8		2194.8 3	100	0.0	3/2⁻
2198.4	1/2,3/2	1358.3 7	≈18	840.205	(1/2⁻)
		1394.7 8	66 14	803.369	(3/2⁻)
		1896 2	34 17	303.353	5/2⁻
		2198.4 6	100 27	0.0	3/2⁻
2205.8		2004.3	100	201.449	7/2⁻
2208.44	1/2,3/2	2003.5 9	40 23	204.902	3/2⁻
		2062.3 3	100 25	145.848	1/2⁻
		2209.2		0.0	3/2⁻
2229.0	1/2,3/2	1412.7 7	45 10	816.256	3/2⁻
		2083.1 4	46 13	145.848	1/2⁻
		2151.7 7	100 12	77.289	5/2⁻
		2229.1 9	≈10	0.0	3/2⁻
2233.00	1/2,3/2	1341.1 9	≈13	891.93	(3/2⁻)
		1416.4 6	30 10	816.256	3/2⁻
		1470.6 4	16 3	762.153	(1/2⁻)
		2028.3 3	100 14	204.902	3/2⁻
		2087.2 9	39 13	145.848	1/2⁻
2234.6		2088.7	100	145.848	1/2⁻
2241.79	(1/2⁻,3/2⁻)	244.9 9	6 2	1997.19	(3/2⁻)
		1401.3 6	7 3	840.205	(1/2⁻)
		1460 2	6 3	782.290	1/2⁻
		1482 2	6 3	762.153	(1/2⁻)
		1938.4 4	26 4	303.353	5/2⁻
		2036.9 3	75 5	204.902	3/2⁻
		2095.9 3	100 6	145.848	1/2⁻
		2242 2	7 3	0.0	3/2⁻
2258.2		2180.8		77.289	5/2⁻
		2258.2		0.0	3/2⁻
2260.20	(1/2⁻,3/2⁻)	647.3 3	51 4	1612.90	(3/2⁺)
		665.0 4	45 11	1595.16	(3/2⁺)
		714.4 3	59 4	1546.03	1/2,3/2
		1407.6 9	≤7	852.41	3/2⁻
		1420.0 9	≈10	840.205	(1/2⁻)
		1443.9 9	17 6	816.256	3/2⁻
		1477.9 3	16 5	782.290	1/2⁻
2260.20	(1/2⁻,3/2⁻)	1498.0 3	23 6	762.153	(1/2⁻)
		1957 2	≈8	303.353	5/2⁻
		2054.8 9	24 6	204.902	3/2⁻
		2114.2 9	14 5	145.848	1/2⁻
		2182.8 9	16 5	77.289	5/2⁻
		2260.0 5	100 10	0.0	3/2⁻
2266.9		1963.5	100	303.353	5/2⁻
2269.1		2064.2	100	204.902	3/2⁻
2272.4	1/2,3/2	2067.5 9	≈14	204.902	3/2⁻
		2126.3 9	41 19	145.848	1/2⁻
		2272.7 9	100 20	0.0	3/2⁻
2276.00	(1/2⁻,3/2⁻)	861.1 5	34 4	1415.23	(3/2⁻)
		928.5 8	19 3	1347.55	1/2⁻
		1059 1	≈20	1217.126	(3/2⁻)
		1140.9 8	20 5	1135.18	(3/2⁻)
		1384.1 3	100 6	891.93	(3/2⁻)
		1409.2 4	17 5	866.68	(1/2⁻,3/2⁻)
		1435.0 5	21 6	840.205	(1/2⁻)
		1973 2	≈9	303.353	5/2⁻
		2071.3 4	89 6	204.902	3/2⁻
		2199 2	11 7	77.289	5/2⁻
		2276.1 9	31 7	0.0	3/2⁻
2281.7	1/2,3/2	1979 2	80 28	303.353	5/2⁻
		2135.6 9	100 26	145.848	1/2⁻
		2204.4 9	61 28	77.289	5/2⁻
2283.6	1/2,3/2	737.5 5	100 14	1546.03	1/2,3/2
		2079.4 9	≈15	204.902	3/2⁻
		2137.6 9	88 19	145.848	1/2⁻
		2283.5 9	≈17	0.0	3/2⁻
2288.0		2083.1	100	204.902	3/2⁻
2292.9	1/2,3/2	1476.4 5	62 23	816.256	3/2⁻
		2088.8 9	100 23	204.902	3/2⁻
		2293.1 9	51 18	0.0	3/2⁻
2296.5		2296.5	100	0.0	3/2⁻
2300.0		2095.1	100	204.902	3/2⁻
2301.9	1/2,3/2	2156 1	46 27	145.848	1/2⁻
		2302 1	100 30	0.0	3/2⁻
2306.3	1/2,3/2	1439.5 6	38 9	866.68	(1/2⁻,3/2⁻)
		1524 1	52 15	782.290	1/2⁻
		2102 1	64 13	204.902	3/2⁻
		2160.4 4	100 17	145.848	1/2⁻
		2229 1	61 21	77.289	5/2⁻
2315.2	1/2,3/2	769.7 9	43 16	1546.03	1/2,3/2

Adopted Levels, Gammas (continued)

$\gamma(^{187}W)$ (continued)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π
2315.2	1/2,3/2	1400 *1*	46 *23*	914.67	$(5/2^-)$
		1421 *1*	40 *15*		
		1423 *1*	≈21	891.93	$(3/2^-)$
		1449 *1*	51 *20*	866.68	$(1/2^-,3/2^-)$
		2111.3 *9*	100 *21*	204.902	$3/2^-$
		2170 *2*	≈11	145.848	$1/2^-$
		2316 *1*	73 *23*	0.0	$3/2^-$
2322.3	1/2,3/2	1014.3 *7*	24 *11*	1308.23	$(3/2^+)$
		2019 *1*	28 *12*	303.353	$5/2^-$
		2118 *2*	15 *8*	204.902	$3/2^-$
		2176 *1*	36 *11*	145.848	$1/2^-$
		2322.0 *8*	100 *12*	0.0	$3/2^-$
2344.43	1/2,3/2	1127.5 *6*	44 *15*	1217.126	$(3/2^-)$
		1452.6 *7*	41 *21*	891.93	$(3/2^-)$
		1478.0 *5*	41 *17*	866.68	$(1/2^-,3/2^-)$
		1528 *2*	29 *18*	816.256	$3/2^-$
		1562 *1*	58 *18*	782.290	$1/2^-$
		1583 *2*	≈22	762.153	$(1/2^-)$
		2139 *1*	86 *19*	204.902	$3/2^-$
		2198.6 *3*	100 *16*	145.848	$1/2^-$
		2266 *1*	56 *17*	77.289	$5/2^-$
		2344 *1*	81 *19*	0.0	$3/2^-$
2346.6		2346.6	100	0.0	$3/2^-$
2352.09	$1/2^-,3/2^-$	1135.1 *5*	13 *4*	1217.126	$(3/2^-)$
		1333.6 *9*	18 *6*	1018.51	$(3/2^-)$
		1485.5 *3*	100 *7*	866.68	$(1/2^-,3/2^-)$
		1511.8 *3*	36 *7*	840.205	$(1/2^-)$
		1536.0 *3*	56 *7*	816.256	$3/2^-$
		1548.2 *6*	22 *6*	803.369	$(3/2^-)$
		1569.7 *3*	27 *7*	782.290	$1/2^-$
		2147.6 *9*	20 *6*	204.902	$3/2^-$
		2206 *2*	14 *6*	145.848	$1/2^-$
		2273 *2*	18 *8*	77.289	$5/2^-$
		2352 *3*	≈5	0.0	$3/2^-$
2356.73		2210.87 *12*	100	145.848	$1/2^-$
2367.5		2162.6		204.902	$3/2^-$
		2221.7		145.848	$1/2^-$
2370.2		2224.4		145.848	$1/2^-$
		2292.7		77.289	$5/2^-$
		2371.4 *13*		0.0	$3/2^-$
2375.2		2229.3	100	145.848	$1/2^-$
2381.10		2176.18 *22*	100	204.902	$3/2^-$
2385.4		2239.5 *4*	100	145.848	$1/2^-$

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π
2394.3		2248.4	100	145.848	$1/2^-$
2399.3		2322.0	100	77.289	$5/2^-$
2411.5		2108.1 *7*		303.353	$5/2^-$
		2265.7		145.848	$1/2^-$
		2333.5 *13*		77.289	$5/2^-$
2414.89		2210.0		204.902	$3/2^-$
		2269.1		145.848	$1/2^-$
		2337.4		77.289	$5/2^-$
		2414.9 *3*		0.0	$3/2^-$
2426.9		2123.5		303.353	$5/2^-$
		2222.0		204.902	$3/2^-$
2429.5		2283.6	100	145.848	$1/2^-$
2433.8		2228.9 *3*	100	204.902	$3/2^-$
2436.2		2290.3	100	145.848	$1/2^-$
2438.3		2292.6		145.848	$1/2^-$
		2360.9		77.289	$5/2^-$
2447.67		2242.75 *15*	100	204.902	$3/2^-$
2457.6		2457.6	100	0.0	$3/2^-$
2461.4		2157.7 *4*		303.353	$5/2^-$
		2256.8		204.902	$3/2^-$
		2315.9		145.848	$1/2^-$
2471.4		2266.1		204.902	$3/2^-$
		2325.2		145.848	$1/2^-$
		2394.8 *5*		77.289	$5/2^-$
2476.3		2172.9 *4*	100	303.353	$5/2^-$
2485.01		2181.44 *13*		303.353	$5/2^-$
		2283.93 *14*		201.449	$7/2^-$
		2484.3 *3*		0.0	$3/2^-$
2492.17		2287.2		204.902	$3/2^-$
		2346.3 *3*		145.848	$1/2^-$
		2414.6		77.289	$5/2^-$
		2492.6 *6*		0.0	$3/2^-$
2496.9		2291.7 *6*		204.902	$3/2^-$
		2419.8		77.289	$5/2^-$
2503.1		2503.1	100	0.0	$3/2^-$
2509.4		2363.5	100	145.848	$1/2^-$
2511.76		2511.74 *24*	100	0.0	$3/2^-$
2514.9		2210.7		303.353	$5/2^-$
		2368.8 *6*		145.848	$1/2^-$
		2515.5 *4*		0.0	$3/2^-$
2528.33		2322.8		204.902	$3/2^-$
		2381.9		145.848	$1/2^-$
		2451.7 *3*		77.289	$5/2^-$

$\gamma(^{187}W)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f
2528.33		2527.6		0.0	3/2⁻
2531.7		2326.8		204.902	3/2⁻
		2385.9		145.848	1/2⁻
		2454.2		77.289	5/2⁻
2534.1		2388.6 *3*		145.848	1/2⁻
		2455.8 *5*		77.289	5/2⁻
2545.7		2242.3	100	303.353	5/2⁻
2552.40		2248.88 *16*		303.353	5/2⁻
		2475.8		77.289	5/2⁻
		2553.2		0.0	3/2⁻
2556.3		2252.9		303.353	5/2⁻
		2410.5		145.848	1/2⁻
2557.5		2480.2	100	77.289	5/2⁻
2562.4		2562.4	100	0.0	3/2⁻
2563.64		2361.8 *3*		201.449	7/2⁻
		2487.3		77.289	5/2⁻
		2563.63 *24*		0.0	3/2⁻
2571.7		2268.3		303.353	5/2⁻
		2425.9		145.848	1/2⁻
2574.0		2369.1	100	204.902	3/2⁻
2582.3		2377.4 *4*	100	204.902	3/2⁻
2590.01		2513.1		77.289	5/2⁻
		2589.95 *15*		0.0	3/2⁻
2601.1		2298.2 *6*		303.353	5/2⁻
		2395.8		204.902	3/2⁻
2606.9		2606.9	100	0.0	3/2⁻
2613.63		2408.71 *17*	100	204.902	3/2⁻
2617.81		2472.2 *6*		145.848	1/2⁻
		2617.75 *23*		0.0	3/2⁻
2624.4		2419.6 *3*		204.902	3/2⁻
		2624.0		0.0	3/2⁻
2627.53		2324.6		303.353	5/2⁻
		2422.63 *18*		204.902	3/2⁻
		2481.58 *22*		145.848	1/2⁻
		2627.1 *8*		0.0	3/2⁻
2636.2		2332.9		303.353	5/2⁻
		2636.2		0.0	3/2⁻
2636.37		2431.45 *13*	100	204.902	3/2⁻
2640.8		2563.5	100	77.289	5/2⁻
2647.45		2442.71 *18*		204.902	3/2⁻
		2568.8		77.289	5/2⁻
2650.5		2347.1	100	303.353	5/2⁻
2654.0		2349.6 *17*		303.353	5/2⁻
2654.0		2576.8		77.289	5/2⁻
2660.7		2660.7	100	0.0	3/2⁻
2678.8		2375.5		303.353	5/2⁻
		2474.0		204.902	3/2⁻
		2601.4		77.289	5/2⁻
2681.3		2681.3	100	0.0	3/2⁻
2686.4		2481.5	100	204.902	3/2⁻
2689.82		2689.80 *18*	100	0.0	3/2⁻
2699.6		2699.6	100	0.0	3/2⁻
2707.1		2707.1	100	0.0	3/2⁻
2714.4		2509.6		204.902	3/2⁻
		2637.0		77.289	5/2⁻
2717.8		2572.0		145.848	1/2⁻
		2717.7		0.0	3/2⁻
2722.6		2419.3		303.353	5/2⁻
		2576.9		145.848	1/2⁻
		2645.2		77.289	5/2⁻
2725.7		2520.8	100	204.902	3/2⁻
2728.2		2424.9		303.353	5/2⁻
		2650.8		77.289	5/2⁻
		2728.2		0.0	3/2⁻
2732.3		2586.5		145.848	1/2⁻
		2732.2		0.0	3/2⁻
2733.7		2528.8	100	204.902	3/2⁻
2736.5		2591.2		145.848	1/2⁻
		2735.5 *7*		0.0	3/2⁻
2747.5		2601.6	100	145.848	1/2⁻
2759.2		2554.3		204.902	3/2⁻
		2613.4		145.848	1/2⁻
2763.5		2617.6	100	145.848	1/2⁻
2778.3		2573.4	100	204.902	3/2⁻
2781.1		2576.2		204.902	3/2⁻
		2635.3		145.848	1/2⁻
		2703.6		77.289	5/2⁻
		2781.0		0.0	3/2⁻
2796.8		2591.9		204.902	3/2⁻
		2651.0		145.848	1/2⁻
2806.4		2601.5	100	204.902	3/2⁻
2833.4		2530.0	100	303.353	5/2⁻
2834.8		2689.1		145.848	1/2⁻
		2757.4		77.289	5/2⁻
2837.7		2534.3		303.353	5/2⁻
		2691.9		145.848	1/2⁻

$^{187}_{74}W_{113}$-23

Adopted Levels, Gammas (continued)

$\gamma(^{187}W)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f
2837.7		2760.2		77.289	5/2⁻
2871.4		2666.5		204.902	3/2⁻
		2871.3		0.0	3/2⁻
2882.3		2677.4		204.902	3/2⁻
		2736.5		145.848	1/2⁻
		2804.8		77.289	5/2⁻
		2882.2		0.0	3/2⁻
2896.5		2691.6		204.902	3/2⁻
		2750.7		145.848	1/2⁻
2909.50		2606.09 *16*		303.353	5/2⁻
		2704.9		204.902	3/2⁻
		2831.7 *8*		77.289	5/2⁻
2909.50		2909.7		0.0	3/2⁻
2930.3		2784.5		145.848	1/2⁻
		2930.2		0.0	3/2⁻
3035.7		2830.9		204.902	3/2⁻
		2958.3		77.289	5/2⁻
3144.59		2343.6 *6*		803.369	(3/2⁻)
		2939.35 *17*		204.902	3/2⁻
		3145.2 *4*		0.0	3/2⁻
3176.3		2971.4 *7*	100	204.902	3/2⁻
3343.8		2354.8 *6*		989.16	(3/2⁻)
		2462.5 *4*		881.77	(5/2⁺)
		2475.7 *6*		866.68	(1/2⁻,3/2⁻)

† From $^{186}W(n,\gamma)$,^{186}W(pol n,γ) E=th, except otherwise noted.

‡ From conversion electron subshell ratios and internal conversion coefficients of 1971PrZJ and 1973PrYV ((n,γ) E=Thermal).

From (^{18}O,$^{17}O\gamma$).

@ 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.

& Multiply placed with undivided intensity.

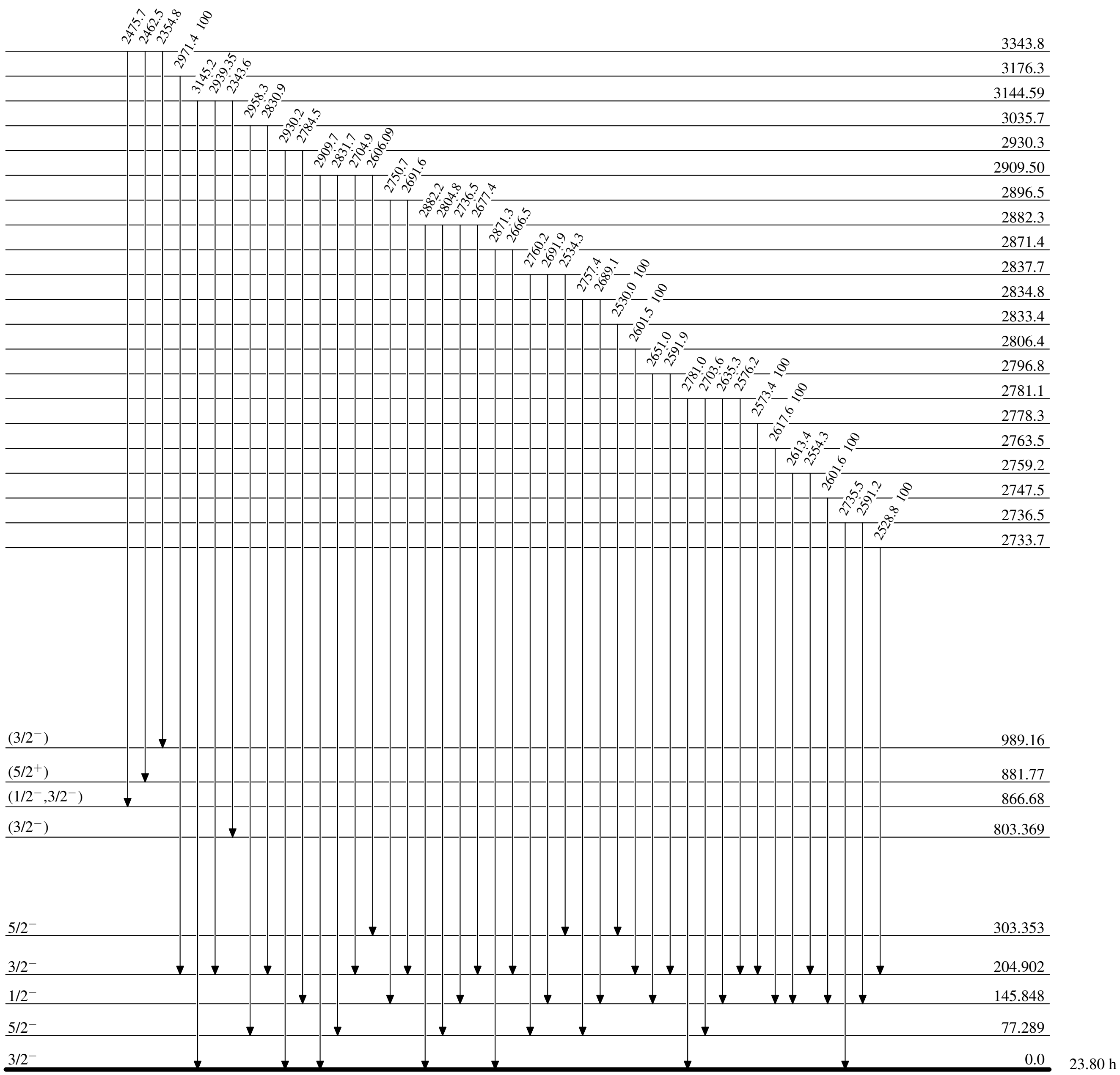
a Placement of transition in the level scheme is uncertain.

$^{187}_{74}W_{113}$-24

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



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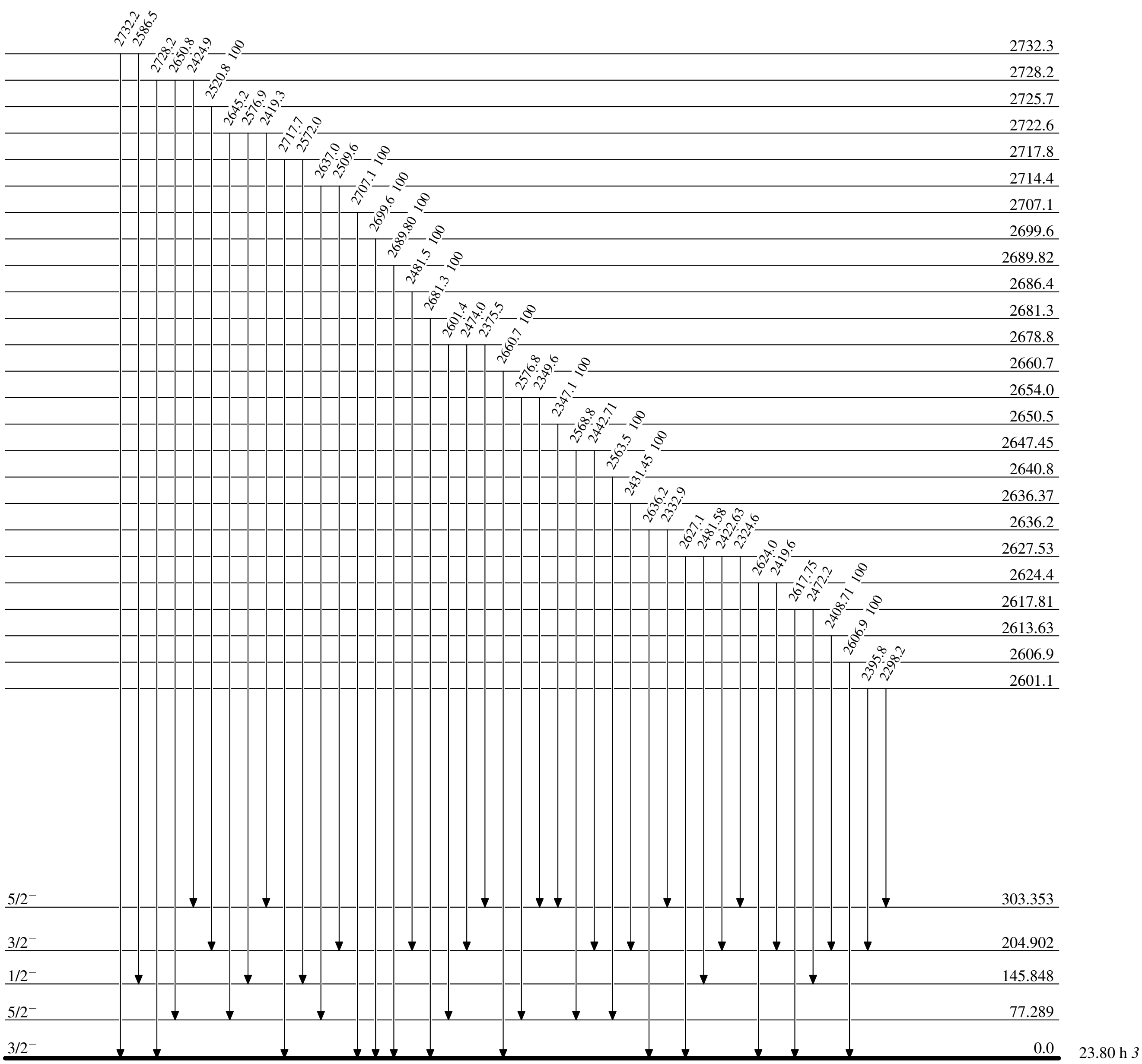
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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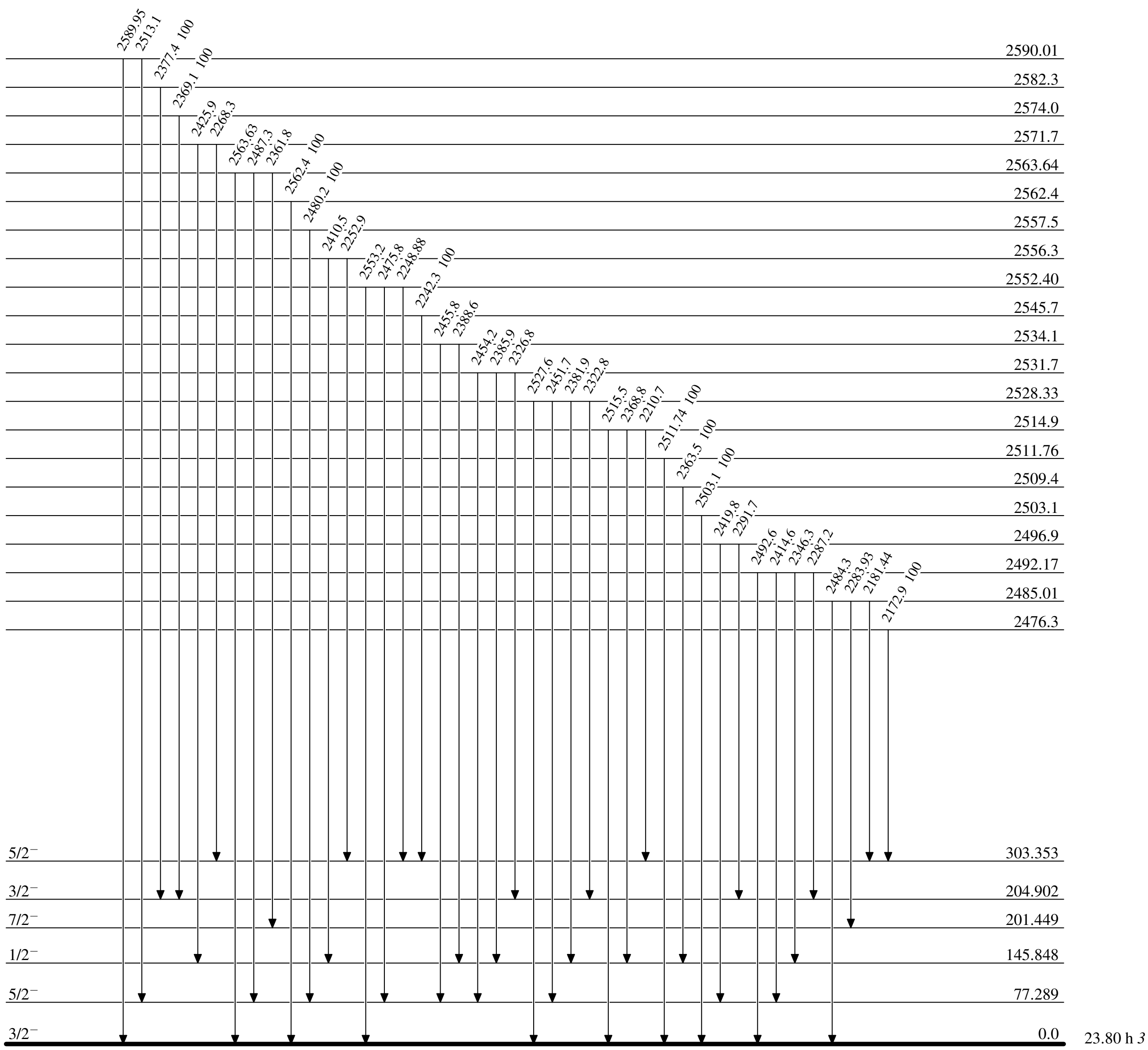
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

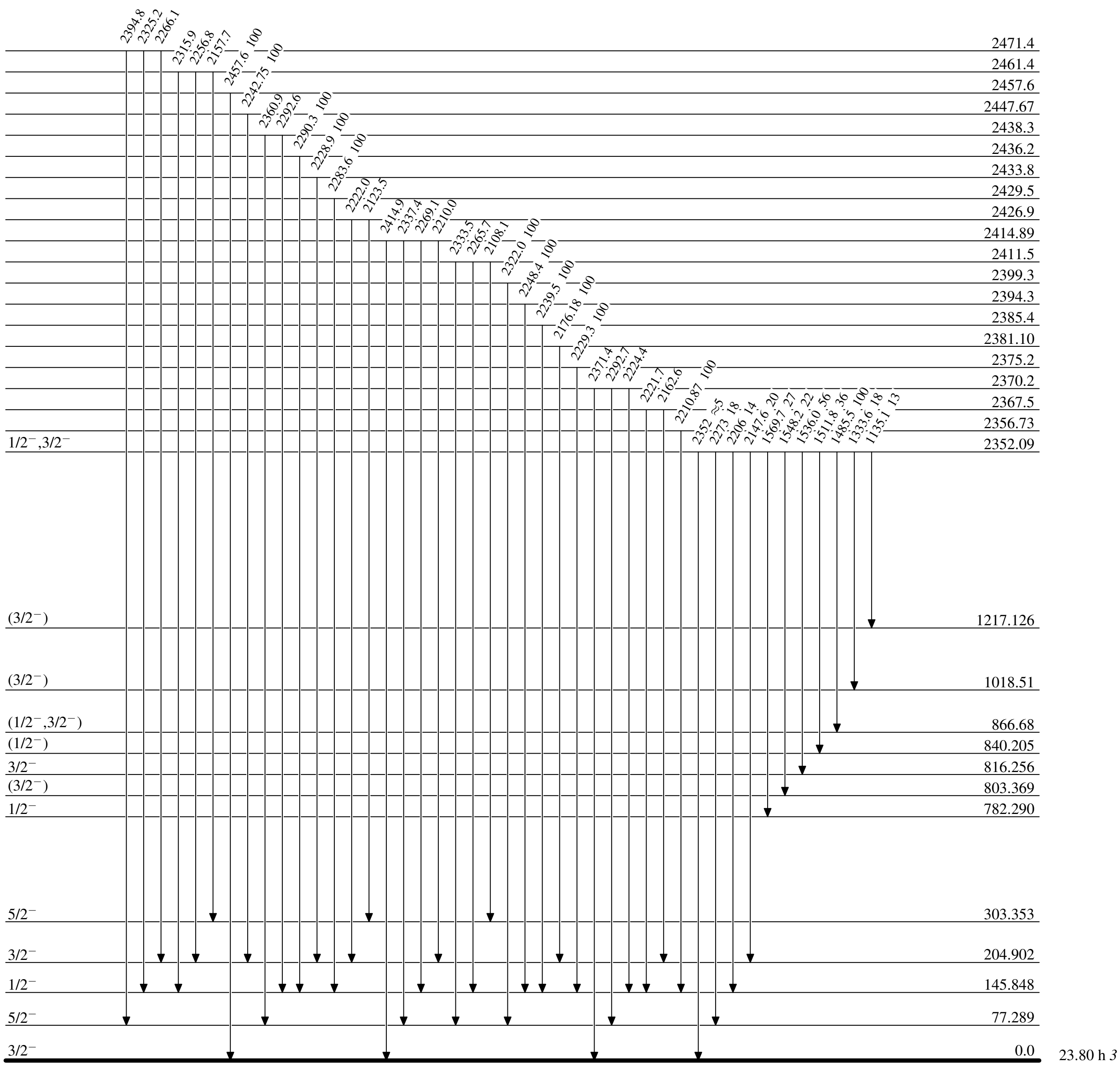


$^{187}_{74}W_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

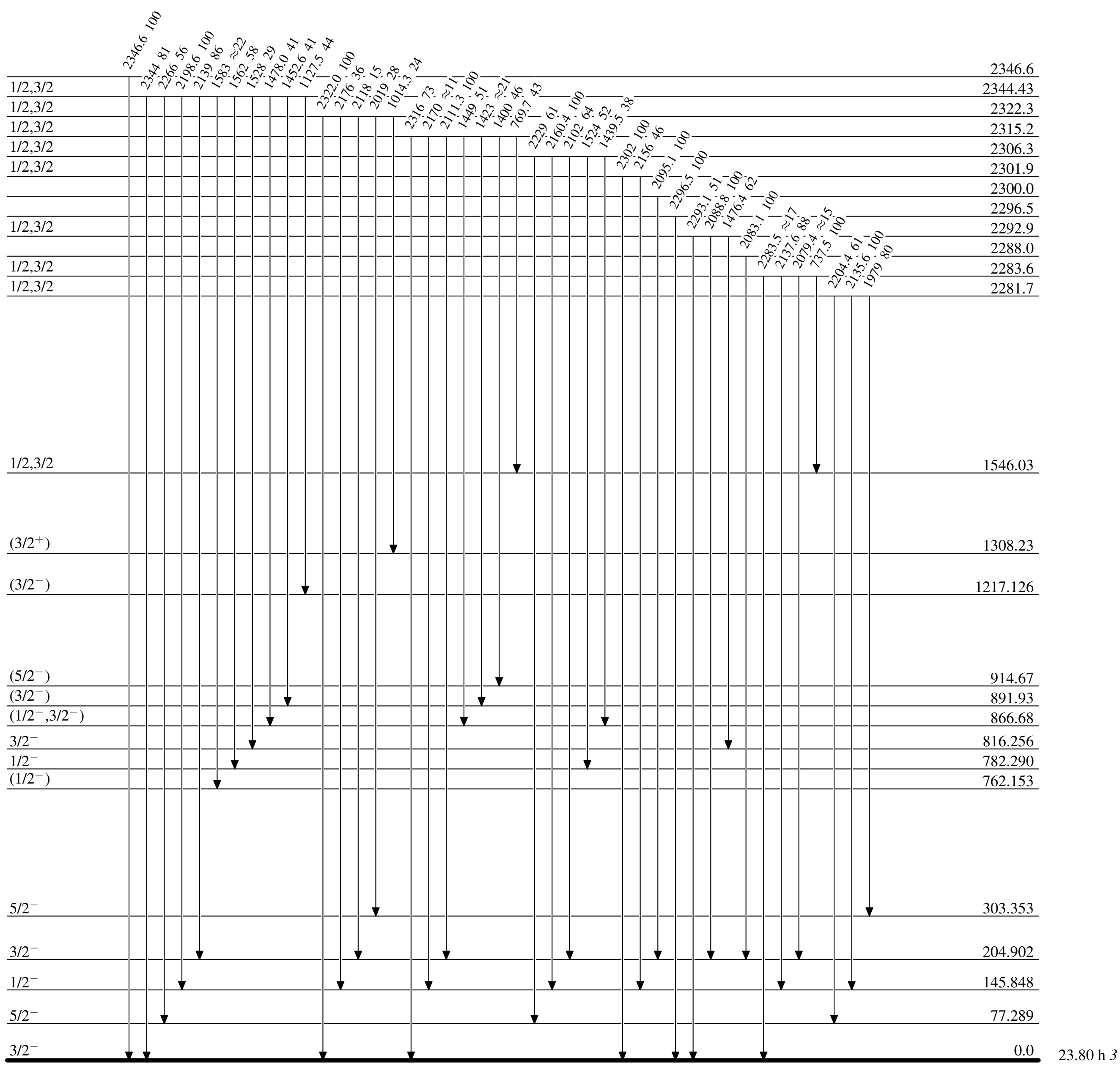


$^{187}_{74}W_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

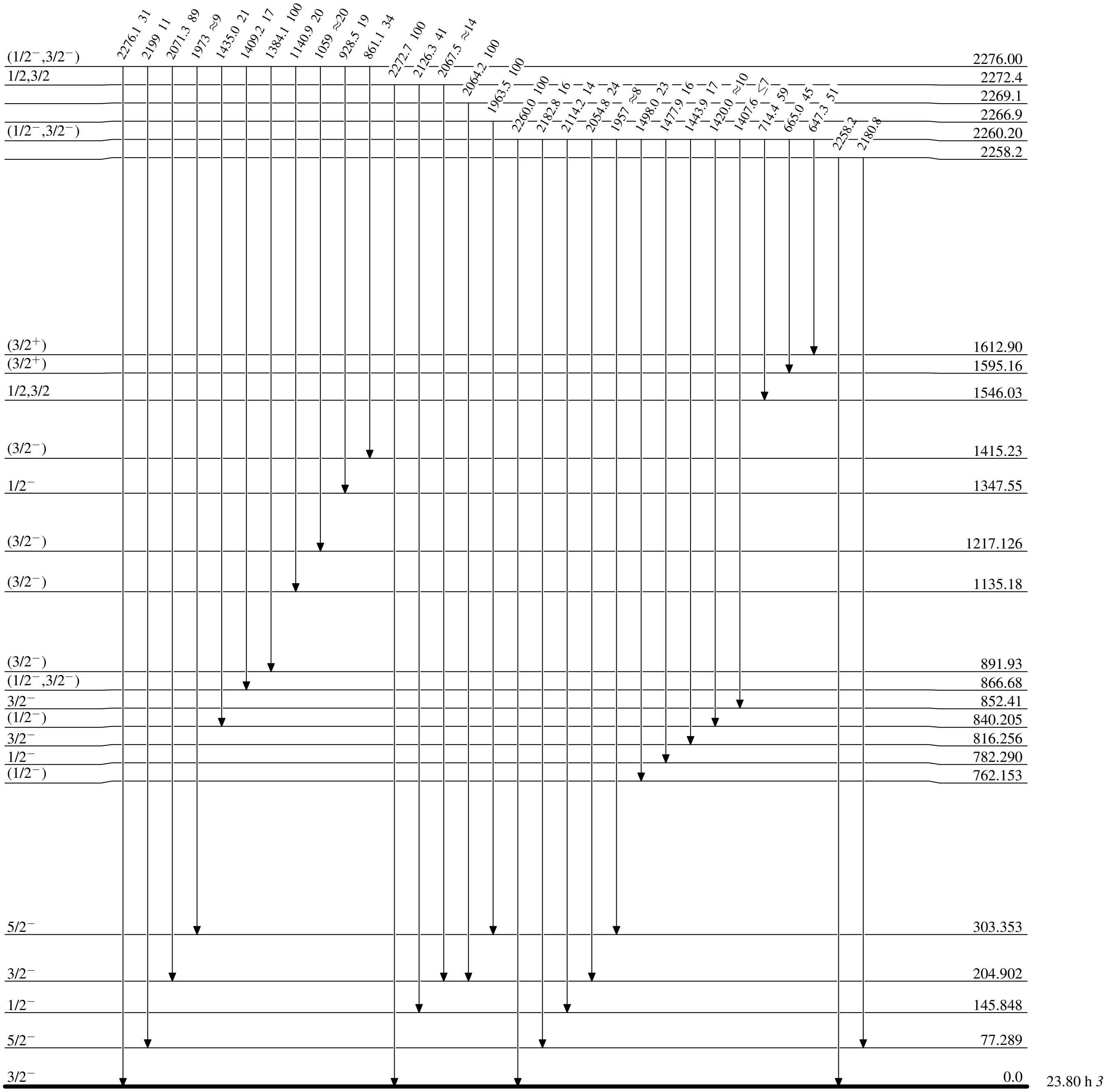
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

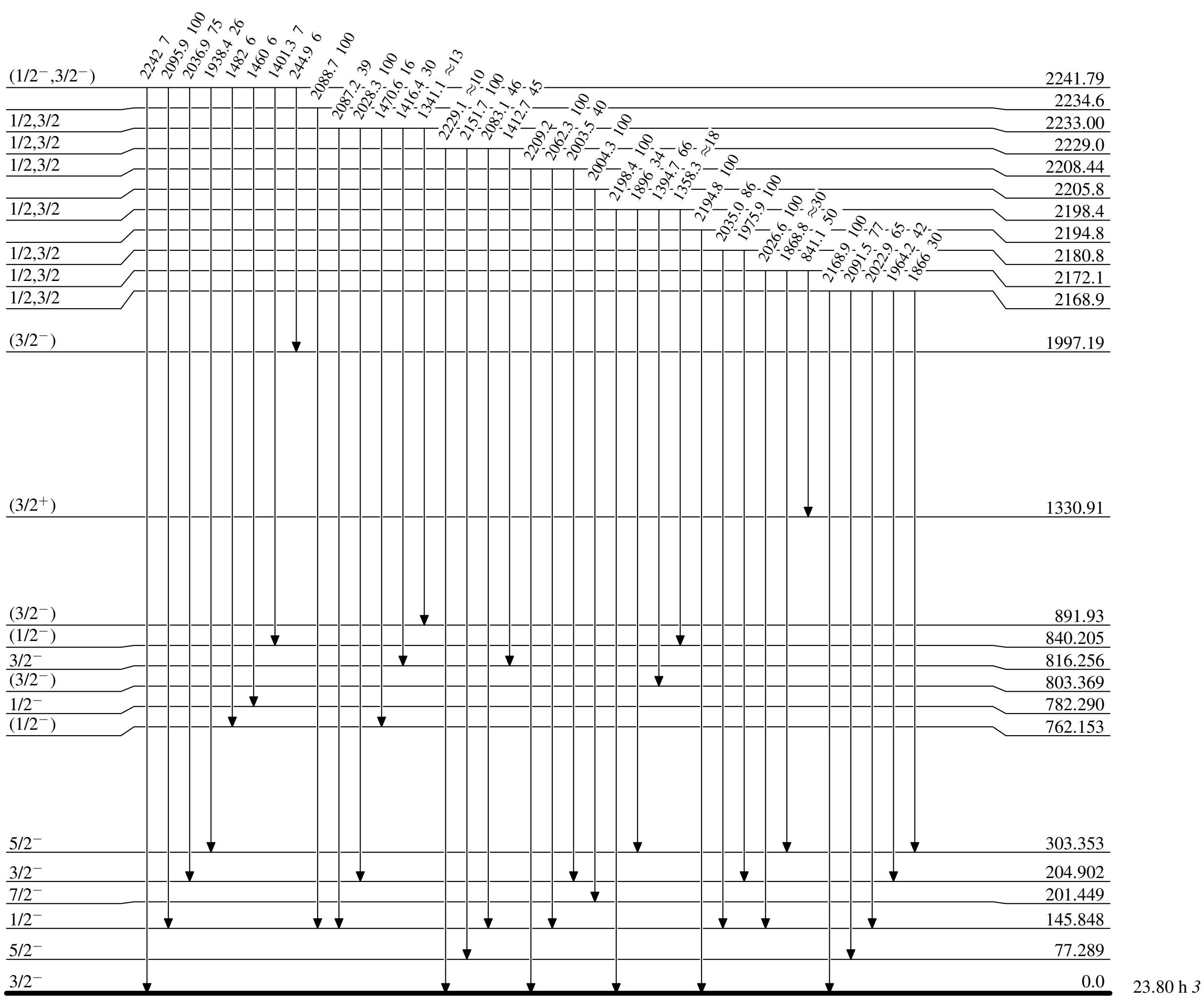


$^{187}_{74}W_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

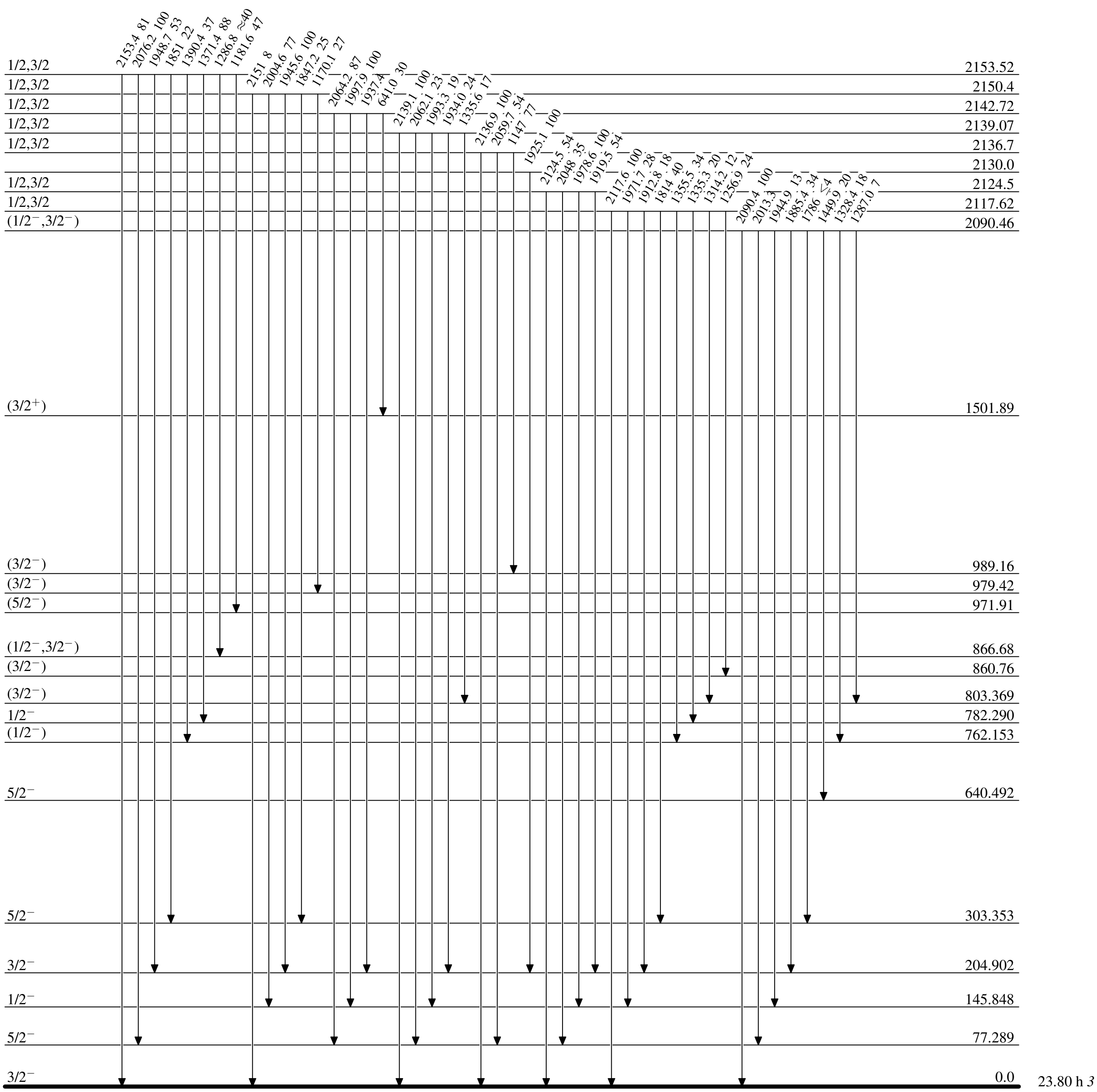


$^{187}_{74}W_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

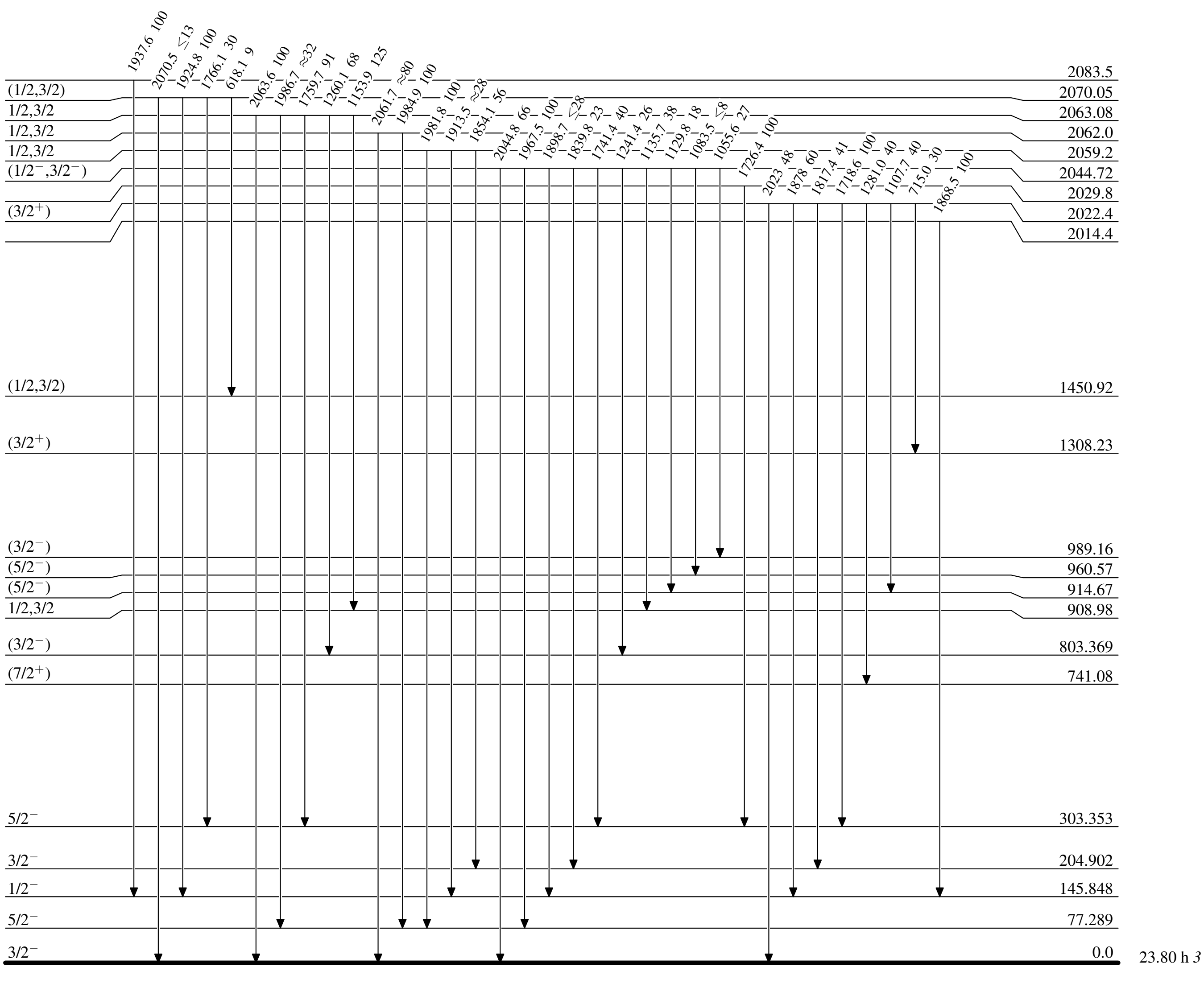


$^{187}_{74}W_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

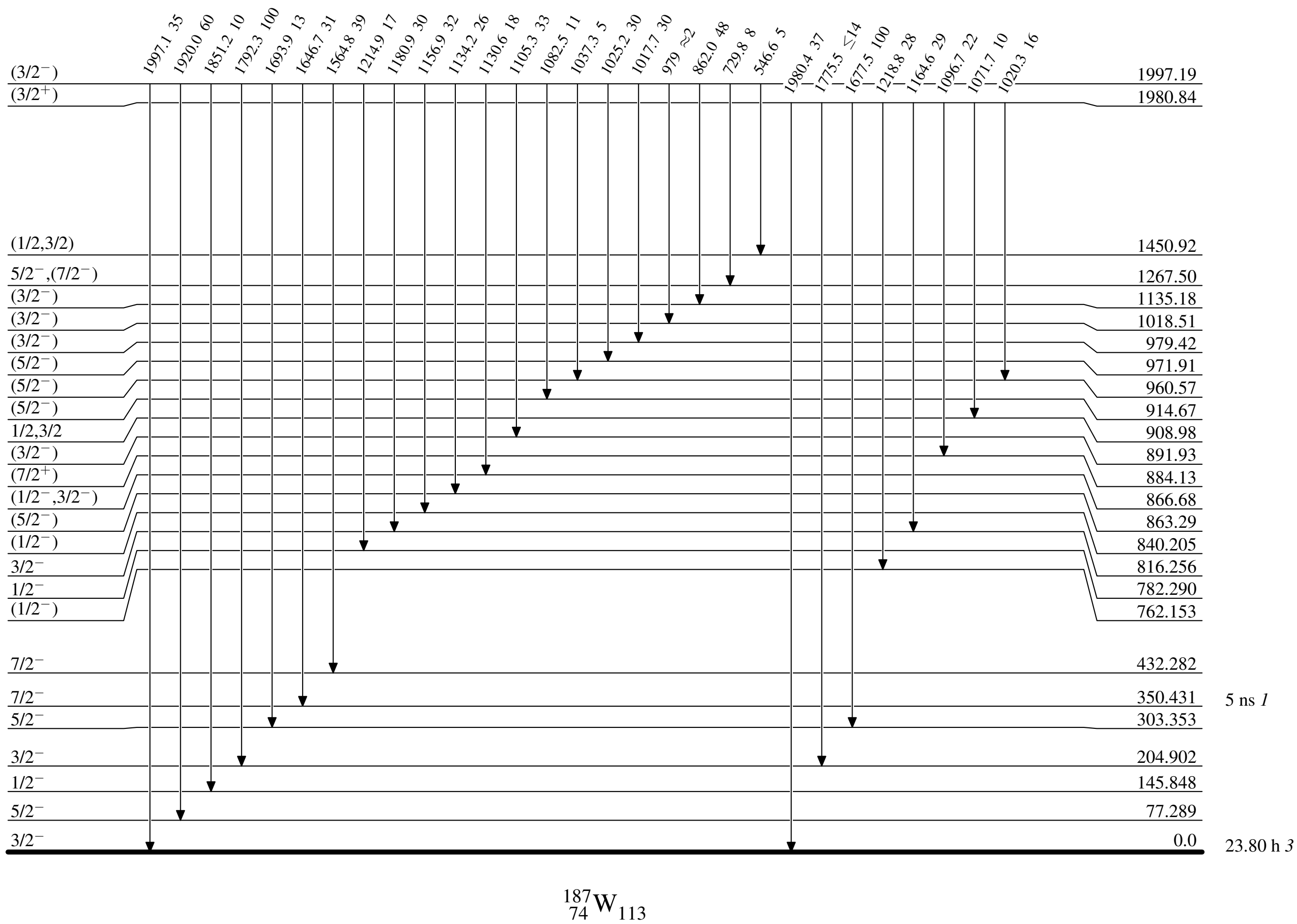


$^{187}_{74}W_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

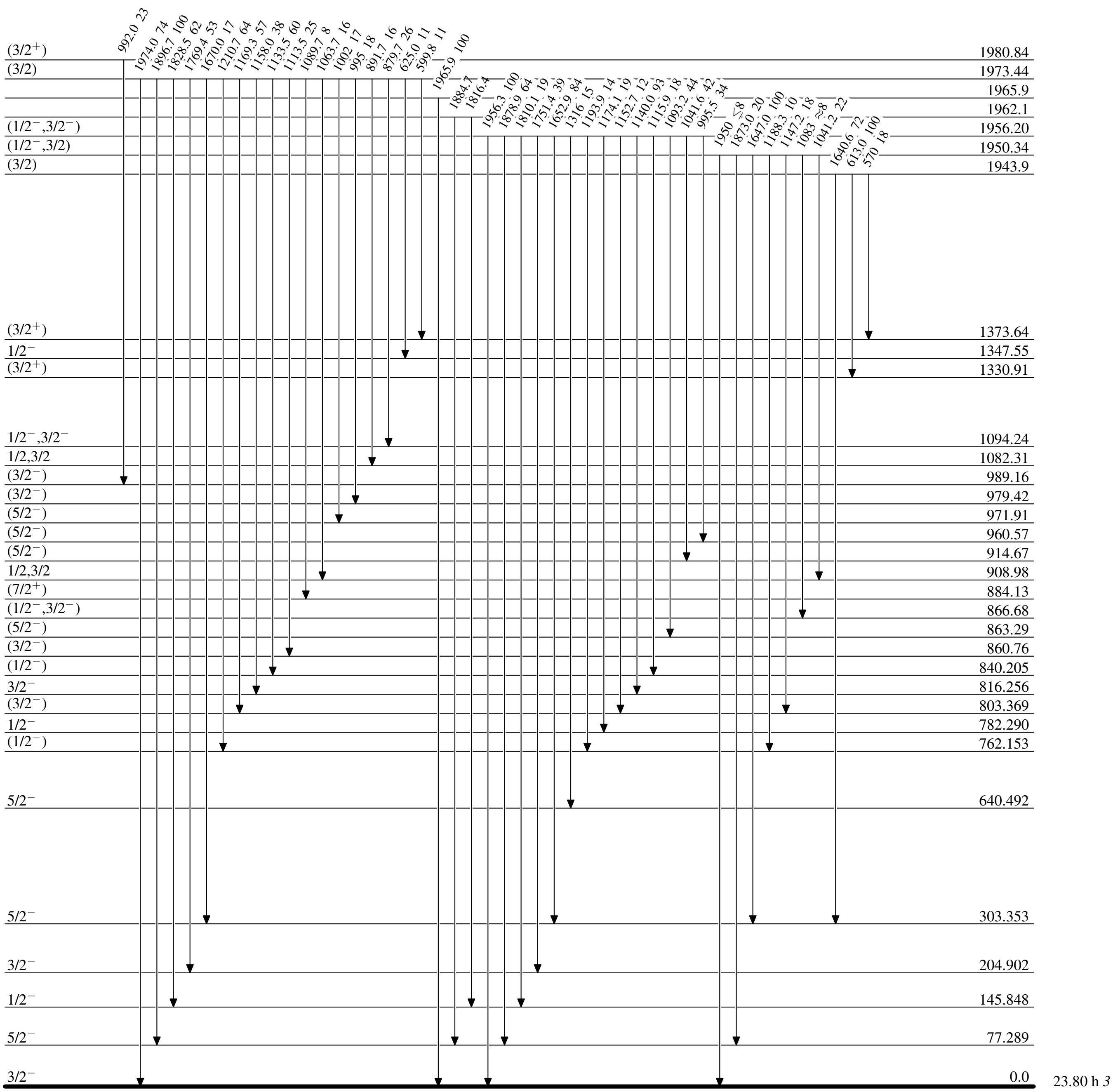
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

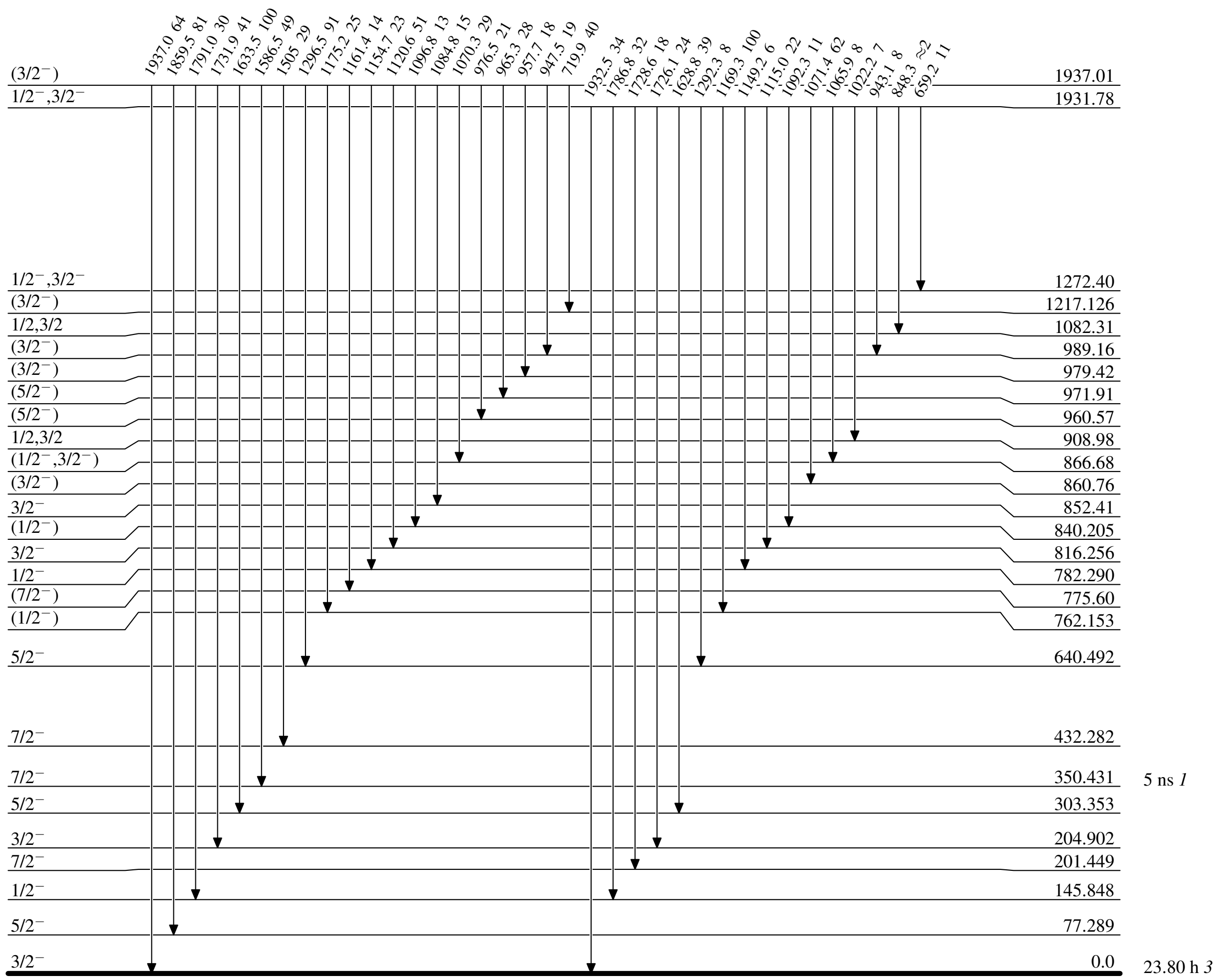


$^{187}_{74}W_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

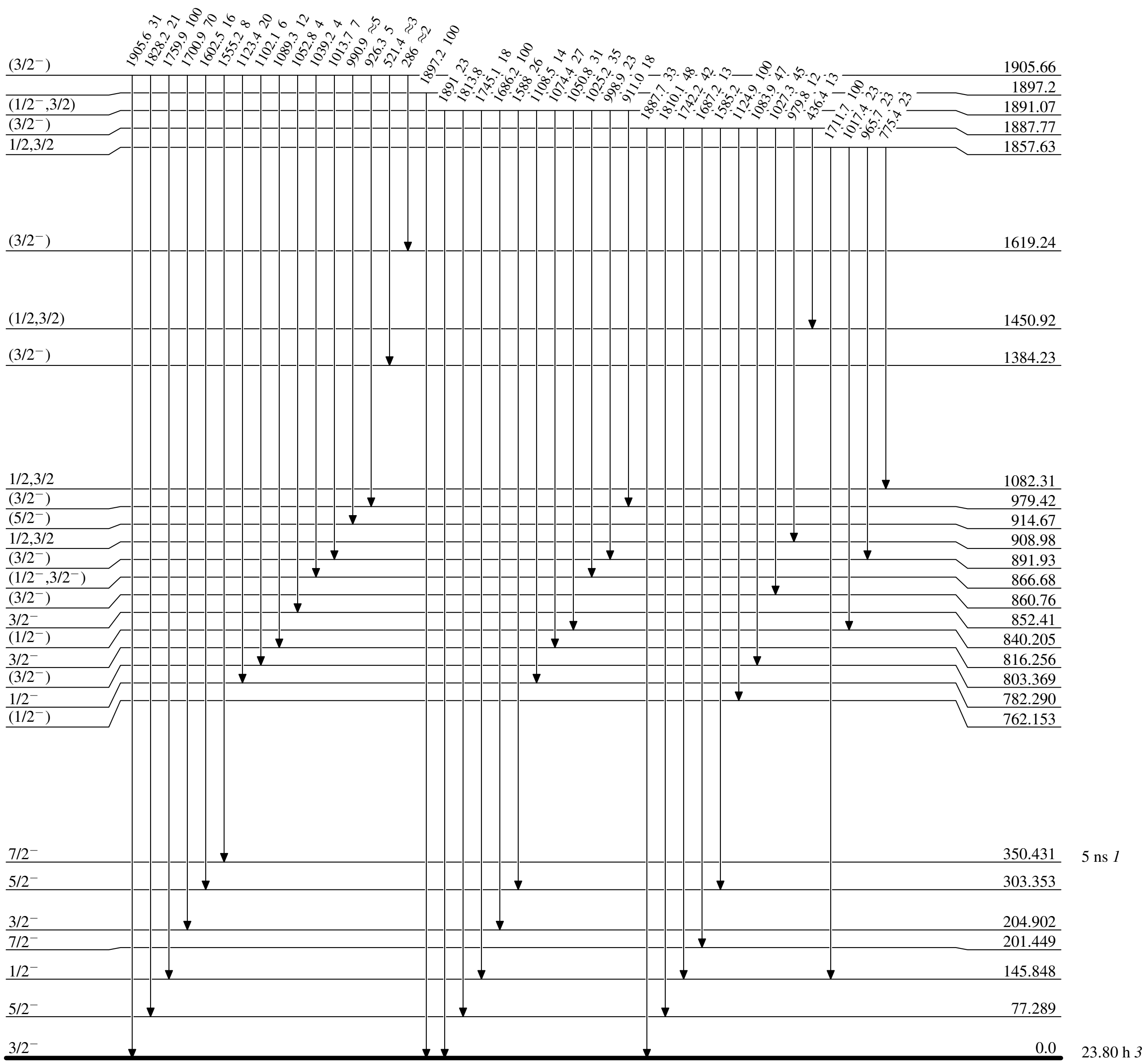


$^{187}_{74}W_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

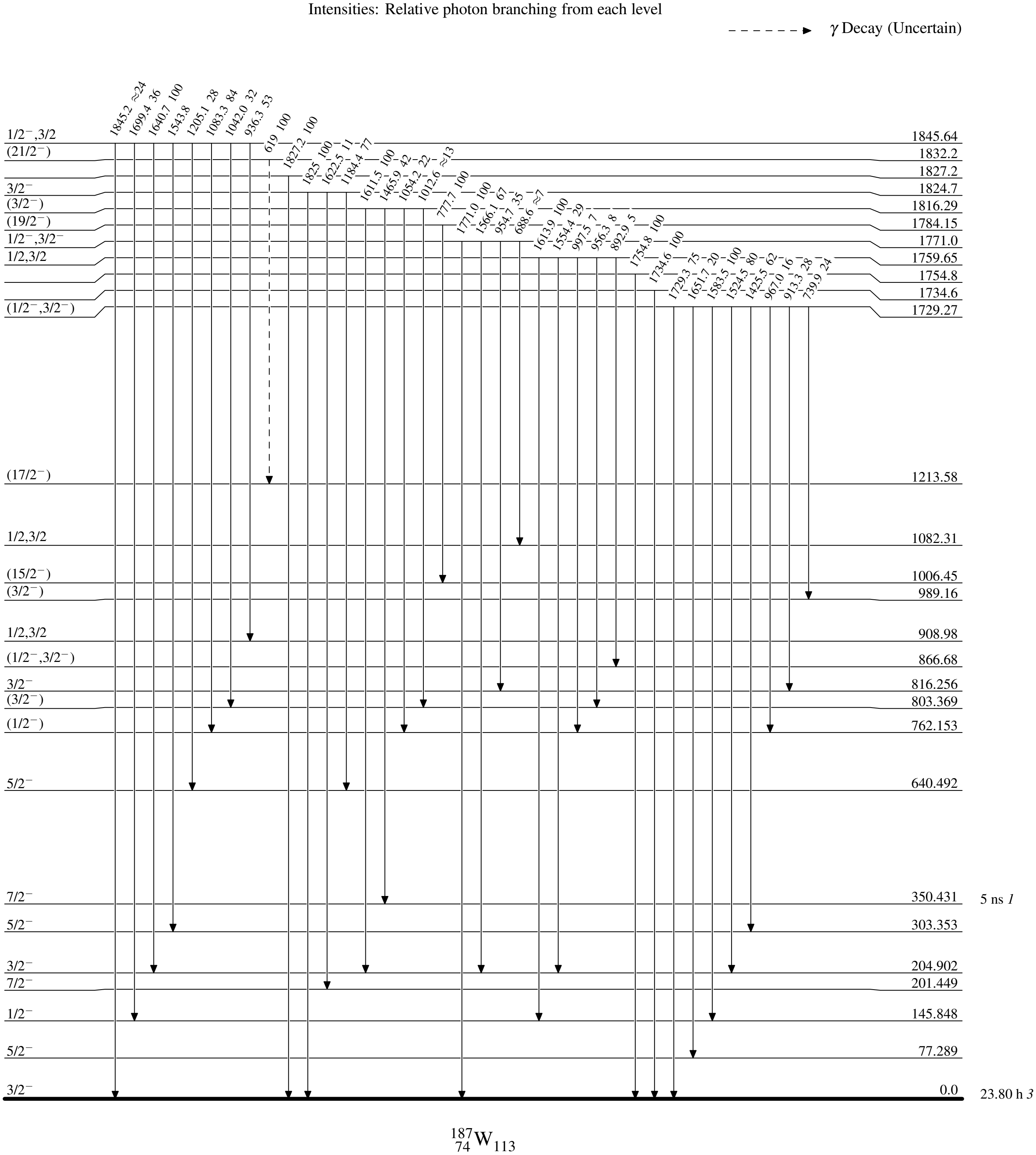


$^{187}_{74}W_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

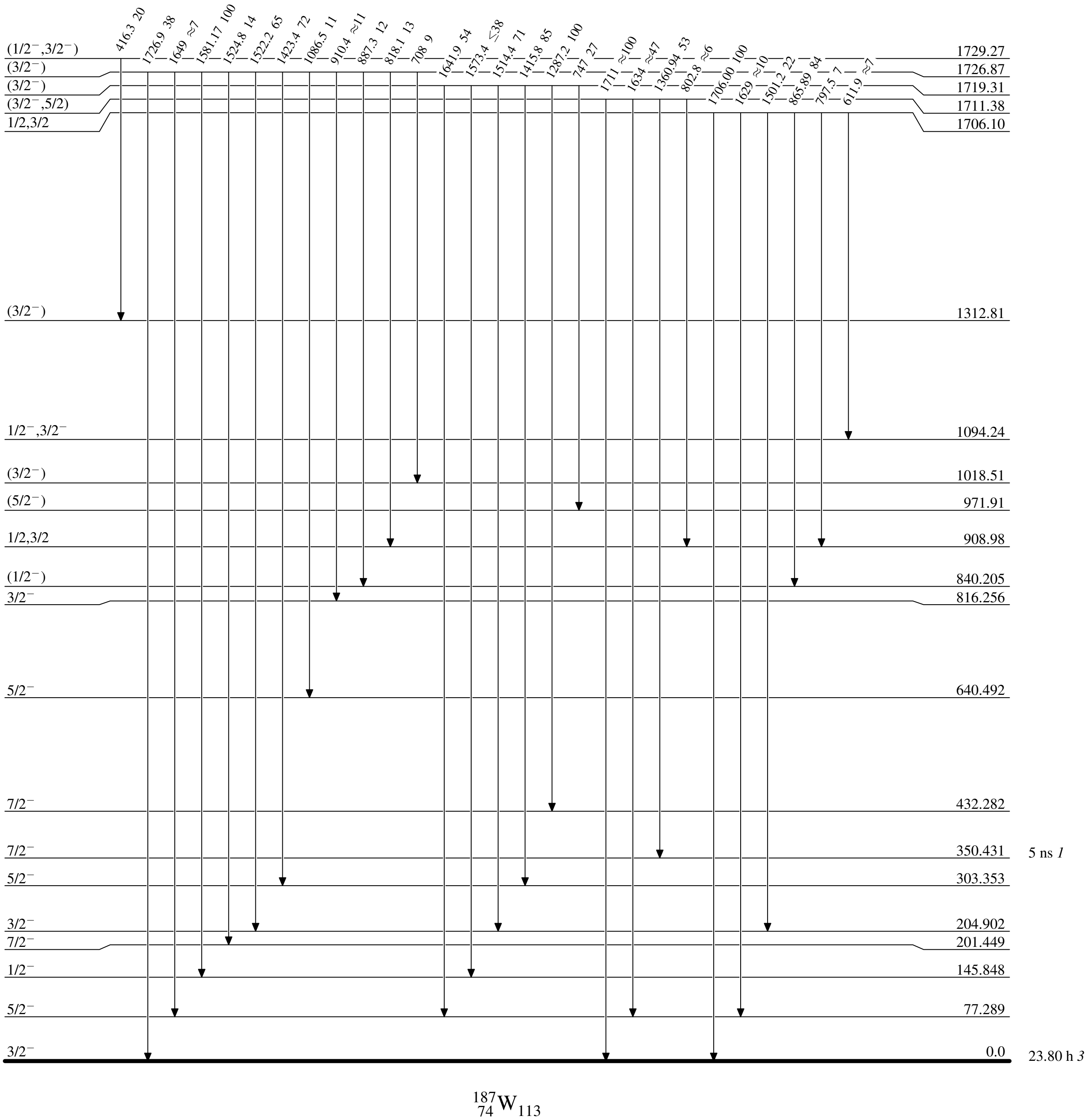
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

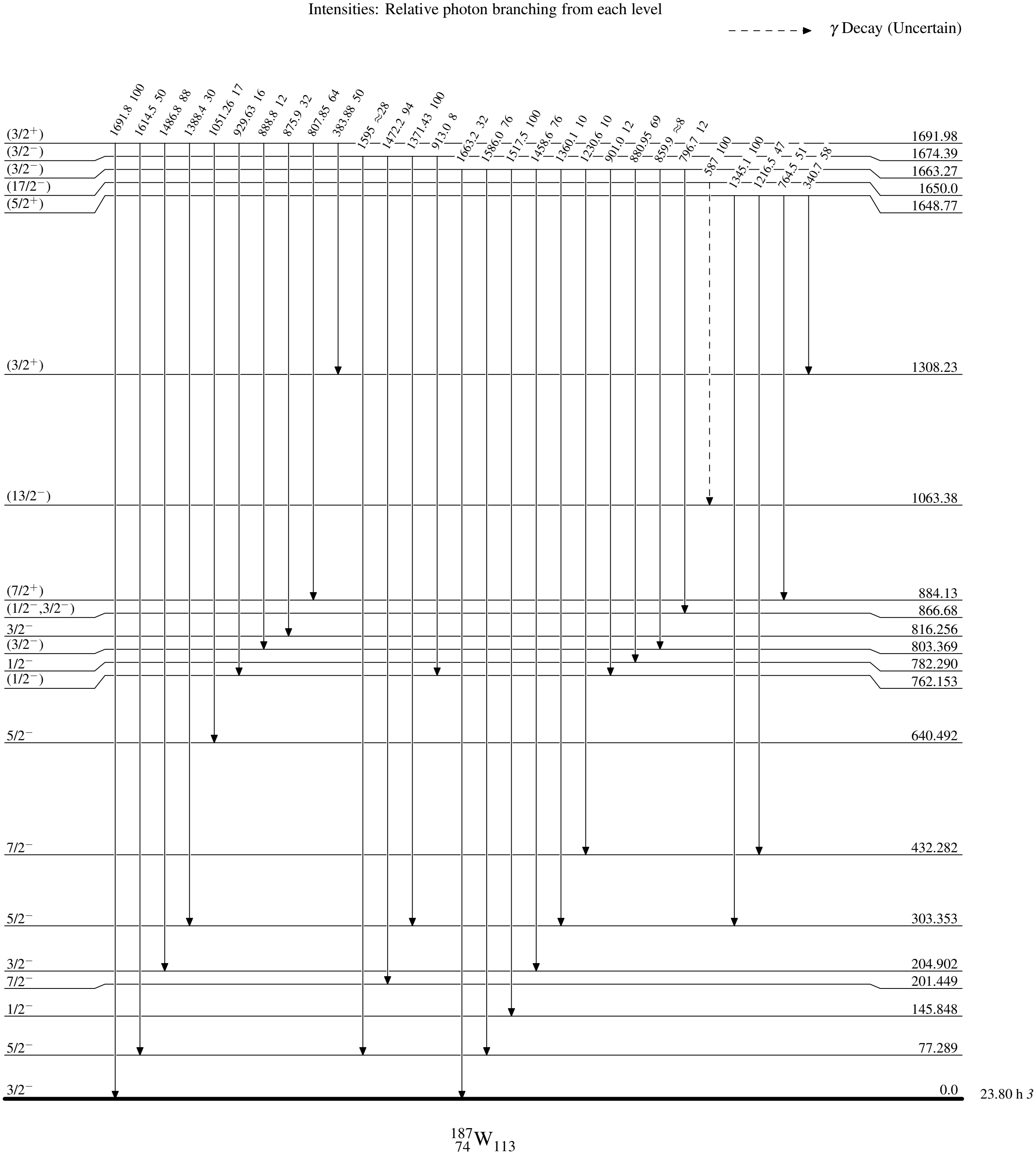
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

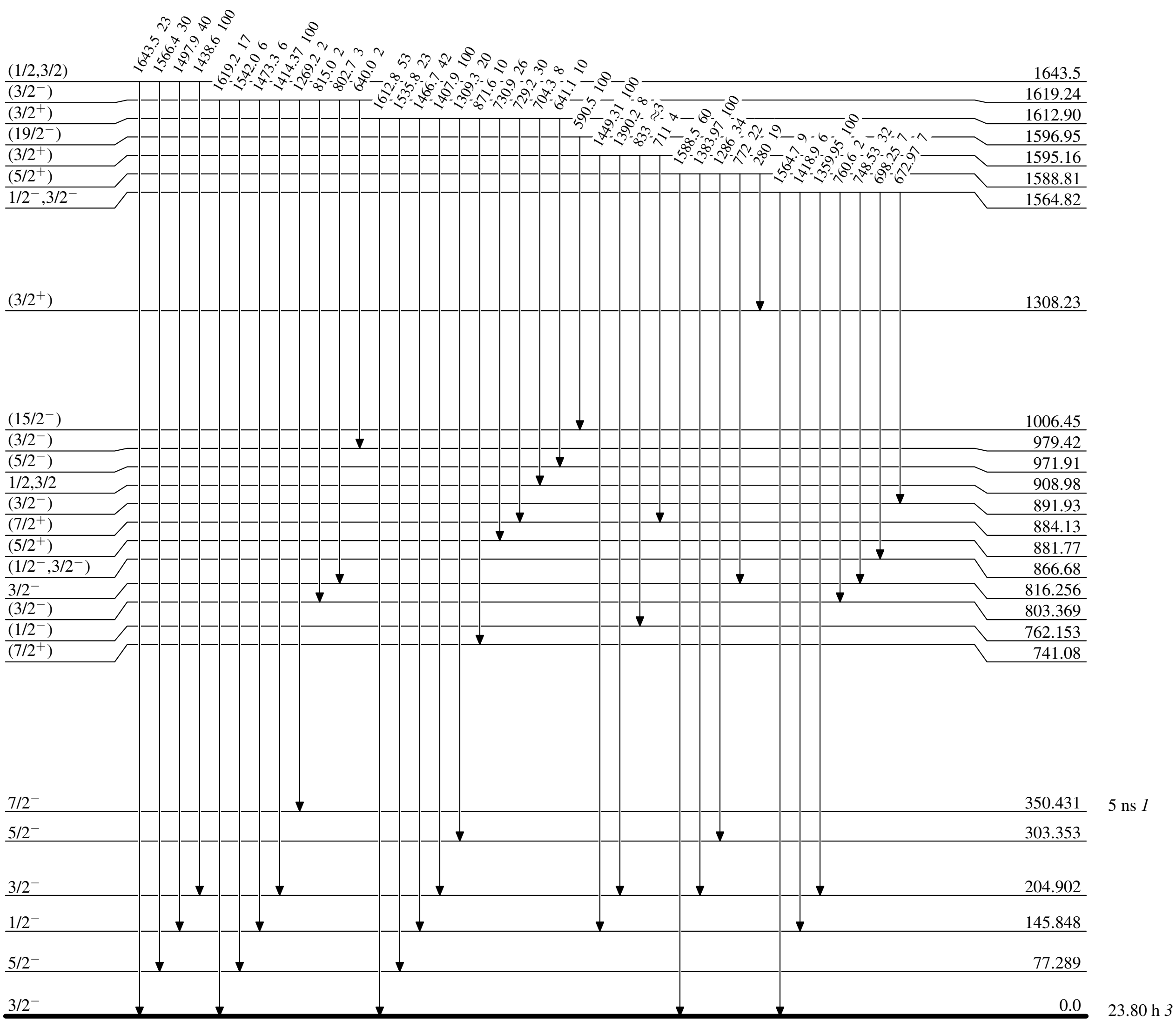
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

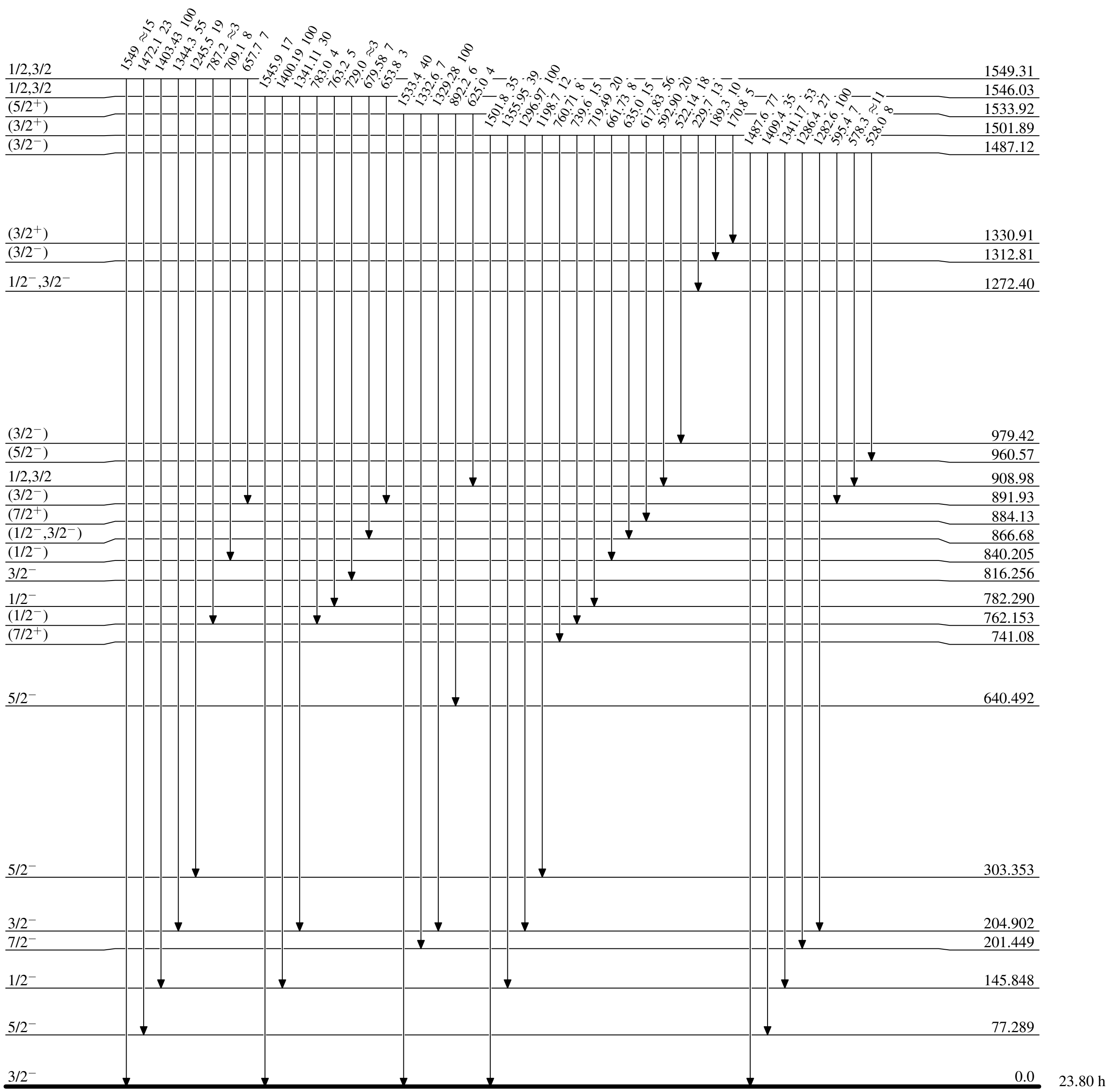
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

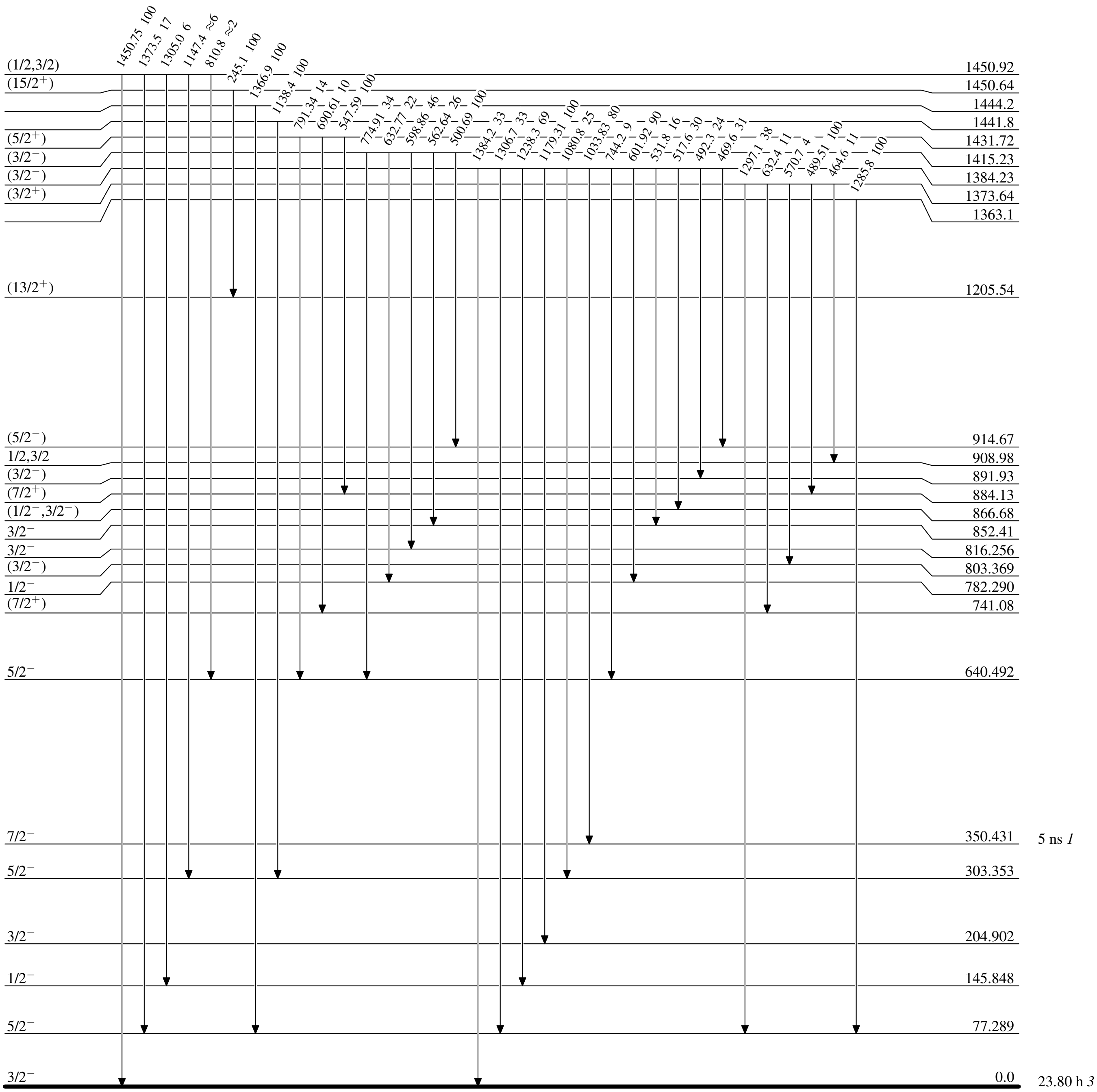


$^{187}_{74}W_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

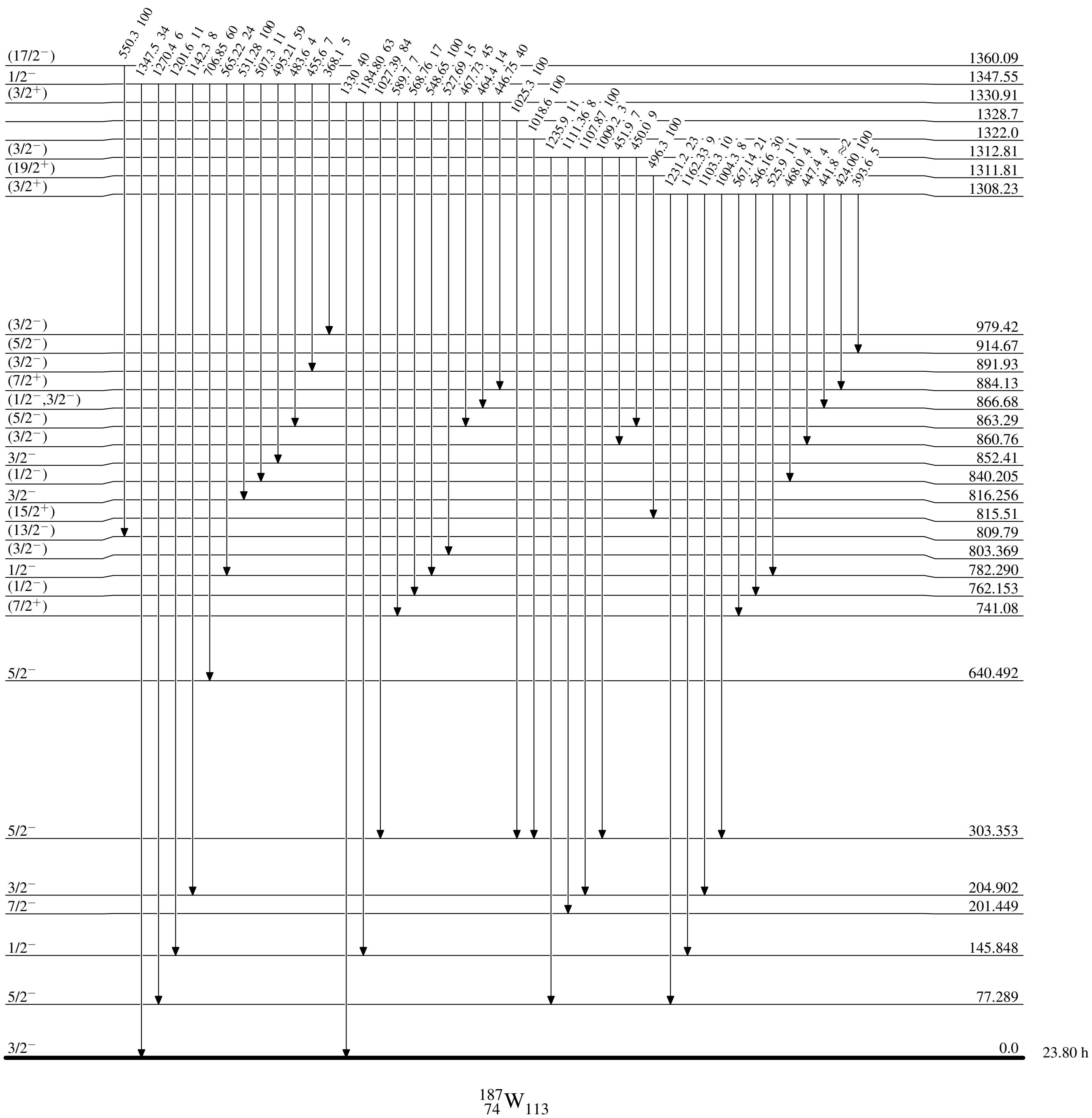
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

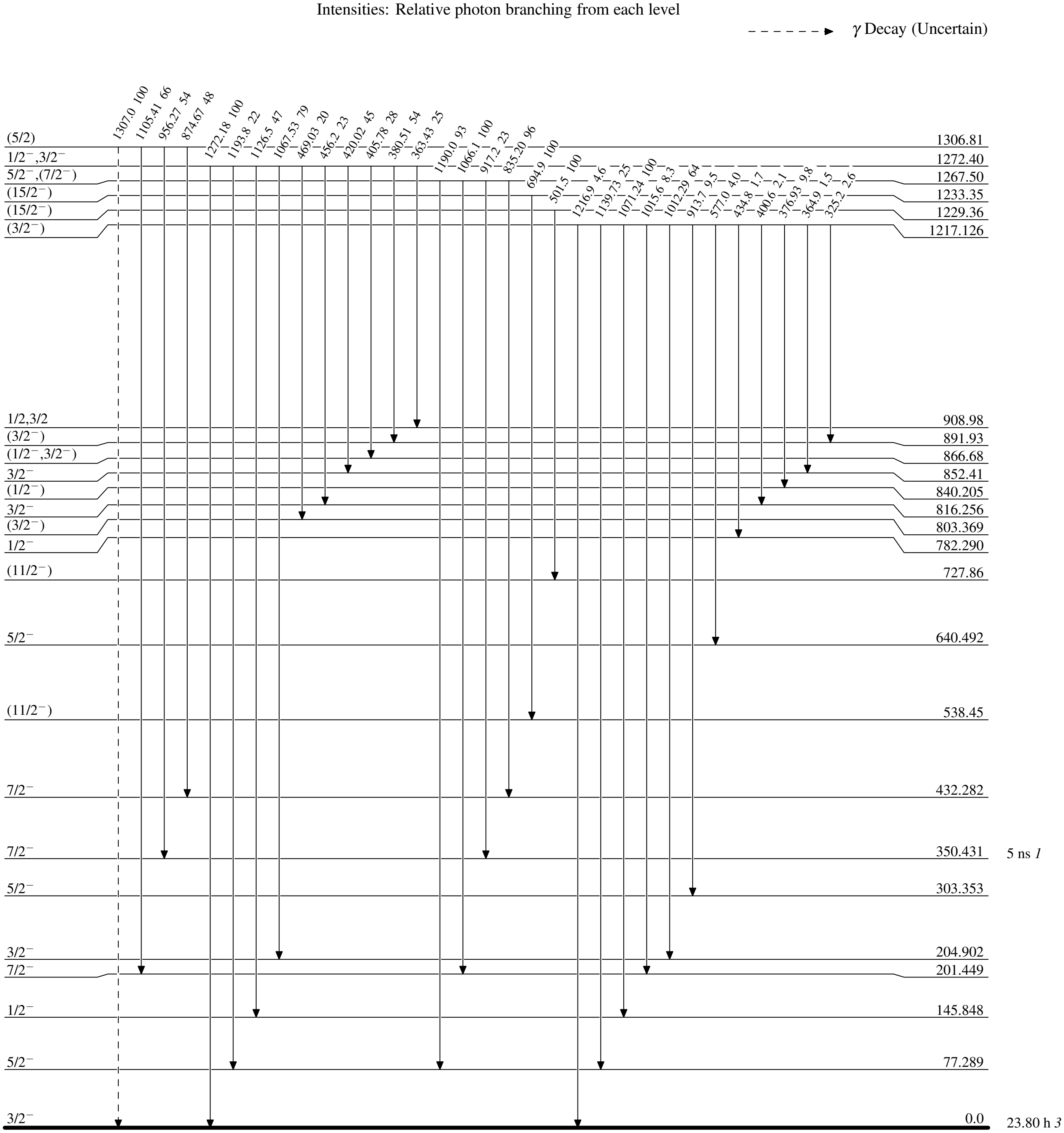
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

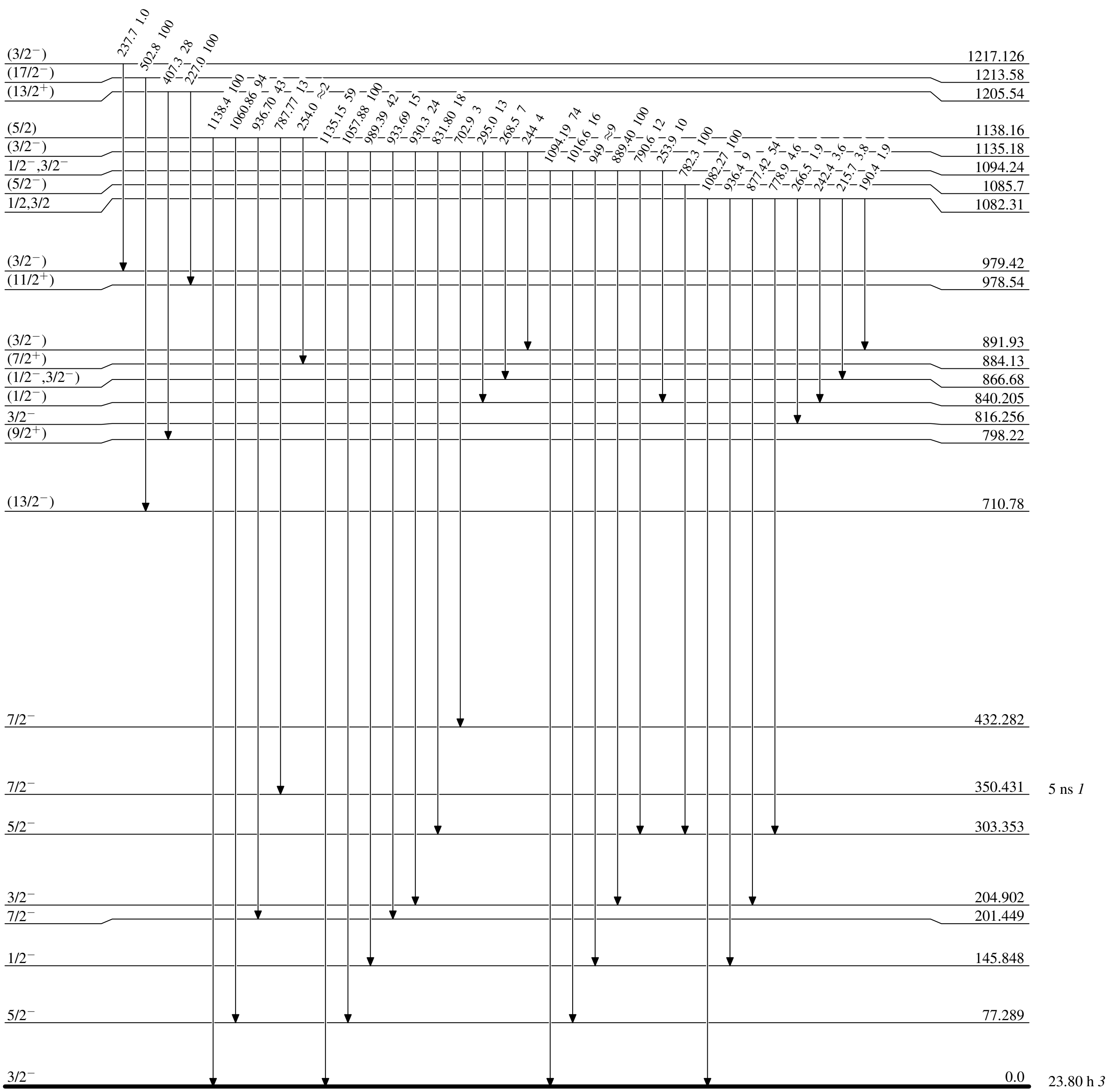


$^{187}_{74}W_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

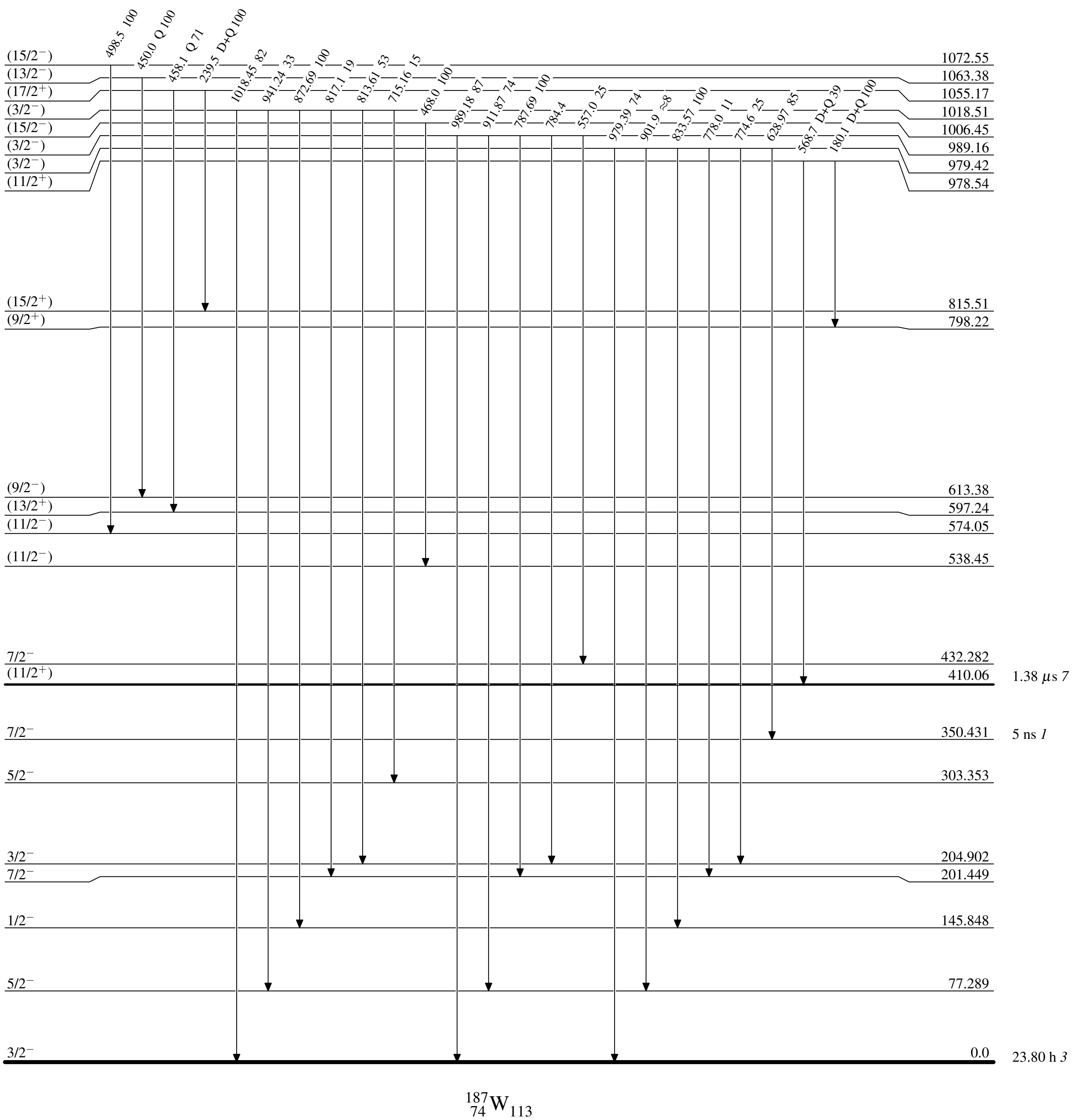


$^{187}_{74}W_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

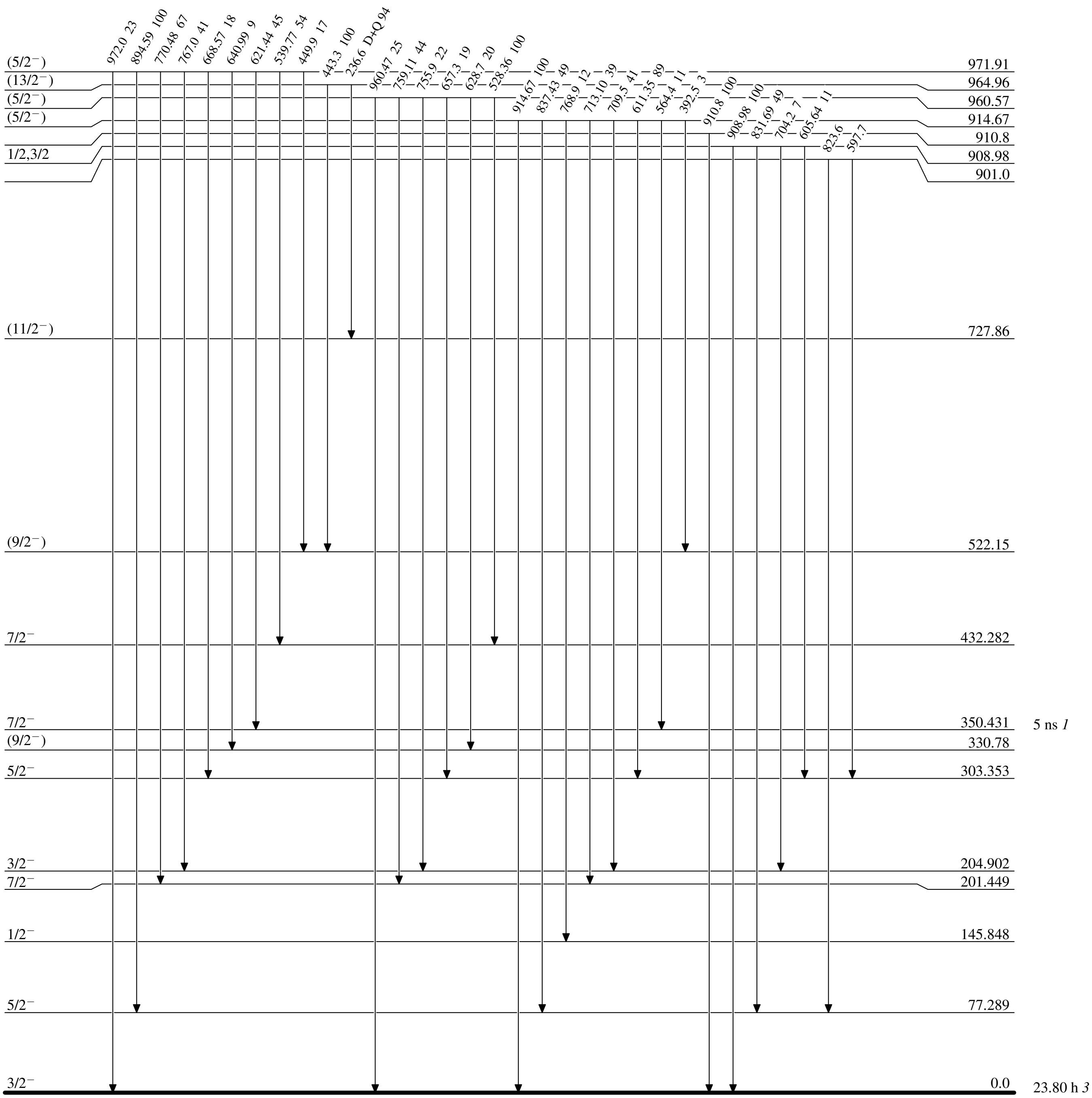
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

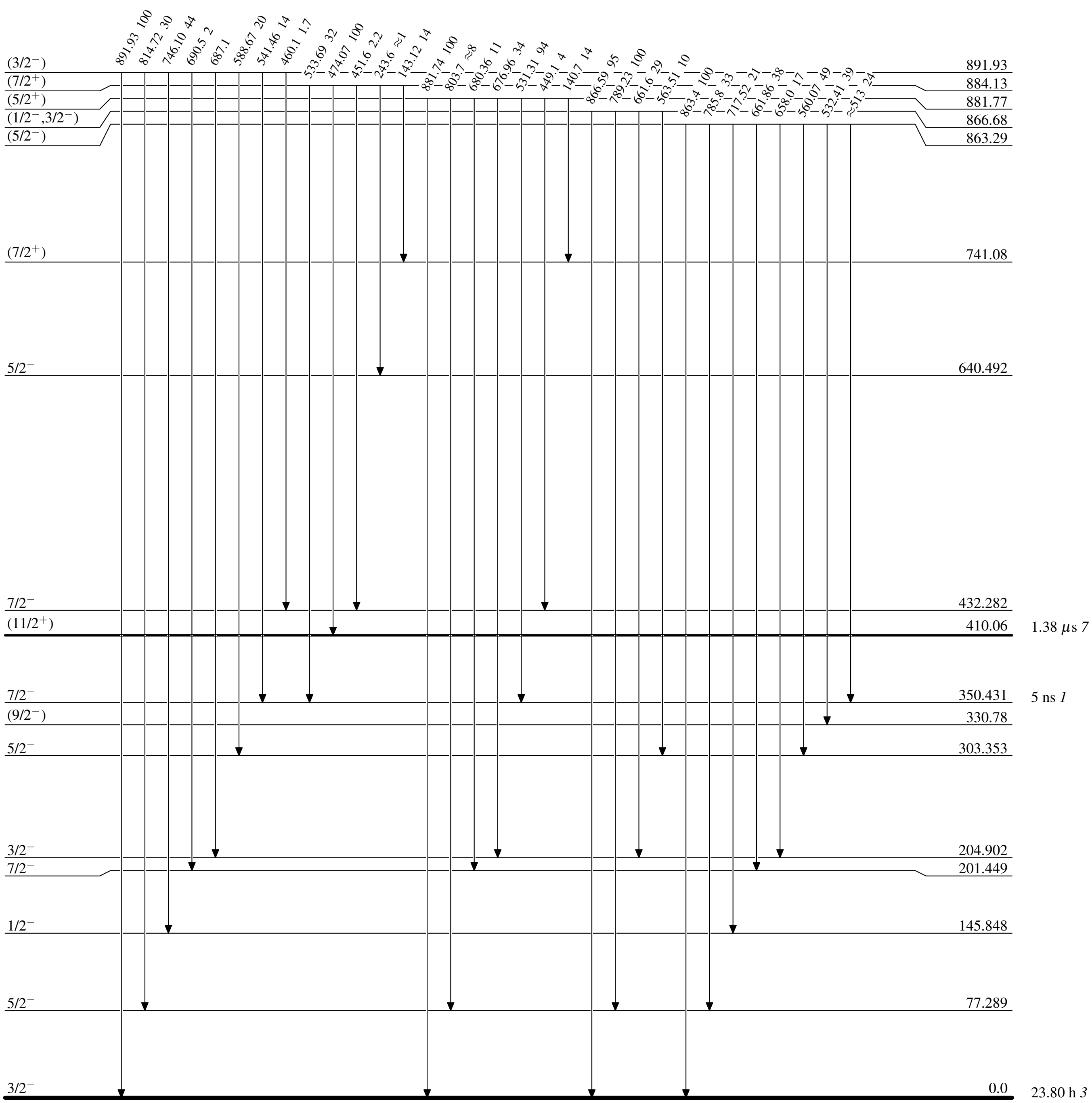
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

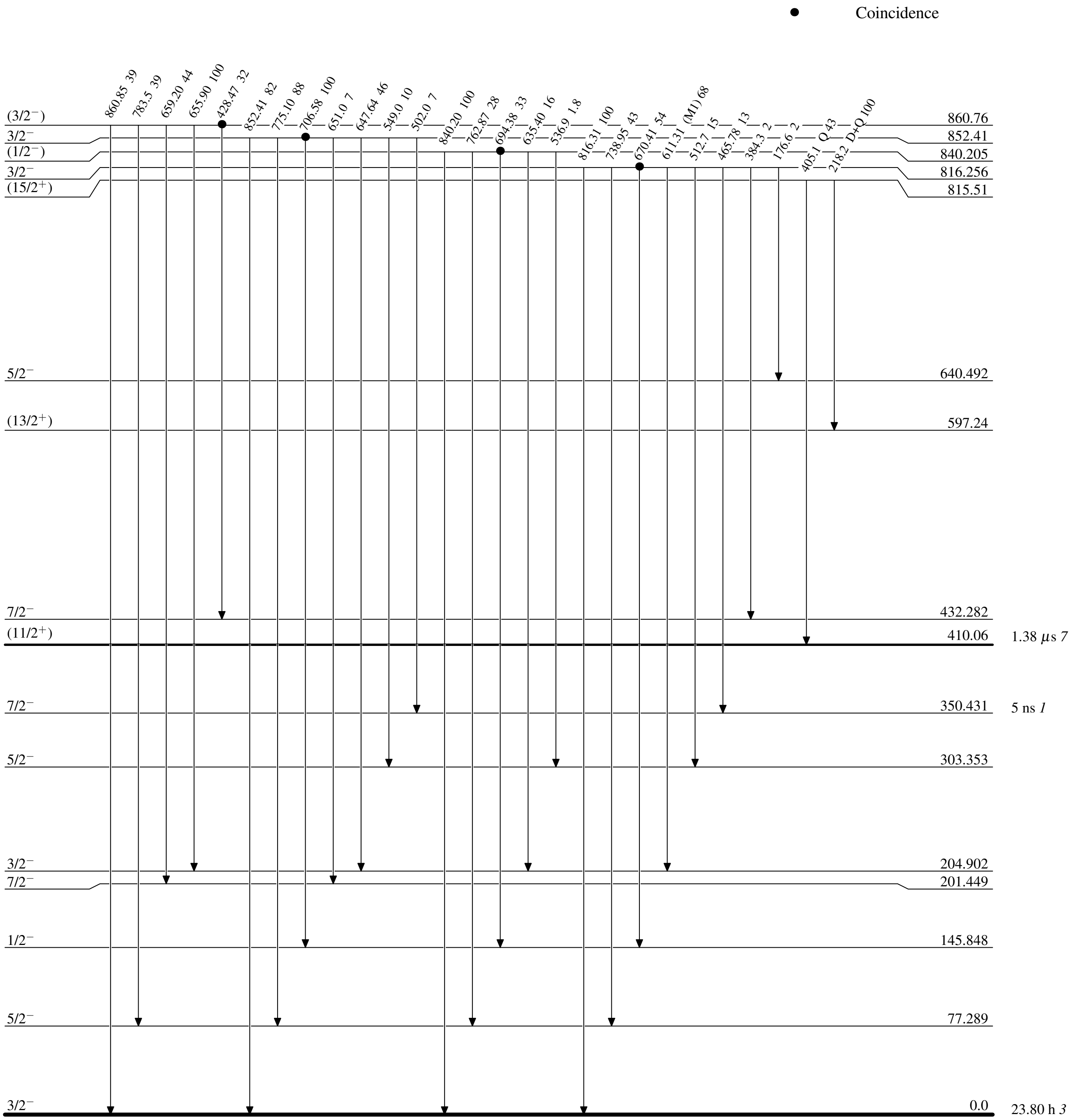


$^{187}_{74}W_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

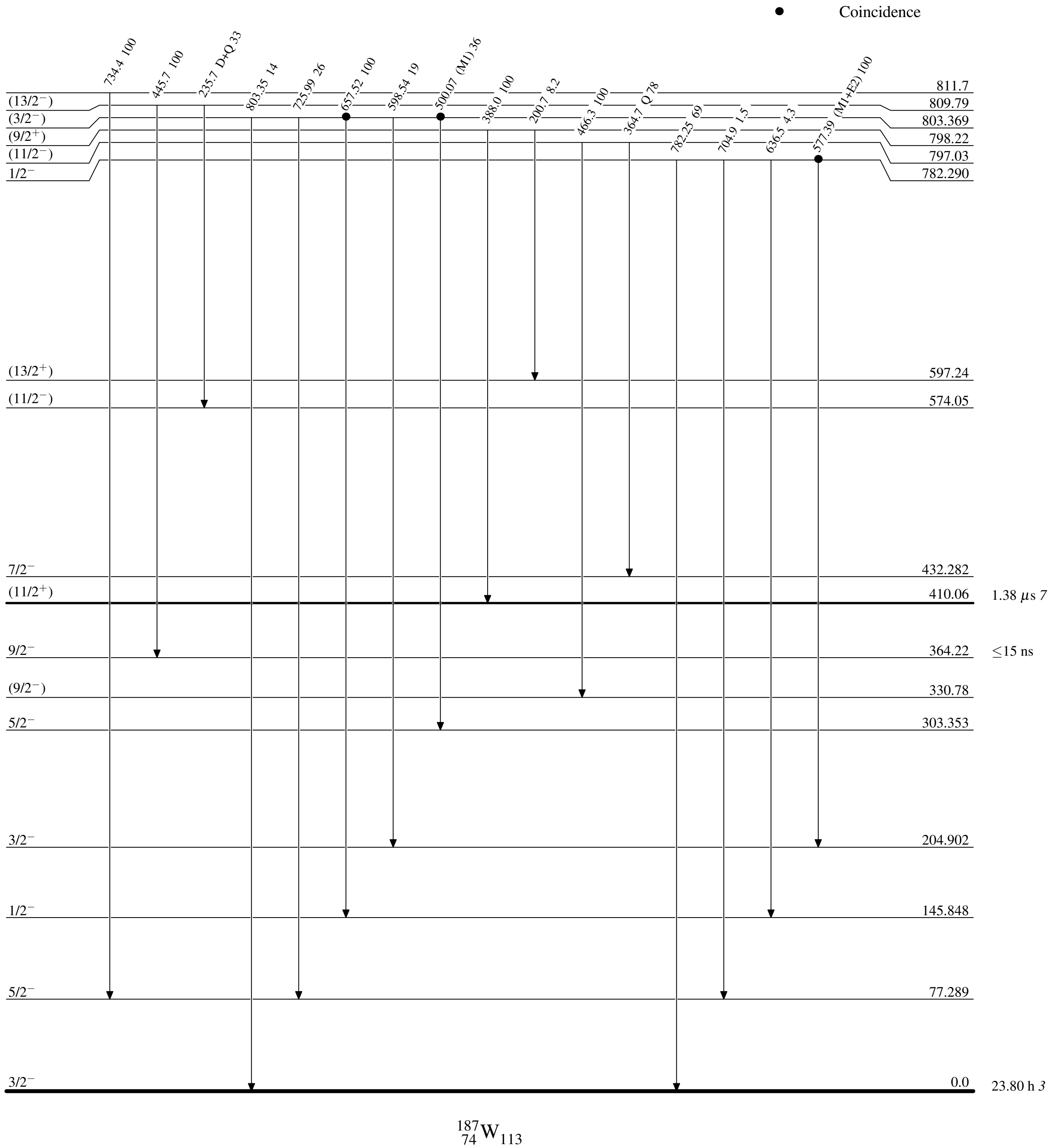


$^{187}_{74}W_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



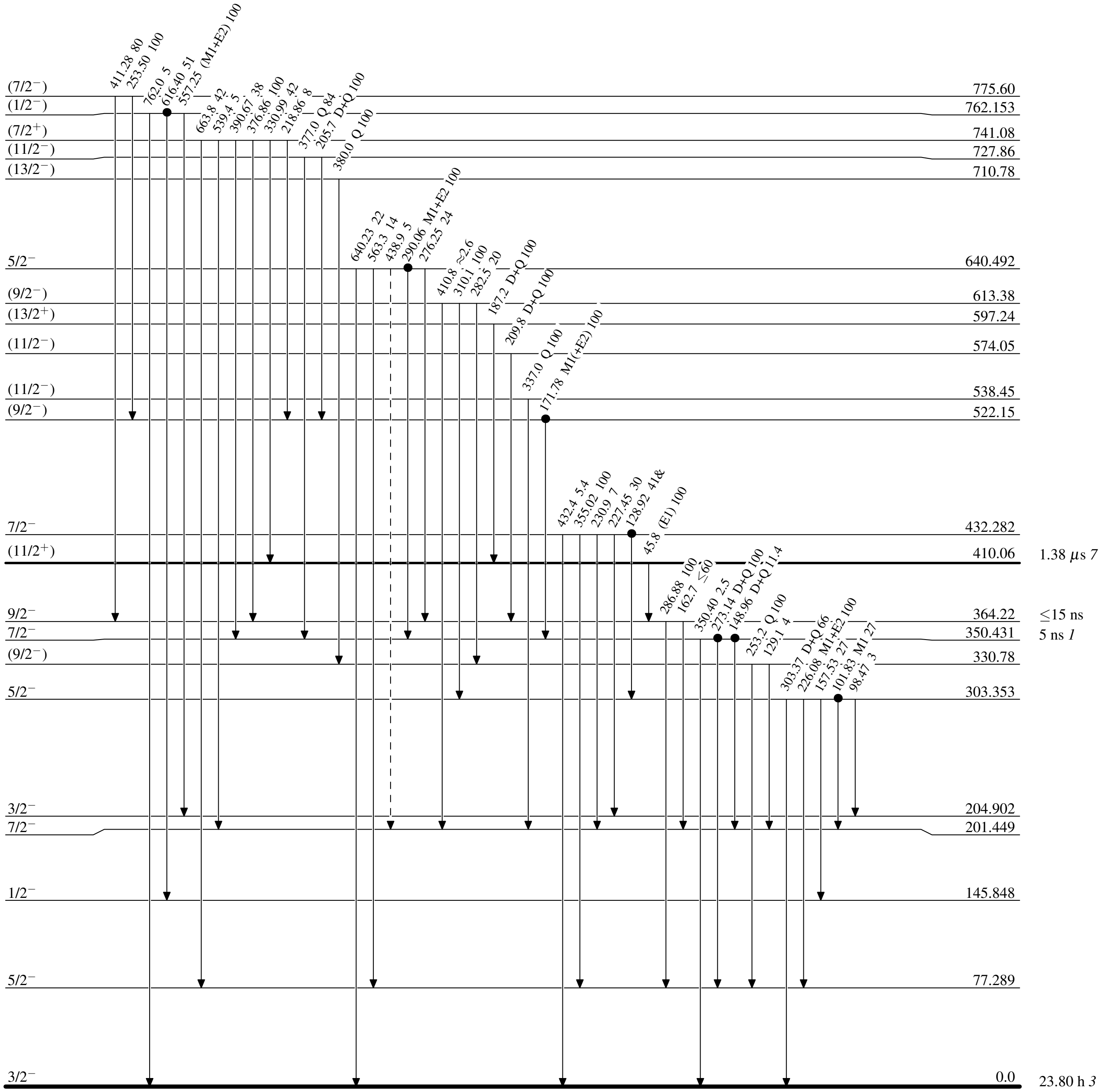
Adopted Levels, Gammas

Level Scheme (continued)

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

Legend

γ Decay (Uncertain)
Coincidence



$^{187}_{74}W_{113}$

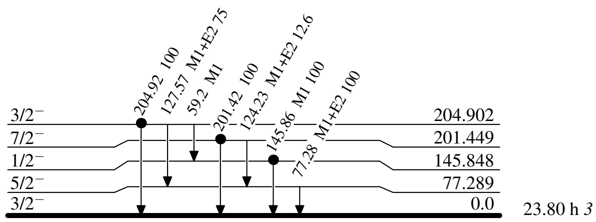
Adopted Levels, Gammas

Level Scheme (continued)

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

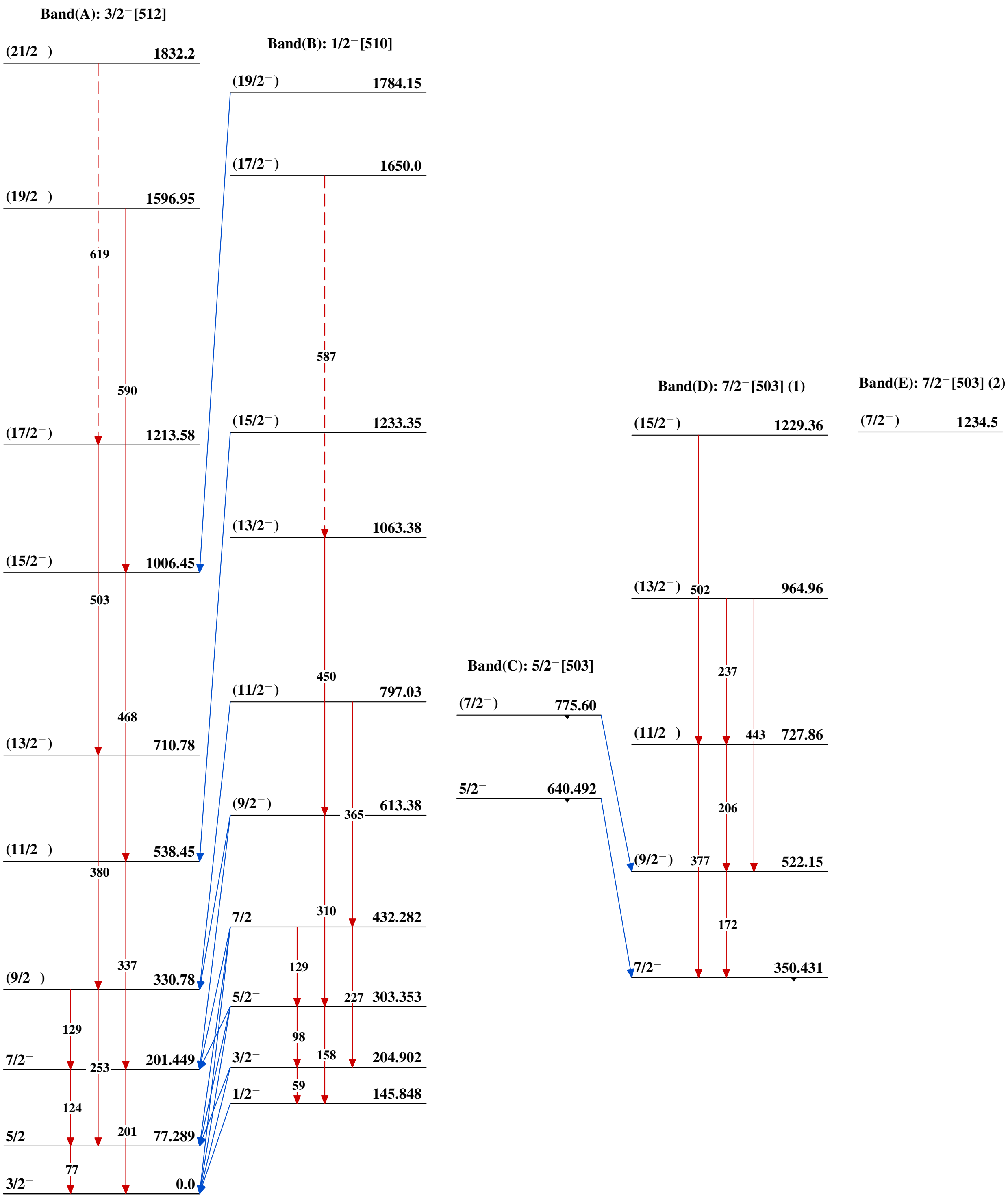
Legend

● Coincidence



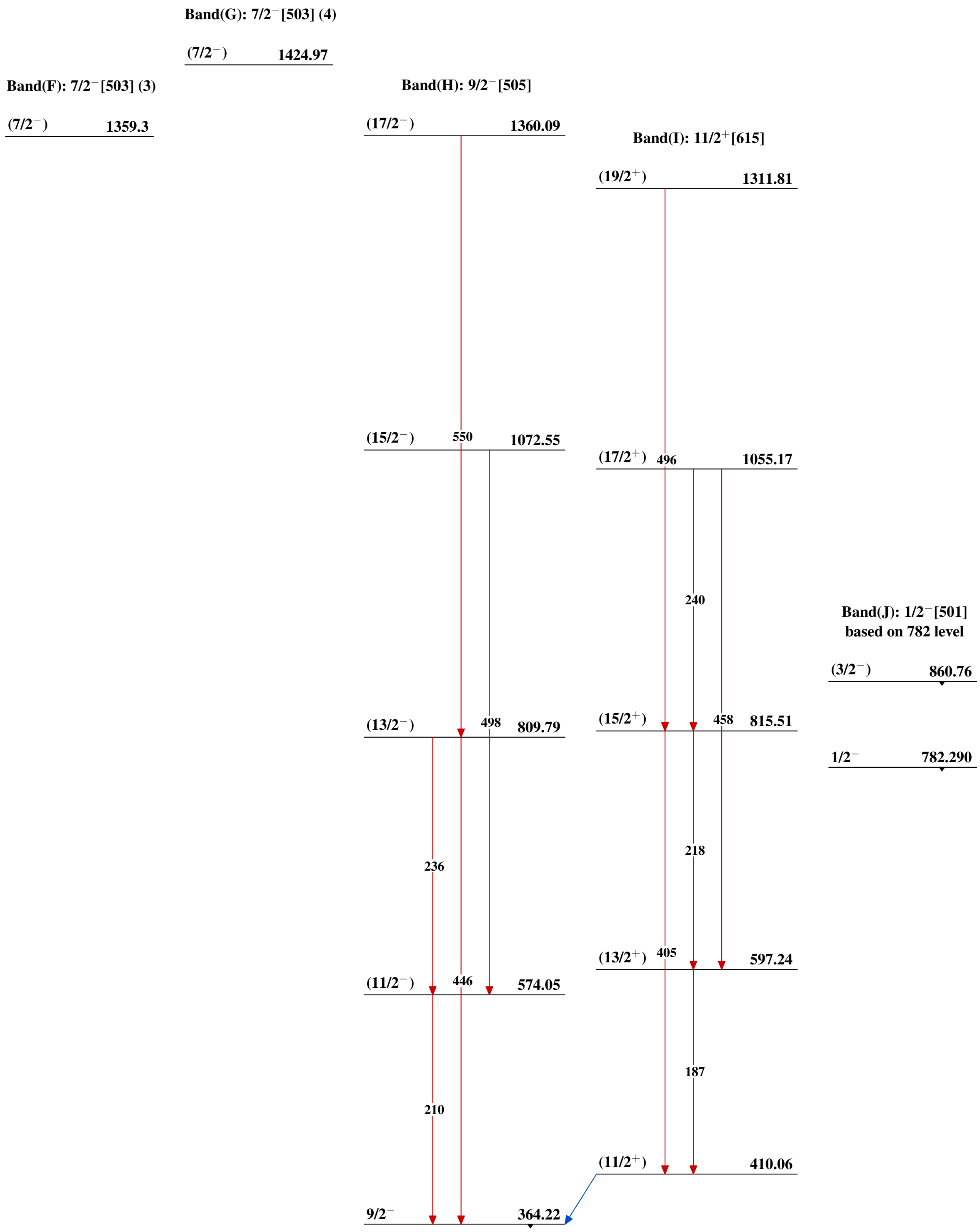
$^{187}_{74}W_{113}$

Adopted Levels, Gammas



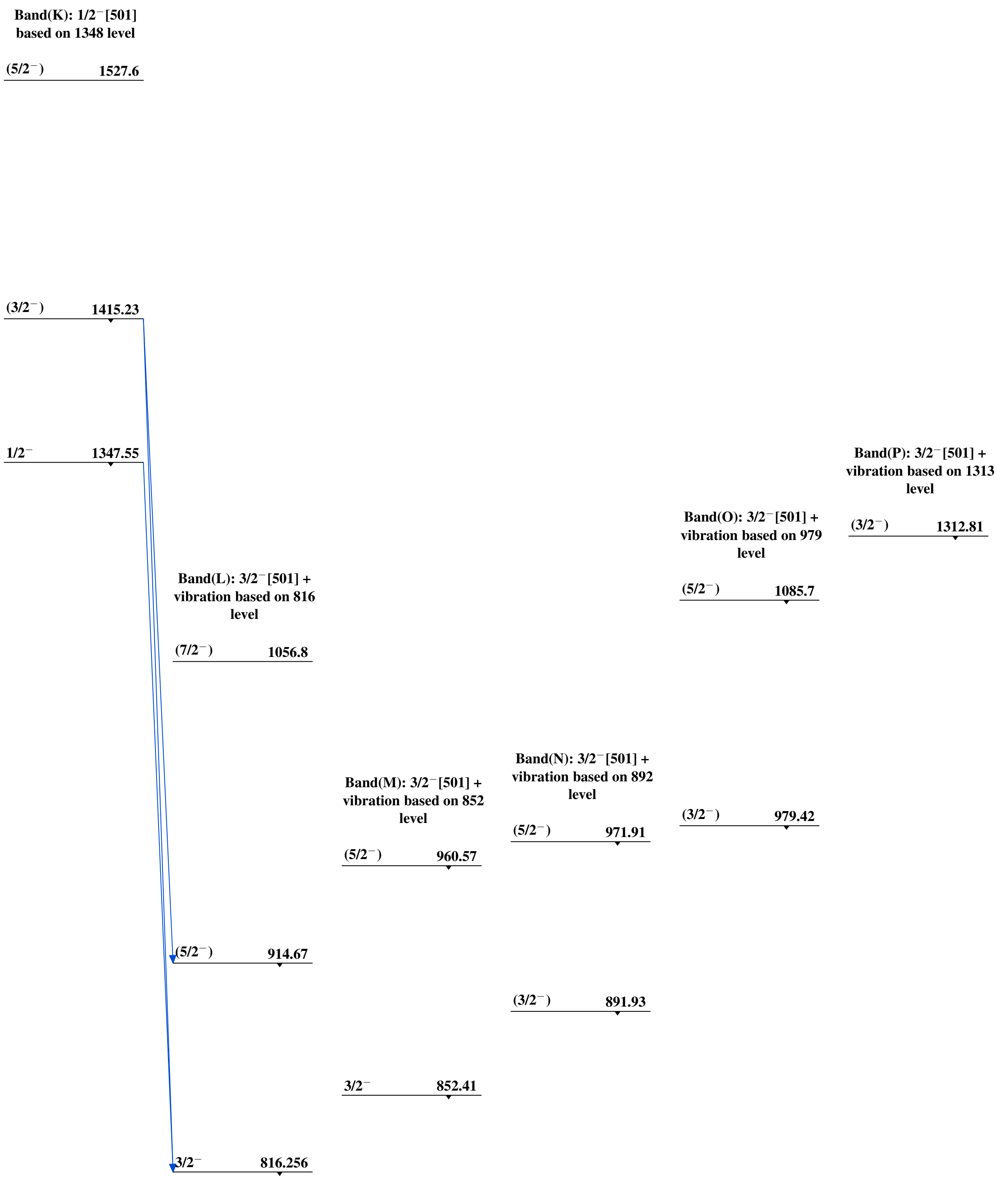
$^{187}_{74}W_{113}$

Adopted Levels, Gammas (continued)



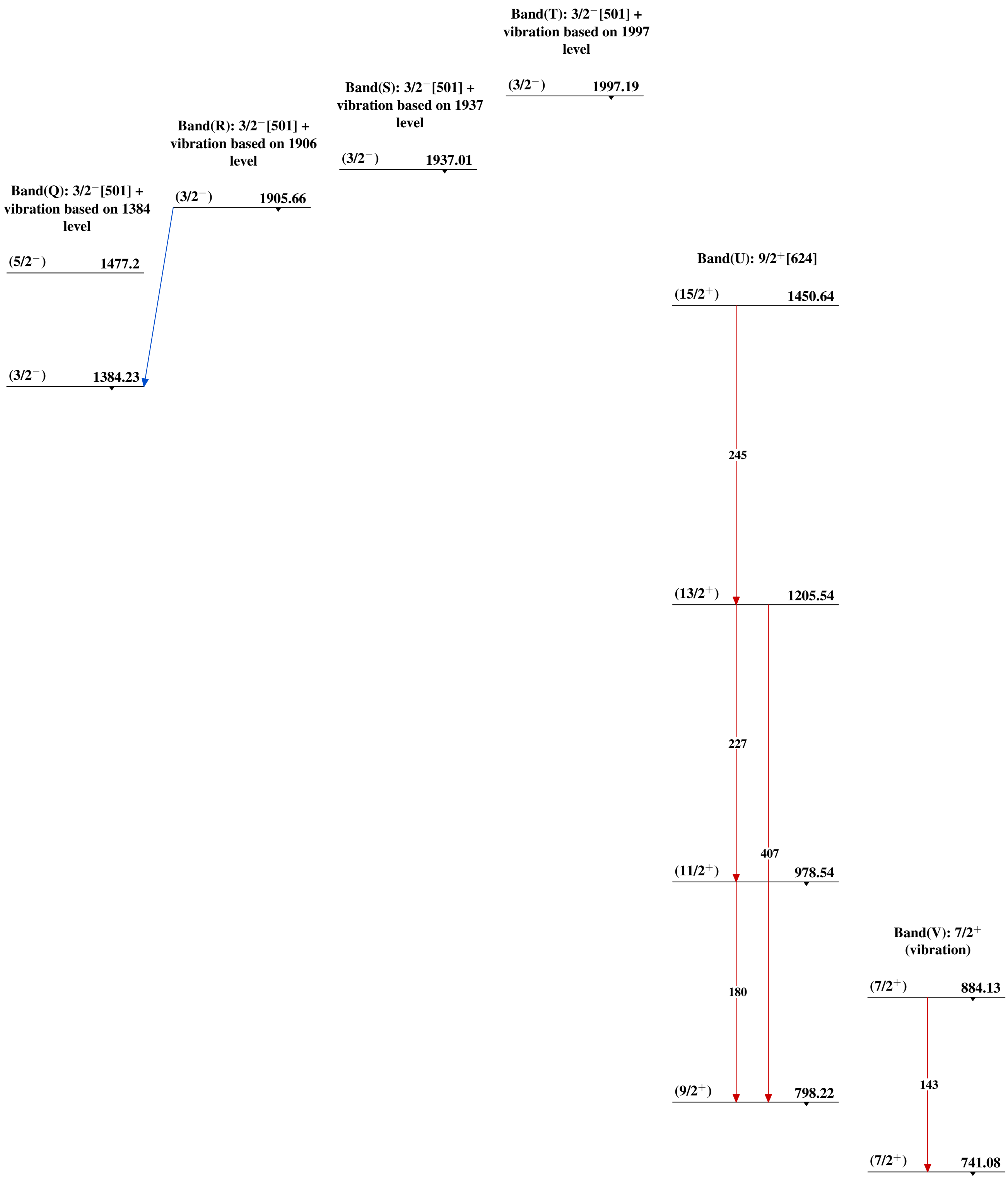
$^{187}_{74}W_{113}$

Adopted Levels, Gammas (continued)



$^{187}_{74}W_{113}$

Adopted Levels, Gammas (continued)



$^{187}_{74}W_{113}$