Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 111,275 (2010)	1-Oct-2009

Q(β^-)=−1483 *5*; S(n)=7411.66 *25*; S(p)=7700.4 *18*; Q(α)=1649.3 *20* 2012Wa38
Note: Current evaluation has used the following Q record −1481 4 *7411*.6026 *7700*.2 *17* 1657.0 *20* 2003Au03,2009AuZZ.
Q(α): From 2009AuZZ; 1656.2 *22* in 2003Au03.

Other Reactions:

^{184}W(e,e) (1973Ka44): E=42, 60, 65 MeV; deduced charge distribution parameters.
For isotope shift and/or hfs data see, for example, 1985Bo33, 1988Au04 1994Ji02, 1994Ji07, 1995Au08.

^{184}W Levels

Cross Reference (XREF) Flags

A	^{184}Ta β^- decay	J	^{184}W(d,d′)	S	Muonic atom
B	^{184}Re ε decay (35.4 d)	K	Coulomb excitation	T	^{198}Pt(^{136}Xe,Xγ)
C	^{184}Re ε decay (169 d)	L	^{186}W(p,t)	U	^{183}W(n,γ) E=thermal: $\gamma\gamma$ coin
D	^{183}W(n,γ) E=thermal	M	^{183}W(d,p)	V	^{183}W(n,γ) E=res
E	^{183}W(n,γ) E=7.6 eV	N	^{182}W(t,p)	W	^{184}W(α,α')
F	^{183}W(n,γ) E=2 keV	O	^{184}W(γ,γ')	X	^{186}W(N,3nγ)
G	^{183}W(n,γ) E=300 eV	P	^{184}W(γ,γ):Mossbauer	Y	^{184}W(γ,X)
H	^{184}W(n,n′)	Q	^{184}W(p,p),(p,p′),(pol p,p′)	Z	^{184}W(^{12}C,^{12}C′), (^{18}O,^{18}O′)
I	^{184}W(n,n′γ)	R	^{186}W(^{12}C,^{14}C)		

E(level)[†]	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0[e]	0+[f]	stable	ABCDEFGHIJKLMNOPQ STUVW Z	Δ<r^2>(^{186}W,^{184}W)=0.085 *4*, Δ<r^2>(^{184}W,^{182}W)=0.099 *5* (1994Ji02). Δ<r^2>(^{186}W,^{184}W)=0.084 *7* (1988Au04). <r^2>$^{1/2}$(charge)=5.3670 *17* (2004An14). J$^\pi$: L(p,t)=0. T$_{1/2}$: α decay searched for but not observed. T$_{1/2}\geq$8.9×10^{21} y (2004Co26), T$_{1/2}\geq$1.8×10^{20} y (2003Da05), T$_{1/2}\geq$2.9×10^{19} y (2003Ce01), T$_{1/2}\geq$4.0×10^{18} y (1997Ge15), all at 90% confidence level. Others: T$_{1/2}$>2×10^{17} y (1960Be13), T$_{1/2}$>3×10^{17} y (1961Gr37).
111.2174[e] *4*	2+[f]	1.251 ns *12*	ABCDEFGHIJKLMNOPQ STUVWX Z	μ=+0.578 *14* (1984Al06) Q=−1.87 *20* (1977RuZV) μ: from g=+0.289 *7* (1984Al06; IPAC); corrected for Knight shift and diamagnetism. Other: +0.576 *14* (1972Ca12; Coulomb excitation integral perturbed angular distribution). Other g-factor data: 1961Ha21, 1962Go17. Q: From Coulomb excitation reorientation. Other data: Q/Q(^{182}W)=0.938 *15* (1968Pe06), 0.930 *16* (1969Ch23), 0.965 *8* (1971Ob02). Isomer shift δ<r^2>/<r^2> =+0.19×10^{-4} *12* (1971HaWV), ≈+0.13×10^{-4} (1971WaYS). δ<r^2>/δ<r^2>(^{182}W)=−0.8 *7* (1971HaWV), −0.81 *22* (1971WaYS). J$^\pi$: E2 111γ to 0$^+$ g.s.. T$_{1/2}$: from ^{184}Re ε decay (35.4 d) (1984Al06). Other values: 1.23 ns *4* (from B(E2)), 1.24 ns *3*, 1.28 ns *2*,

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Adopted Levels, Gammas (continued)

^{184}W Levels (continued)

E(level)[†]	J$^{\pi}$	T$_{1/2}$	XREF	Comments
				1.22 ns *9*, all from Coulomb excitation), 1.19 ns *4* (muonic atom), 1.29 ns *12* (Mossbauer). The weighted average of all these data is 1.253 ns *14*.
364.069[e] *8*	4+[f]	46.3[b] ps *+25−13*	ABCDE HIJKLMN Q TU WX Z	μ=+1.17 *9* μ: from g=+0.293 *23* (1984Al06; IPAC). Other: 1970BlZT. J$^{\pi}$: E4 excitation from 0$^+$. Other T$_{1/2}$: 40 ps *5* from RDM in Coulomb excitation.
748.320[e] *12*	6+[f]	5.75[b] ps *18*	A CDE HIJKL N Q T WX	μ=+1.79 *26* μ: from g=+0.299 *43* (1984Al06; IPAC). Other:+1.85 *20* (1985St18; transient field) if g(364 level)=+0.293 *23*. J$^{\pi}$: E2 to 4$^+$, band assignment. Other T$_{1/2}$: 5.2 ps *6* from RDM in Coulomb excitation.
903.307[g] *9*	2+[h]	1.80[b] ps *4*	ABCDEFGHIJKLMN Q UVW	μ=+0.25 *8* (1985St18) Q=+0.1 *+4−3* (1977Ob02,1977Ob01) From g/g(364 level)=0.42 *14* if g(364 level)=0.293 *23*. Method: transient field. Q: from Coulomb-excitation reorientation. J$^{\pi}$: E2 539γ to 0$^+$. Other T$_{1/2}$: 2.3 ps *3* from RDM in Coulomb excitation.
1002.49[d] *4*	0+		DEFGHIJ L N Q UV	J$^{\pi}$: L=0 in (p,t) and (t,p). Other E: 1003.3 *4* in (p,t).
1005.971[g] *10*	3+[h]		ABCDEF I K U	J$^{\pi}$: M1+E2 894γ to 2$^+$ 111; M1+E2 642γ to 4$^+$ 364.
1121.440[d] *14*	2+	56 ps *7*	B DEFGHIJKLMN UVW	J$^{\pi}$: E2 757γ to 0$^+$. T$_{1/2}$: from B(E2)↑=0.00052 *6* in Coulomb excitation and adopted γ properties. However, B(E2) and B(E2)(W.u.) values given in Coulomb excitation for 1121γ are inconsistent by a factor of ≈2.
1130.045[i] *9*	(2)−		ABCDEFG I	J$^{\pi}$: E1+M2+E3 227γ to 2$^+$ 903; reduced Iγ for M1 primary γ from 0$^-$,1$^-$ in (n,γ) E=300 eV favors 0$^-$,2$^-$; (E1) 124γ to 3$^+$ 1005.
1133.850[g] *10*	4+[h]	2.30[b] ps *17*	ABCDE HIJKLM Q T	J$^{\pi}$: E2 230γ to 2$^+$ 903; γ band member. Other T$_{1/2}$: 2.6 ps *3* from RDM in Coulomb excitation.
1221.308[i] *8*	3−	45[b] ps *5*	A CDE GHIJKL N W	J$^{\pi}$: E1+M2 1110γ to 2$^+$ 111; E1 857γ to 4$^+$ 364.
1252.2[e] *7*	8+[f]	1.49[b] ps *3*	K T X	μ=+2.9 *6* (1985St18) μ: from g/g(364 level)=1.22 *24* if g(364 level)=0.293 *23*; transient field. J$^{\pi}$: E2 504γ to 6$^+$, band assignment. Other T$_{1/2}$: 1.37 ps *17* from RDM in Coulomb excitation.
1282.71 *10*	(1,2)−		G IJ	J$^{\pi}$: M1 primary γ from 0$^-$,1$^-$ in (n,γ) E=300 eV. Possible γ to 2$^+$.
1284.997[n] *8*	5−	8.33 μs *18*	A CDE IJ	T$_{1/2}$: from (216γ)(200<E(γ)<1000)(t) (1969Gl04) in ε decay (169 d). Other T$_{1/2}$:

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Adopted Levels, Gammas (continued)

^{184}W Levels (continued)

E(level)[†]	J^π	$T_{1/2}$	XREF	Comments
				7.70 μs *3* (1969FaZY) and 8.0 μs *4* (1969Mo07) from delayed coin in ^{184}Ta β^- decay. J^π: E1+M2+E3 921γ to 4$^+$ 364; E1+M2+E3 537γ to 6$^+$ 748.
1294.94[g] *10*	5$^+$[ah]		A D I K MN	
1322.152[k] *22*	(0)$^+$		DEFGHIJ V	XREF: V(1310). J^π: E1 primary γ from 0$^-$,1$^-$ in (n,γ) E=300 eV; band assignment.
1345.37[i] *3*	(4$^-$)[a]		A DE I	
1360.38[d] *19*	(4$^+$)[a]		hIJ M	J^π: 239γ to 2$^+$ 1122; 996γ to 4$^+$ 364.
1386.296[l] *13*	2$^+$	1.08[b] ps *10*	B DEFGhIJK M UV	J^π: E2 1386γ to 0$^+$ g.s..
1425.003[m] *16*	(3)$^+$		AB DE hI M	J^π: E1 295γ to 2$^-$ 1330; E2 1061γ to 4$^+$ 364; band assignment.
1431.02[k] *5*	2$^+$	>5[b] ps	B DEFGhIJK UV	J^π: E2 1431γ to 0$^+$ g.s..
1446.266[p] *13*	6$^-$		A C hI M	J^π: M1 from 7$^-$, M1 to 5$^-$.
1476.9[g] *5*	6$^+$[ah]	1.82 ps *9*	JK MN T	J^π: E2 225γ to 8$^+$ 1252; E2 343γ to 4$^+$ 1134. $T_{1/2}$: from B(E2) in Coulomb excitation. Other: 2.0 ps *4* from DSA in Coulomb excitation (1991Wu05).
1492[i] *4*	(5$^-$)[a]		J	
1501.545[o] *13*	7$^-$	2.35 ns *10*	A C	$T_{1/2}$: from (K x ray)(216γ)(t) (1969Gl04) in ^{184}Re ε decay (169 d). J^π: E2 217γ to 5$^-$, log *ft*=7.8 from 8$^{(+)}$.
1523.27[l] *8*	(3$^+$)[a]		DE hI M	
1536.66[m] *16*	(4$^+$)[a]		A D hIJ MN	
1570.2 *3*	(2$^+$)		DE	J^π: γ's to 0$^+$,(3)$^+$.
1581.46 *9*	(6$^-$)		A I M	J^π: L(d,p)>3 for 1/2$^+$ target; band assignment.
1613.512 *20*	(1$^+$)		D FG I UV	J^π: strong 608γ to 3$^+$ 1006 inconsistent with J=0 so level differs from the 0$^+$ 1614.3 *5* level excited in (p,t); 1502γ to 2$^+$ 111; primary γ to 1613 level from 0$^-$ in (n,γ) E=res; 1975Ca23 argue that levels at 1614 and 1615 are 1$^+$ and 0$^+$, respectively, on the basis of more intense feeding of the 1614 level in (n,γ) E=7.6 eV.
1614.3 *5*	0$^+$		g I L	J^π: L(p,t)=0 for E=1614.3 *5* level. Consistent with J^π=0$^+$,2$^+$ recommended for a 1613.9 *7* level fed by E1 primary γ from 0$^-$,1$^-$ in (n,γ) E=300 eV.
1614.90 *6*	(1,2)$^+$		DE g I Uv	J^π: E1 primary γ's from 0$^-$,1$^-$ in (n,γ) E=300 eV, with 0$^+$,2$^+$ favored for a 1613.9 *7* level and 1$^+$ for a 1615.46 *23* level; 1504γ to 2$^+$ 111; possible 1615γ to 0$^+$ g.s. in (n,γ) E=thermal: γγ coin inconsistent with J=0.
1627.71 *3*	(1)$^+$		DEFG M UV	J^π: E1 primary γ from 0$^-$,1$^-$ in (n,γ) E=300 eV with reduced Iγ that favors 1$^+$; 724γ to 2$^+$ 903.
1637[n] *4*	(7$^-$)[a]		M	
1661.09 *19*			hI V	XREF: V(1651). J^π: 527γ to 4$^+$ 1134.
1676.42[m] *12*	(5$^+$)		A hI M	J^π: 1312γ to 4$^+$ 364; 382γ to (5$^+$) 1295; 331γ to (4$^-$) 1345; band assignment suggested in (n,n′γ).
1683.4 *5*			I	J^π: gammas to 2$^+$ and 4$^+$.
1699.04 *4*	(5)$^+$		A M	J^π: E1 414γ to 5$^-$ 1285, 274γ to (3)$^+$ 1425, 253γ to 6$^-$ 1446. Possible configuration: (ν 7/2[503])+(ν 3/2[512]) (1984Bu37).

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Adopted Levels, Gammas (continued)

^{184}W Levels (continued)

E(level)[†]	J^π	$T_{1/2}$	XREF	Comments
1713.47 *10*	$(0)^+$		D FG I U	J^π: E1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV with reduced Iγ that favors $0^+,2^+$. 0^+ proposed by 1975Ca23 on the basis of (n,γ) population systematics.
1722 *4*	(1^+)		M V	J^π,E(level): primary γ to 1722 level from 0^- resonance in (n,γ) E=res. Presumed to feed this level instead of the $(0)^+$ 1713.
1746.03 *4*	$(6)^+$		A I	J^π: E1 461γ to 5^- 1285, γ to 7^- 1502. Possible configuration: (π 5/2[402])+(π 7/2[404]) (1984Bu37).
1755 *3*	(4^+)		J MN	E(level): weighted average of 1756 *5* from (d,d′), 1754 *5* from (d,p) and 1755 *5* from (t,p). J^π: L(d,p)=3; assigned by 1973Kl06 as K=4 bandhead based on comparison of experimental and theoretical cross sections.
1774.5 *5*	0^+		L	J^π: L(p,t)=0.
1775.34 *3*	$(2)^+$		DEFG I M	J^π: E1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV; 1412γ to 4^+ 364.
1795.8 *5*	0^+		LM v	XREF: v(1803). E(level): from (p,t). E=1796 *5* for composite peak in (d,p). J^π: L(p,t)=0.
1808.27 *6*	(2^+)		DEFG I MN Uv	XREF: v(1803). J^π: 1809γ to 0^+ g.s.; 1445γ to 4^+ 364. (M1) primary γ from $0^-,1^-$ in (n,γ) E=300 eV for E=1808.7 *5* level is inconsistent with this and may indicate the existence of a separate close-lying level.
1846.6? *15*			E	
1860.8[e] *9*	10^+[f]	0.570[b] ps *+24−31*	K N	J^π: E2 to 8^+, band assignment. $T_{1/2}$: other $T_{1/2}$: 0.66 ps *9* from DSA (1991Wu05) in Coulomb excitation.
1876.71 *9*	$(2)^+$		D FG I U	J^π: 1877γ to 0^+ g.s.; 655γ to 3^- 1221; E1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV.
1894.3 *4*	$(2^+,3)$		IJ M	XREF: M(1901). J^π: 764γ to 2^- 1130; 1531γ to 4^+ 364; 1784γ to 2^+ 111.
1921 *5*			M	
1925.4[g] *7*	8^+[h]		K T	J^π: E2 intraband 449γ to 6^+ 1477; E2 Coulomb excitation from 10^+ 1861.
1995.4 *3*	$1^{(-)}$		D FG I O U	J^π: D 1995γ to 0^+ g.s.; (M1) contaminated primary γ from $0^-,1^-$ in (n,γ) E=300 eV.
2012.94 *10*	$(2)^+$		D FG U	J^π: 1007γ to 3^+ 1006; 883γ to 2^- 1130; E1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV with reduced Iγ that favors $0^+,2^+$.
2029.83 *6*	$(5^-,6,7^-)$		A M	XREF: M(2022). J^π: γ to 7^-, log *ft*=8.2 from (5^-).
2031.3 *4*	0^+		D FG L U	J^π: L(p,t)=0 for 2030.7 *6* level; E1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV.
2035.56 *18*	$1^+,2^+$		D FG I U	J^π: E1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV; strong γ to 0^+.
2044 *6*			M v	XREF: v(2050). E(level): from (d,p).
2056.41 *17*	$(1)^-$	26[&] fs *5*	D G I O Uv	XREF: v(2050).

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Adopted Levels, Gammas (continued)

^{184}W Levels (continued)

E(level)[†]	J^π	$T_{1/2}$	XREF	Comments
				J^π: M1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV; 2056γ to 0^+ g.s.. K=(0) based on branching in (γ,γ').
2060.8 *3*			DEF I m UV	J^π: 636γ to $(3)^+$ 1425; 1950γ to 2^+ 111, so $J^\pi=(1^+,2,3,4^+)$. If this is the level fed by primary γ from 0^- in (n,γ) E=res, $J^\pi=(1^+)$ would Be favored.
2063.4 *3*	$(0,2)^+$		G m	J^π: E1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV with reduced Iγ that favors J=0,2.
2074.0 *6*	$(0,2)^-$		G N	J^π: M1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV with reduced Iγ that favors J=(0,2).
2084.8 *5*	$(0,2)^-$		G	J^π: M1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV with reduced Iγ that favors J=0,2.
2089.5 *5*	$(1)^-$		D G	J^π: M1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV with reduced Iγ that favors J=1.
2097.7 *3*	$(1)^+$	31[&] fs *4*	D FG I O UV	XREF: V(2090). J^π: E1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV with reduced Iγ that favors J=1; 2098γ to 0^+ g.s.; probably primary γ from 0^- in (n,γ) E=res.
2104.20 *8*	$(2)^+$		D FG M U	J^π: E1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV with reduced Iγ that favors J=0,2; 782γ to $(0)^+$ 1322; 1098γ to 3^+ 1006.
2111.2 *6*	0^+		g L	E(level): from (p,t). J^π: L(p,t)=0.
2112.49 *18*			D Fg	J^π: 982γ to $(2)^-$ 1130, so J≤(4).
2124.6 *7*	$(1,2^+)$		g m Uv	J^π: 1121γ to 0^+ 1002; 1222γ to 2^+ 903. See also comment on 2126 level.
2126.07 *5*			DEFg IJ m Uv	J^π: 996γ to 2^- 1130; 2015γ to 2^+ 1113. An E1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV with reduced Iγ that favors J=0,2 populates 2126 and/or 2125 level..
2168.19 *5*	$(1)^+$		DEFG I M UV	J^π: 2168γ to 0^+ g.s.; 743γ to $(3)^+$ 1425; E1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV; primary γ from 0^- in (n,γ) E=res.
2182 *5*	(0^+)		N	J^π: L=(0) in (t,p).
2194.7 *10*			F	
2221.77 *22*	(≤4)		D fg mn V	J^π: 447γ to 2^+ 111, so J≤(4). E1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV may feed 2222 and/or 2223 levels. In (n,γ) E=res, primary γ from 0^- possibly feeds this level; if so, $J^\pi=(1^+)$ is favored.
2222.8 *5*	$(2^+,3,4^+)$		Efg mn	J^π: 1859γ to 4^+ 364; possible 1320γ to 2^+ 903. E1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV may feed 2222 and/or 2223 levels; its reduced intensity favors $J^\pi=0^+,2^+$.
2228.30? *7*	$(2^-,3,4^-)$		D	J^π: 883γ to $(4)^-$ 1345; 1098γ to 2^- 1130.
2246.3 *3*	$(2)^+$		DEFG M UV	J^π: 2245γ to 0^+ g.s.; E1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV with reduced Iγ that favors J=0,2. However, if primary γ from 0^- in (n,γ) E=res feeds this level, $J^\pi=1^+$ would Be preferred.
2294.61 *7*	$(2)^+$		D FG M Uv	XREF: v(2293). J^π: 2295γ to 0^+ g.s.; 2184γ to 2^+ 111; E1 primary γ from $0^-,1^-$ in (n,γ) E=300 eV with reduced Iγ that favors J=0,2.
2309.6 *7*	0^+		L v	XREF: v(2293). E(level): from (p,t). J^π: L(p,t)=0.
2320.4[‡] *3*	$(1^-,2^-)$		D G m U	J^π: 1417γ to 2^+ 930; (M1) primary γ from $0^-,1^-$ in

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Adopted Levels, Gammas (continued)

^{184}W Levels (continued)

E(level)[†]	J^{π}	$T_{1/2}$	XREF	Comments
				(n,γ) E=300 eV.
2328.7? *5*	(1,2$^+$)		E m	J^{π}: γ to 0$^+$.
2349.9[‡] *5*			m U	
2352.2 *2*	(1)$^-$		D FG m	J^{π}: M1 primary γ from 0$^-$,1$^-$ in (n,γ) E=300 eV.
2370.1 *3*	(1)$^+$		D FG M UV	J^{π}: E1 primary from 0$^-$,1$^-$ in (n,γ) E=300 eV.
2389.14 *12*	(4$^-$,5,6$^-$)		A D m	J^{π}: gammas to 4$^-$ and 6$^-$.
2390.3[‡] *2*	(1)$^+$		G m Uv	XREF: v(2400). J^{π}: E1 primary γ from 0$^-$,1$^-$ in (n,γ) E=300 eV has reduced intensity that favors J^{π}=1$^+$.
2392.3 *3*			F m v	XREF: v(2400).
2395.8[‡] *4*	(1)$^+$		D G J m Uv	XREF: v(2400). J^{π}: E1 primary γ from 0$^-$,1$^-$ in (n,γ) E=300 eV.
2401.8 *6*			F m	
2404.2[‡] *3*	0$^+$		D G L U	J^{π}: L(p,t)=0 for E=2404.7 *7* level. Consistent with E1 primary from 0$^-$,1$^-$ in (n,γ) E=300 eV with reduced intensity that favors J^{π}=0$^+$,2$^+$.
2421.5 *7*	(0$^+$)		F J MN	J^{π}: L=(0) in (t,p).
2429.6 *11*			D V	XREF: V(2420). J^{π}: if this is the level populated by primary γ from 0$^-$ in (n,γ) E=res, J^{π}=1$^+$ is favored.
2439.8[‡] *2*			D F M U	
2458.4[‡] *2*	1[@]	62[&] fs *12*	D F O U	
2468.9 *7*	(0$^+$)		L V	E(level): from (p,t). J^{π}: L(p,t)=(0).
2471.7[g] *12*	10+[h]	0.82[b] ps *+15−4*	K	
2479.3[j] *9*	(8$^-$,9,10$^+$)		T	J^{π}: γ's to 8$^+$ levels but not to 6$^+$ levels; calculated energies for possible two quasiparticle configurations at roughly this energy have J^{π}=8$^-$ or 9$^-$ or 10$^+$, the latter, ν^2 11/2[615]+9/2[624] configuration, being the closest (2004Wh02).
2485.3 *12*			D F	XREF: D(2486.7)F(2484.3). E(level): weighted average from (n,γ) E=thermal and (n,γ) E=2 keV.
2492.67 *10*	(4$^-$,5,6)		A F M	J^{π}: log *ft*=7.4 from (5$^-$), γ to 6$^-$.
2509.4[‡] *2*			D F Uv	XREF: v(2513).
2512.7 *7*	0$^+$		L v	XREF: v(2513). E(level): from (p,t). J^{π}: L(p,t)=0.
2518.9 *3*			D F M v	XREF: v(2513).
2520.7[‡] *3*			U	
2532.4 *6*			F M	
2546.1 *7*	1[@]	65[&] fs *15*	O	K=1 based on branching in (γ,γ') (1993He15).
2555.0[‡] *2*			D F J U	
2557.0[e] *14*	12+[f]	0.265[b] ps *+21−24*	K	
2567.9 *7*	(0$^+$)		L	J^{π}: L(p,t)=(0).

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Adopted Levels, Gammas (continued)

^{184}W Levels (continued)

E(level)[†]	J^π	$T_{1/2}$	XREF	Comments
2573.4[‡] *3*			D F m U	
2582.0 *23*			F m	
2592.5 *6*			D F M	
2613.3[‡] *3*			D F U	
2618.8[‡] *3*			D F U	
2630.7 *7*			D F M	
2649.0[‡] *3*			D Uv	XREF: v(2653).
2652.1 *5*			F J v	XREF: v(2653).
2655.8[‡] *4*			Uv	XREF: v(2653).
2675.5 *7*			F J M V	XREF: V(2688). J^π: primary γ from 1^- resonance in (n,γ) E=res.
2694.4[‡] *3*	1[@]		F O Uv	XREF: F(2693.4)v(2688).
2704.5 *9*			F	
2706.7[‡] *4*			D U	
2713	≤3		V	J^π,E(level): primary γ from 0^-,1^- resonance in (n,γ) E=res.
2719.8[‡] *2*			D F U	
2732.5[‡] *6*			D U	XREF: D(2730.3).
2739.3[cj] *14*			T	
2757.6[‡] *2*			D Uv	XREF: v(2763).
2763.2[‡] *2*	1[@]	28[&] fs *6*	D O Uv	XREF: D(2764.0)v(2763).
2767.6[‡] *6*			F Uv	XREF: v(2763).
2798.2[‡] *4*			D Uv	XREF: v(2803).
2802.7[‡] *1*			D J v	XREF: v(2803).
2813 *1*			O	
2815.0[‡] *2*			D F U	
2825.1[‡] *3*	0^+		L U	J^π: L(p,t)=0 for 2826.4 *7* level. 2714γ to 2^+ 111.
2836.9[‡] *4*			U	
2845.4 *11*			F J	
2849.2? *8*			D	
2853.6 *6*			F	
2855.6? *10*			D j	XREF: j(2863).
2870.5[‡] *2*	(0^+)		D j L U	XREF: j(2863). J^π: L(p,t)=(0) for 2871.3 *7* level; consistent with 1967γ to 2^+ 903.
2892.1[‡] *2*	1[@]	31[&] fs *6*	F O U	Other E: 2893 *1* from (γ,γ'). K=1 based on branching in (γ,γ').
2902.0 *8*			D	
2905.8[‡] *7*			U	
2919.5[‡] *2*			D F U	
2927.7 *7*	(0^+)		L	J^π: L(p,t)=(0).
2939.6 *7*	(0^+)		F L	E(level): from (p,t). Other E: 2937.8 *14* from (n,γ) E=2 keV. J^π: L(p,t)=(0).
2946.8[‡] *4*			U	
2948.7 *5*			F	
2951.0[‡] *5*	1[@]	33[&] fs *6*	D O U	K=1 based on branching in (γ,γ').
2968.7[‡] *2*	(1^+)		D F UV	XREF: V(2960). J^π: primary γ from 0^- resonance in (n,γ) E=res.
2981.4	5		d F v	XREF: v(2986). E(level): from (n,γ) E=2 keV.

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Adopted Levels, Gammas (continued)

^{184}W Levels (continued)

E(level)[†]	J$^{\pi}$	T$_{1/2}$	XREF	Comments
2983.6[‡] *4*			d Uv	XREF: v(2986). J$^{\pi}$: primary γ from 0$^-$ resonance in (n,γ) E=res favors J$^{\pi}$=1$^+$ for 2982 and/or 2984 level.
3004.1 *11*			D	
3017.1[‡] *1*			D U	
3022.9[‡] *3*			U	
3026.8 *5*			D F	E(level): weighted average from (n,γ) E=thermal and (n,γ) E=2 keV.
3029.0[‡] *1*			U	
3037.1[‡] *6*	(1$^+$)		D UV	XREF: D(3035.5). J$^{\pi}$: primary γ from 0$^-$ resonance in (n,γ) E=res.
3053.4[‡] *2*			U	
3060.3[cj] *17*			T	
3068.5[‡] *3*			D f U	XREF: f(3070.1).
3071.2[‡] *3*	1[@]		f O U	XREF: f(3070.1).
3084.0 *10*	1[@]		F O	
3088 *1*	1[@]		O	
3104.2[‡] *3*			D F U	
3108.8?[g] *16*	(12$^+$)[h]	0.35[b] ps *+14−3*	K	
3112.1 *8*			D	
3124 *1*	1[@]		O	
3133 *1*	1[@]		O	
3134.6[‡] *5*			D F U	
3136.8[‡] *4*			U	
3164.1[‡] *8*			U	
3166.2[‡] *8*			U	
3169.1[‡] *2*			D U	
3177.9[‡] *5*			U	
3183.8[‡] *1*			D F U	
3187.1[‡] *3*			U	
3193.3[‡] *3*			D U	
3201.8[‡] *6*			D G UV	XREF: D(3200.3).
3215.5 *7*			F	
3220.6 *9*			D	
3224.6[‡] *7*			U	
3226.3[‡] *5*			D F U	
3233.7[‡] *8*			U	
3244.6 *8*			D	
3248.8[‡] *3*			D F U	XREF: D(3251.1).
3262.6 *8*			F v	XREF: v(3264).
3264.0[‡] *5*			D Uv	XREF: v(3264).
3266.4[‡] *5*			Uv	
3288.3[‡] *6*			U	
3290.0[‡] *4*			D F U	
3293.5[‡] *6*			U	
3304.3[‡] *4*			U	

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Adopted Levels, Gammas (continued)

^{184}W Levels (continued)

E(level)[†]	J^π	$T_{1/2}$	XREF	Comments
3307.4[‡] *5*			D U	
3314.4 *6*			F	
3316.6 *9*			D	
3318.5[‡] *4*			U	
3319.9[e] *17*	14^+[f]	0.140[b] ps *+25−10*	K	
3329.2[‡] *3*			D U	
3341.4[‡] *5*			U	
3345.1[‡] *2*			U	
3349.1[‡] *6*			U	
3352.6[‡] *6*			D U	
3364.7 *20*			D	
3369.9 *9*			D F	XREF: D(3371.5).
3372.9[‡] *5*			U	
3377.5[‡] *3*			D U	
3384.3[‡] *6*			D U	XREF: D(3386.1). Other E: 3386.1 *7* from (n,γ) E=thermal.
3392.0[‡] *9*			F U	
3399.9 *7*			F	
3413.7[‡] *5*			U	
3420.8 *9*			F	
3422.4[‡] *4*		16[&] fs *10*	O U	$T_{1/2}$: if J=1.
3427.2[‡] *4*			D U	XREF: D(3428.5).
3441.3[cj] *20*			T	
3442.3 *10*			F	
3448.2[‡] *3*			D U	
3455.6 *7*			D F U	XREF: D(3454.3).
3466.2[‡] *6*	1[@]	5.0[&] fs *12*	F O U	
3473.3[‡] *5*			U	
3488.2[‡] *4*			D U	
3500.7[‡] *4*			D U	
3507.1 *7*	(1)	12[&] fs *4*	F O	XREF: F(3507.9). J^π: (D) γ to 0^+ g.s.. K=(1) based on branching (1993He15).
3516.2[‡] *6*			D U	XREF: D(3517.8).
3522.5[‡] *4*			U	
3546.9 *6*			D	
3571.1 *7*	(1)	4.1[&] fs *17*	D O	E(level): from (γ,γ'). J^π: (D) γ to 0^+ g.s.. K=(0) based on branching (1993He15).
3618.1[‡] *5*			D U	
3633.1 *7*	1[@]	4.7[&] fs *17*	O	K=1 based on branching (1993He15).
3634.7[‡] *3*			D U	
3649.2[‡] *4*			d U	XREF: d(3652). E(level): may Be the same level as seen at E=3633 *1* in (γ,γ'), but γ branching differs.
3654.2[‡] *3*			d U	XREF: d(3652).
3670.3[‡] *5*			U	

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Adopted Levels, Gammas (continued)

^{184}W Levels (continued)

E(level)[†]	J$^{\pi}$	T$_{1/2}$	XREF	Comments
3682.1 *7*	(1)	8[&] fs *5*	O	J$^{\pi}$: (D) γ to 0^{+} g.s.. K=(1) based on branching (1993He15).
3684.5[‡] *4*			F U	E(level): may Be the same level as seen at E=3682 *1* in (γ,γ'), but γ branching differs.
3686.3 *6*			D	
3703.2 *7*			D	
3706.6[‡] *5*			U	
3715.3[c] *22*			T	
3715.6[‡] *4*			D U	
3743.9 *6*			D	
3770.6 *5*			D	
3782.3 *7*			D	
3807.0 *5*			D	
3863.2 *25*	(14^{-},15,17^{-})	188 ns *38*	T	T$_{1/2}$: from ^{198}Pt(^{136}Xe,Xγ) (2004Wh02). J$^{\pi}$: probable 4-quasiparticle isomer; candidate configurations with calculated energies near this energy have J^{π}=14^{-} or 15 or 17^{-} (2004Wh02).
3882.8 *11*			D	
3930.2 *13*			D	
3962.4[‡] *2*			D U	
3971.9 *6*			D	
4061.6 *6*			D	
4116.9[e] *20*	16+[f]	0.125[b] ps *+32−13*	K	
4278.8[‡] *3*			U	
6543.5[‡] *2*			U	
6556.1 *10*			O	
6580.8[‡] *2*			U	
6622.7[‡] *4*			U	
6760.1 *10*	1+[#]		O	
11.90×10^{3} *17*		2.90 MeV *17*	Y	E(level),T$_{1/2}$: component of E1 GDR; total GDR Γ=6.8 *2* MeV; from (γ,X).
14.80×10^{3} *22*		4.70 MeV *22*	Y	E(level),T$_{1/2}$: component of E1 GDR; total GDR Γ=6.8 *2* MeV; from (γ,X).

[†] From least-squares fit to adopted Eγ, except as noted, whenever γ's are observed; from weighted average of values in reaction dataset(s) otherwise.
[‡] From (n,γ) E=thermal: $\gamma\gamma$ coin.
[#] M1 γ to 0^{+}.
[@] D γ to 0^{+} g.s..
[&] Deduced from measured $\Gamma^{2}_{\gamma0}/\Gamma$ in (γ,γ')and adopted $\Gamma_{\gamma1}/\Gamma_{\gamma0}$, assuming $\Gamma=\Gamma_{\gamma1}+\Gamma_{\gamma0}$. Thus, deduced T$_{1/2}$ will Be an upper limit if branches exist to levels other than the g.s. and the 111-keV level.
[a] From band assignment and arguments given.
[b] From measured B(E2) in Coulomb excitation.
[c] Energy may differ from value shown because it depends on unestablished order of γ cascade above the 2480 level in

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Adopted Levels, Gammas (continued)

^{184}W Levels (continued)

(^{136}Xe,Xγ) (2004Wh02).

[d] Band(A): $K^\pi=0^+$ β band. Band parameters: A=23.9, B=−296 (J=0,2,4,6 levels).

[e] Band(B): $K^\pi=0^+$ ground state band. Band parameters: A=18.5, B=−17 (J=2,4,6 levels).

[f] Definite J^π is assigned to members of g.s. band based on smooth progression of level spacings and independently established J^π for g.s. and E2 multipolarity for J=2 to 0 transition.

[g] Band(C): $K^\pi=2^+$ γ band. Band parameters: A=17.7, B=−63 (J=2,3,4 levels).

[h] Definite J^π is assigned to J≤10 members of γ band based on smooth progression of level spacings and independently established J^π for 2^+ member (903 keV) and E2 multipolarity for J=4 to 2, 230γ.

[i] Band(D): $K^\pi=2^-$ octupole band.

[j] Band(E): sequence based on 2479 (8^-,9,10^+) level.

[k] Band(F): K=0 band.

[l] Band(G): $K^\pi=2^+$ (ν 3/2[512])+(ν 1/2[510]) band.

[m] Band(H): $K^\pi=3^+$ (ν 7/2[503])-(ν 1/2[510]) band.

[n] Band(I): $K^\pi=5^-$ (ν 11/2[615])-(ν 1/2[510]) band.

[o] Band(J): $K^\pi=7^-$ (ν 11/2[615])+(ν 3/2[512]) band.

[p] Band(K): $K^\pi=6^-$ (ν 11/2[615])+(ν 1/2[510]) band.

$\gamma(^{184}W)$

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[c]	Comments
111.2174	2^+	111.2174[&] *4*	100[&]	0.0	0^+	E2		2.57	B(E2)(W.u.)=119.8 *17* Additional information 1.
364.069	4^+	252.845[@] *10*	100[@]	111.2174	2^+	E2		0.1437	B(E2)(W.u.)=166 *+5−9*
748.320	6^+	384.250[@] *12*	100[@]	364.069	4^+	E2		0.0418	B(E2)(W.u.)=181 *6*
903.307	2^+	539.220 *25*	0.83 *3*	364.069	4^+	E2		0.01744	B(E2)(W.u.)=0.459 *20* E_γ: from ε decay. I_γ: weighted average of 0.80 *4* in ε decay (169 d), 0.86 *4* in ε decay (35.4 d), 0.77 *10* in β^- decay. Other Iγ: 1.3 *3* in (n,γ) E=thermal; 2.2 *2* for possibly contaminated γ in Coulomb excitation.
		792.067 *22*	98.5 *11*	111.2174	2^+	M1+E2	−16.8 *5*	0.00733	B(M1)(W.u.)=4.3×10^{-5} *3*; B(E2)(W.u.)=7.94 *21* E_γ: from ε decay. I_γ: weighted average of 98.9 *22* in ε decay (169 d), 98.9 *16* in ε decay (35.4 d), 97.1 *24* in β^- decay. Weighted average from ε decay. Other δ: −19 *+6−21* and −18 *+4−2* from Coulomb excitation.
		903.282 *19*	100.0 *11*	0.0	0^+	E2		0.00554 *8*	B(E2)(W.u.)=4.19 *11* E_γ: from ε decay. I_γ: weighted average from β^- decay, ε decay (169 d) and ε decay (35.4 d).
1002.49	0^+	891.27 *4*	100	111.2174	2^+	[E2]		0.00575	
1005.971	3^+	641.915 *20*	12.40 *18*	364.069	4^+	M1+E2	−8.5 *8*	0.01183 *18*	E_γ: from ε decay (35.4 d). I_γ: weighted average of 12.1 *5* in (n,γ) E=thermal, 10.8 *20* in (n,n$'\gamma$), 12.42 *22* in ε decay (35.4 d), 12.4 *26* in (n,γ) E=7.6 eV, 12.5 *4* in ε decay (169 d).
		894.760 *19*	100.0 *14*	111.2174	2^+	M1+E2	−13.2 *9*	0.00569 *8*	E_γ: from ε decay (35.4 d).
1121.440	2^+	757.328 *24*	70 *4*	364.069	4^+	E2		0.00803	B(E2)(W.u.)=0.22 *3* E_γ: weighted average from ε decay and (n,γ) E=thermal. I_γ: weighted average of 76 *4* in (n,γ) E=thermal, 52 *9* in (n,n$'\gamma$), 67 *5* in ε decay (35.4 d), 66 *14* in (n,γ) E=7.6 eV. B(E2)(W.u.): See comment on $T_{1/2}$(1121 level).
		1010.245 *21*	100 *4*	111.2174	2^+	M1+E2+E0		0.0139 *10*	E_γ: weighted average from ε decay and (n,γ) E=thermal. δ(M1,E2)=+2.3 *6*. ρ^2(E0)=0.0026 *5* (1999Wo07). α: estimate based on α(K)exp.
		1121.422 *24*	38.0 *20*	0.0	0^+	E2		0.00359	B(E2)(W.u.)=0.0166 *23* E_γ: weighted average from ε decay and (n,γ) E=thermal. I_γ: weighted average of 38.8 *28* in (n,γ) E=thermal, 22 *9* in

Adopted Levels, Gammas (continued)

$\gamma(^{184}W)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[c]	Comments
									(n,n′γ), 38.5 *28* in ε decay (35.4 d), 40 *9* in (n,γ) E=7.6 eV. B(E2)(W.u.): See comment on $T_{1/2}$(1121 level).
1130.045	(2)$^-$	124.067 *12*	9.0 *7*	1005.971	3$^+$	(E1)		0.214	E_γ: weighted average of 124.071 *15* in (n,γ) E=thermal and 124.060 *20* in ε decay. I_γ: weighted average of 9.7 *10* in (n,γ) E=thermal, 10.1 *5* in ε decay (169 d), 9.8 *19* in ε decay (35.4 d), 7.6 *5* in β^- decay.
		226.746 *8*	100.0 *21*	903.307	2$^+$	E1+M2+E3		0.059 *5*	E_γ: weighted average of 226.743 *12* in (n,γ) E=thermal and 226.748 *10* in ε decay. Mult.: δ(M2,E1)=0.0 *4*, δ(E3,E1)=+0.10 *3* from ε decay.
		1018.83 *9*	5.6 *3*	111.2174	2$^+$	(E1)			I_γ: weighted average of 4.9 *5* in (n,γ) E=thermal, 6.4 *7* in ε decay (169 d), 6.3 *12* in ε decay (35.4 d), 5.7 *5* in β^- decay, 5.5 *11* in (n,γ) E=7.6 eV. E_γ: weighted average of 1018.75 *9* in β^- decay, 1018.93 *5* in ε decay and 1018.63 *8* in (n,γ) E=thermal.
1133.850	4$^+$	127.67 *10*	0.25 *10*	1005.971	3$^+$	E2(+M1)	>2.8	1.57 *6*	B(M1)(W.u.)<0.0010; B(E2)(W.u.)>86 E_γ: from ε decay. I_γ: based on ce(L2) data in ε decay; photons not observed.
		230.45[@] *6*	2.2[@] *3*	903.307	2$^+$	E2		0.193	B(E2)(W.u.)=75 *12*
		385.5	<0.83	748.320	6$^+$	[E2]		0.0414	B(E2)(W.u.)=1.1 *11* E_γ: from level energy difference. I_γ: based on ce(K) data in ε decay; photons not observed.
		769.778 *17*	100 *3*	364.069	4$^+$	M1+E2	−6.3 *+20−32*	0.0080 *4*	B(M1)(W.u.)=0.00029 *18*; B(E2)(W.u.)=8.0 *7* E_γ: from ε decay. Other δ: −12 *+5−20* from Coulomb excitation.
		1022.63 *3*	74 *3*	111.2174	2$^+$	E2		0.00431 *6*	B(E2)(W.u.)=1.46 *13* E_γ: from ε decay. I_γ: weighted average of 70 *5* in β^- decay and 77 *4* in ε decay (35.4 d).
1221.308	3$^-$	87.452 *10*	4.15 *19*	1133.850	4$^+$	E1		0.529	B(E1)(W.u.)=0.000142 *18* E_γ: from ε decay (169 d). I_γ: weighted average of 4.1 *6* in β^- decay and 4.15 *20* in ε decay (169 d).
		91.270 *10*	4.35 *24*	1130.045	(2)$^-$	M1+E2	0.62 *4*	6.03	B(M1)(W.u.)=0.0099 *13*; B(E2)(W.u.)=190 *30* E_γ: from ε decay (169 d). I_γ: weighted average of 4.54 *28* in β^- decay, 4.42 *20* in ε decay (169 d) and 3.3 *5* in (n,γ) E=thermal.
		215.326 *12*	48.9 *13*	1005.971	3$^+$	E1		0.0519	B(E1)(W.u.)=0.000112 *13* E_γ: from ε decay (169 d).

Adopted Levels, Gammas (continued)

γ(^{184}W) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[c]	Comments
									I_γ: weighted average of 52 *4* in (n,γ) E=thermal, 48.3 *14* in ε decay (169 d), 50 *5* in β^- decay, 59 *24* in (n,γ) E=7.6 eV.
1221.308	3^-	318.008 *10*	100.0 *12*	903.307	2^+	E1+M2	−0.020 *10*	0.0202 *5*	B(E1)(W.u.)=7.1×10^{-5} *8* E_γ: from ε decay (169 d). δ: from $\gamma(\theta$,H,t) in ε decay; however, note that δ<0.017 if B(M2)(W.u.)<1 as required by RUL.
		857.23 *3*	2.84 *7*	364.069	4^+	E1		0.00238 *4*	B(E1)(W.u.)=1.03×10^{-7} *12* E_γ: from ε decay (169 d). I_γ: weighted average of 2.93 *19* in β^- decay and 2.82 *8* in ε decay (169 d).
		1110.08 *3*	9.88 *25*	111.2174	2^+	E1+M2	+0.08 *3*	0.00159 *10*	B(E1)(W.u.)=1.64×10^{-7} *19*; B(M2)(W.u.)=0.004 *3* E_γ: from ε decay (169 d). I_γ: weighted average of 9.0 *12* in (n,γ) E=thermal, 10.1 *5* in ε decay (169 d), 9.8 *3* in β^- decay, 10.5 *35* in (n,n′γ), 15 *3* in (n,γ) E=7.6 eV.
		1221.29 *4*	0.36 *3*	0.0	0^+	(E3)		0.00639 *9*	B(E3)(W.u.)=5.9 *9* E_γ: from ε decay (169 d). I_γ: weighted average of 0.41 *6* in β^- decay and 0.35 *3* in ε decay (169 d). B(E3)↓: From measured B(E3)↑=0.082 *6* in Coulomb excitation.
1252.2	8^+	503.6	100	748.320	6^+	E2		0.0206	B(E2)(W.u.)=185 *5* Mult.,E_γ: from Coulomb excitation.
1282.71	$(1,2)^-$	161.27[ae] *10*	100[a]	1121.440	2^+				
1284.997	5^-	63.6890 *14*	5.47 *25*	1221.308	3^-	E2		25.7	B(E2)(W.u.)=0.0188 *11* E_γ: from ε decay (169 d). I_γ: from β^- decay.
		151.134 *20*	0.57 *5*	1133.850	4^+	[E1]		0.1286	B(E1)(W.u.)=1.37×10^{-11} *13* E_γ: from ε decay (169 d). I_γ: weighted average of 0.50 *9* in β^- decay and 0.60 *6* in ε decay (169 d).
		(279.0)	<0.010	1005.971	3^+	[M2]		1.111	B(M2)(W.u.)=1.1×10^{-6} *+12−11* I_γ: from ε decay (169 d).
		381.82 *14*	0.69 *6*	903.307	2^+	[E3]		0.1579	B(E3)(W.u.)=0.139 *13* E_γ: from ε decay (169 d). I_γ: weighted average of 0.65 *7* in β^- decay and 0.77 *10* in ε decay (169 d).
		536.674 *15*	40.4 *6*	748.320	6^+	E1+M2+E3		0.0068 *1*	E_γ: from ε decay (169 d). I_γ: weighted average of 29 *7* in (n,γ) E=thermal, 40.6 *6* in ε decay (169 d), 39.9 *14* in β^- decay, 49 *11* in

Adopted Levels, Gammas (continued)

$\gamma(^{184}W)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[c]	Comments
									(n,n′γ). δ: δ(M2,E1)=+0.070 *6*, δ(E3,E1)=−0.025 *4*, λ=−2.1 *2*.
1284.997	5^-	920.933[@] *21*	100.0[@] *14*	364.069	4^+	E1+M2+E3		0.0030 *2*	Mult.: δ(M2,E1)=−0.14 *4*, δ(E3,E1)=−0.19 *3*.
		1173.77 *3*	14.9 *6*	111.2174	2^+	(E3)		0.00698 *10*	B(E3)(W.u.)=0.00116 *6* E_γ: from ε decay (169 d). I_γ: weighted average of 14.9 *8* in ε decay (169 d), 14.9 *11* in β^- decay, 15 *4* in (n,n′γ).
1294.94	5^+	930.87[a] *10*	100[a]	364.069	4^+				Other Eγ: 932.2 in Coulomb excitation, 930.00 *25* in (n,γ) E=thermal, 930.9 *5* in β^- decay.
1322.152	$(0)^+$	418.847 *20*	100 *50*	903.307	2^+	[E2]		0.0331	I_γ: from (n,n′γ).
		1211.0[a] *10*	<7.5[a]	111.2174	2^+				
1345.37	(4^-)	211.63 *5*	27 *7*	1133.850	4^+	[E1]		0.0542	
		215.21[a] *10*	<232[a]	1130.045	$(2)^-$				
		339.34 *4*	100 *20*	1005.971	3^+	[E1]		0.0170 *3*	
		981.1 *5*	15 *5*	364.069	4^+				E_γ: from (n,n′γ). I_γ: weighted average of 12 *5* in (n,n′γ), 23 *8* in β^- decay.
1360.38	(4^+)	238.8[a] *6*	100[a] *28*	1121.440	2^+				
		996.3[a] *2*	<500[a]	364.069	4^+				
		1249.8[a] *10*	<44[a]	111.2174	2^+				
1386.296	2^+	380.34 *4*	3.9 *10*	1005.971	3^+	M1+E2	1.3 *+23−6*	0.070 *22*	B(M1)(W.u.)=0.003 *+6−3*; B(E2)(W.u.)=13 *+18−13* E_γ: from ε decay (35.4 d). Other Iγ: 4.2 *11* in ε decay (35.4 d).
		482.92 *3*	15.8 *18*	903.307	2^+	M1+E2		0.042 *20*	I_γ: weighted average of 13.9 *28* in (n,γ) E=7.6 eV, 11.8 *25* in Coulomb excitation, 15.4 *28* in ε decay (35.4 d), 19.5 *20* in (n,γ) E=thermal. Mult.: small E0 component suggested in ε decay.
		1275.11[&] *3*	100[&] *5*	111.2174	2^+	M1+E2	≥+3		B(M1)(W.u.)<0.00054; B(E2)(W.u.)>0.98 δ,Mult.: δ(M1,E2):−0.42 *4* or >18, <−50 from γ(θ,H,t) (1973Kr01), 1.2 *+10−5* from α(K)exp if no E0 in ε decay (35.4 d), but 1974Mc08 suggest the possible presence of an E0 component; δ=+6 *+6−3* from γ(θ) in Coulomb excitation (1971Mi08), where this larger solution is considered the more likely. The evaluator adopts δ≥+3.
		1386.302 *17*	81 *3*	0.0	0^+	E2		0.00242 *4*	B(E2)(W.u.)=0.66 *7* I_γ: weighted average of 83 *17* in (n,γ) E=7.6 eV, 70 *7* in (n,n′γ), 86 *4* in ε decay (35.4 d), 80 *4* in (n,γ) E=thermal. Other Iγ: 84 in Coulomb excitation.

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$\gamma(^{184}\mathrm{W})$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[c]	Comments
1425.003	$(3)^+$	203.56 *10*	13.1 *24*	1221.308	3^-	[E1]		0.0599	Other Iγ: 16 *8* in (n,γ) E=7.6 eV, 6 *3* in β^- decay, 11 *3* in (n,n′γ).
		294.962 *15*	100 *5*	1130.045	$(2)^-$	E1		0.0238	
		1060.85 *15*	11.4 *15*	364.069	4^+	E2		0.00401 *6*	I$_\gamma$: weighted average of 13 *3* in (n,γ) E=7.6 eV, 15 *4* in β^- decay, 11.9 *23* in ε decay (35.4 d), 7 *3* in (n,n′γ). Other: 36 *4* in (n,γ) E=thermal.
		1313.79 *4*	58 *6*	111.2174	2^+	E2		0.00266 *4*	E$_\gamma$: from ε decay (35.4 d). I$_\gamma$: weighted average of 57 *11* in (n,γ) E=7.6 eV, 69 *10* in β^- decay, 51 *4* in ε decay (35.4 d), 74 *7* in (n,γ) E=thermal. Other Iγ: <43 in (n,n′γ).
1431.02	2^+	424.36[e] *15*	8.3 *19*	1005.971	3^+				
		1319.84 *6*	100 *6*	111.2174	2^+	M1+E2+E0			
		1430.97 *6*	79 *6*	0.0	0^+	E2		0.00230 *4*	B(E2)(W.u.)<0.13
1446.266	6^-	161.269[@] *15*	100[@]	1284.997	5^-	M1+E2	0.53 *7*	1.09 *3*	
1476.9	6^+	224.7		1252.2	8^+	E2		0.210	B(E2)(W.u.)=2.5 *+18−4* B(E2)(W.u.): From measured B(E2)↑=0.0119 *+85−21* in Coulomb excitation. E$_\gamma$: from Coulomb excitation.
		343.1		1133.850	4^+	E2		0.0574	B(E2)(W.u.)=179 *+8−10* E$_\gamma$: from Coulomb excitation. B(E2)(W.u.): From measured B(E2)↑=1.60 *+7−9* in Coulomb excitation.
		728.6		748.320	6^+	M1+E2	−4 *+1−15*	0.0095 *8*	B(E2)(W.u.)=10.5 *5* E$_\gamma$: from Coulomb excitation. B(E2)(W.u.): From measured B(E2)↑=0.065 *3* in Coulomb excitation. Mult.,δ: from Coulomb excitation.
		1112.9		364.069	4^+	E2		0.00364 *6*	B(E2)(W.u.)=1.13 *7* E$_\gamma$: from Coulomb excitation. B(E2)(W.u.): From measured B(E2)↑=0.0101 *+5−6* in Coulomb excitation.
1501.545	7^-	55.2790[@] *8*	24.5[@] *25*	1446.266	6^-	M1+E2	0.051 *17*	4.68 *12*	B(M1)(W.u.)=0.0052 *7*; B(E2)(W.u.)=1.8 *13*
		216.547[@] *12*	100.0[@] *21*	1284.997	5^-	E2		0.237	B(E2)(W.u.)=3.09 *23*
1523.27	(3^+)	1412.05 *8*	100	111.2174	2^+				
1536.66	(4^+)	112[e]		1425.003	$(3)^+$				E$_\gamma$: from β^- decay.
		191.0[#] *5*	12[#] *5*	1345.37	(4^-)	[E1]		0.0704 *11*	
		315.4[#] *4*	100[#] *24*	1221.308	3^-				
		1172.1[#] *5*	83[#] *24*	364.069	4^+				
		1425.54[#] *20*	56[#] *5*	111.2174	2^+				Other Iγ: 77 *19* from (n,γ) E=thermal.
1570.2	(2^+)	145.6[e] *8*	2.6×10^2 *13*	1425.003	$(3)^+$				E$_\gamma$,I$_\gamma$: from (n,γ) E=7.6 eV. γ should have been seen

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γ(^{184}W) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$†	I$_\gamma$†	E$_f$	J$^\pi_f$	Mult.‡	α[c]	Comments
								in (n,γ) E=thermal also, but was not, rendering this placement questionable.
1570.2	(2$^+$)	1570.19 *25*	100 *40*	0.0	0$^+$			I$_\gamma$: from (n,γ) E=7.6 eV.
1581.46	(6$^-$)	296.46[#] *10*	100[#]	1284.997	5$^-$			
1613.512	(1$^+$)	607.620 *25*	100 *6*	1005.971	3$^+$			
		710.08 *3*	94 *10*	903.307	2$^+$			
		1502.35 *8*	24 *12*	111.2174	2$^+$			
1614.90	(1,2)$^+$	711.58 *6*	100 *10*	903.307	2$^+$			
		1503.74 *15*	54 *14*	111.2174	2$^+$			Other Iγ: 77 *18* from (n,γ) E=7.6 eV; 61 from (n,γ) E=thermal: $\gamma\gamma$ coin.
		1614.6[b]	3.9[b] *14*	0.0	0$^+$			E$_\gamma$: γ reported only in (n,γ) E=thermal: $\gamma\gamma$ coin.
1627.71	(1)$^+$	241.46 *6*	4.9 *10*	1386.296	2$^+$	[M1]	0.396	
		724.39 *3*	100 *5*	903.307	2$^+$			
1661.09		526.8[a] *4*	100[a] *31*	1133.850	4$^+$			
		655.5[a] *3*	<300[a]	1005.971	3$^+$			
		757.6[a] *3*	<1000[a]	903.307	2$^+$			
		1550.4[a] *10*	<38[a]	111.2174	2$^+$			
1676.42	(5$^+$)	331.06[#] *12*	74[#] *17*	1345.37	(4$^-$)			
		381.6[#] *5*	100[#] *52*	1294.94	5$^+$			
		1312.2[#] *4*	61[#] *17*	364.069	4$^+$			
1683.4		1319.6[a] *5*	<670[a]	364.069	4$^+$			
		1571.5[a] *8*	100[a] *50*	111.2174	2$^+$			
1699.04	(5)$^+$	≈162[#]	2.3[#] *10*	1536.66	(4$^+$)	[M1]	1.202	I$_\gamma$: possibly overestimated; see comment on this γ in β^- decay data set.
		≈253[#]	6.8[#] *20*	1446.266	6$^-$	[E1]	0.0347	
		274.07[#] *7*	0.60[#] *6*	1425.003	(3)$^+$	[E2]	0.1118	
		354.0[#] *2*	0.20[#] *8*	1345.37	(4$^-$)	[E1]	0.01544	
		414.01[#] *5*	100[#]	1284.997	5$^-$	E1	0.01078	Mult.: from ^{184}Ta β^- decay.
		1334.9 *3*	0.07 *2*	364.069	4$^+$			
1713.47	(0)$^+$	810.16 *10*	100	903.307	2$^+$			
1746.03	(6)$^+$	244.44[#] *6*	33[#] *4*	1501.545	7$^-$	[E1]	0.0378	
		299.79[#] *9*	4.4[#] *5*	1446.266	6$^-$	[E1]	0.0229	
		461.06[#] *5*	100[#] *3*	1284.997	5$^-$	E1	0.00848 *12*	Mult.: from ^{184}Ta β^- decay.
1775.34	(2)$^+$	769.44 *3*	51 *24*	1005.971	3$^+$			Other Iγ: 109 *47* from (n,γ) E=7.6 eV.
		871.56 *8*	100 *21*	903.307	2$^+$			
		1412.4[e] *5*		364.069	4$^+$			Eγ and placement from (n,n′γ) for doubly-placed γ.
1808.27	(2$^+$)	586.94[e] *7*	44 *4*	1221.308	3$^-$			
		678.17 *6*	100 *9*	1130.045	(2)$^-$			

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Adopted Levels, Gammas (continued)

$\gamma(^{184}W)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[c]	Comments
1808.27	(2$^+$)	802.53 *20*	41 *9*	1005.971	3$^+$				Other Iγ: 26 *6* from (n,γ) E=7.6 eV.
		1444.5 *3*	79 *21*	364.069	4$^+$				
		1697.5 *3*	91 *15*	111.2174	2$^+$				
		1808.5 *4*	68 *15*	0.0	0$^+$				
1860.8	10$^+$	608.6	100	1252.2	8$^+$	E2		0.01309	B(E2)(W.u.)=189 *+11−8* Eγ,Mult.: from Coulomb excitation.
1876.71	(2)$^+$	655.38 *12*	26 *5*	1221.308	3$^-$				
		746.59 *15*	47 *11*	1130.045	(2)$^-$				
		1765.6 *4*	100 *29*	111.2174	2$^+$				
		1877.3 *4*	92 *18*	0.0	0$^+$				
1894.3	(2$^+$,3)	763.6[a] *6*	100[a] *39*	1130.045	(2)$^-$				
		1530.5[a] *8*	16[a] *8*	364.069	4$^+$				
		1783.6[a] *6*	37[a] *11*	111.2174	2$^+$				
1925.4	8$^+$	64.6		1860.8	10$^+$	E2		24.0	B(E2)(W.u.)=2.2 *+22−13* B(E2)(W.u.): From measured B(E2)↑=0.011 *+11−7* in Coulomb excitation. Eγ: from level energy difference.
		448.7		1476.9	6$^+$	E2		0.0276	B(E2)(W.u.)=221 *+14−9* Eγ: from Coulomb excitation. B(E2)(W.u.): From measured B(E2)↑=1.79 *+11−7* in Coulomb excitation.
		673		1252.2	8$^+$	M1+E2	−2.3 *+42−4*	0.0129 *10*	B(E2)(W.u.)=11.0 *+8−26* Eγ: from ^{198}Pt(^{136}Xe,Xγ). B(E2)(W.u.): From measured B(E2)↑=0.069 *+5−16* in Coulomb excitation. Mult.,δ: from Coulomb excitation.
		1177.3		748.320	6$^+$	E2		0.00327 *5*	B(E2)(W.u.)=0.63 *+6−11* Eγ: from Coulomb excitation. B(E2)(W.u.): From measured B(E2)↑=0.0052 *+5−9* in Coulomb excitation.
1995.4	1$^{(-)}$	1995.35 *25*	100	0.0	0$^+$	D			Mult.: from γ anisotropy in (γ,γ').
2012.94	(2)$^+$	882.75[d] *15*	<185[d]	1130.045	(2)$^-$				
		1007.03[d] *12*	<235[d]	1005.971	3$^+$				
		1901.9 *3*	100 *31*	111.2174	2$^+$				
2029.83	(5$^-$,6,7$^-$)	528.28[#] *6*	100[#]	1501.545	7$^-$				
2031.3	0$^+$	1920.1 *4*	100	111.2174	2$^+$				
2035.56	1$^+$,2$^+$	1132.36 *20*	17 *3*	903.307	2$^+$				
		2035.1 *4*	100 *20*	0.0	0$^+$				
2056.41	(1)$^-$	1945.3 *3*	100 *15*	111.2174	2$^+$	[E1]			B(E1)(W.u.)=0.00062 *16* Iγ: from (γ,γ').
		2056.34 *20*	76	0.0	0$^+$	[E1]			B(E1)(W.u.)=0.00040 *9* Iγ: from (γ,γ').

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$\gamma(^{184}W)$ (continued)

E_i(level)	J^{π}_i	E_γ[†]	I_γ[†]	E_f	J^{π}_f	Mult.[‡]	Comments
2060.8		635.92[e] 8	27 4	1425.003	$(3)^+$		Other Iγ: 8.6 21 from (n,γ) E=7.6 eV.
		1949.60 25	100 15	111.2174	2^+		
2097.7	$(1)^+$	1986.6 4	81 17	111.2174	2^+		
		2097.6 4	100 14	0.0	0^+	[M1]	B(M1)(W.u.)=0.043 10
2104.20	$(2)^+$	782.2[d] 3	26[d] 9	1322.152	$(0)^+$		
		982.44[d] 18	41[d] 9	1121.440	2^+		
		1098.28[d] 8	100[d] 9	1005.971	3^+		
2112.49		982.44[d] 18	100[d]	1130.045	$(2)^-$		
2124.6	$(1,2^+)$	1121.4	47 18	1002.49	0^+		
		1222.0	100 9	903.307	2^+		
2126.07		996.06 5	52 5	1130.045	$(2)^-$		Other Iγ: 66 13 in (n,γ) E=7.6 eV.
		1004.47 8	44 5	1121.440	2^+		Other Iγ: 41 8 in (n,γ) E=7.6 eV.
		2015.32 20	100 10	111.2174	2^+		Other Iγ: 100 41 in (n,γ) E=7.6 eV.
2168.19	$(1)^+$	743.19 4	66 14	1425.003	$(3)^+$		I_γ: from (n,γ) E=7.6 eV.
		782.2[de] 3	<28[d]	1386.296	2^+		I_γ: if I(1046γ)=34.
		846.21 25	34 10	1322.152	$(0)^+$		I_γ: if I(1046γ)=34.
		1046.4 3	34 8	1121.440	2^+		I_γ: from (n,γ) E=7.6 eV.
		≈1264.7	20 4	903.307	2^+		E_γ,I_γ: from (n,γ) E=7.6 eV. Other Iγ: 14 7 from (n,γ) E=thermal; 29 11 from (n,γ) E=thermal: γγ coin.
		2056.5 5	100 4	111.2174	2^+		E_γ,I_γ: from (n,γ) E=7.6 eV.
		2168.0 5	10 4	0.0	0^+		E_γ,I_γ: from (n,γ) E=7.6 eV. Other Iγ: 62 10 from (n,γ) E=thermal: γγ coin.
2221.77	(≤4)	446.64 25	21 6	1775.34	$(2)^+$		
		2110.0 4	100 26	111.2174	2^+		
2222.8	$(2^+,3,4^+)$	≈1319.5[e]		903.307	2^+		E_γ: from ^{183}W(n,γ) 7.6 eV; doubly-placed γ.
		1858.7 5		364.069	4^+		E_γ: from ^{183}W(n,γ) 7.6 eV.
2228.30?	$(2^-,3,4^-)$	882.75[d] 15	60[d] 12	1345.37	(4^-)		
		1007.03[d] 12	82[d] 9	1221.308	3^-		
		1098.28[d] 8	100[d] 10	1130.045	$(2)^-$		
2246.3	$(2)^+$	2135.1 3	100 41	111.2174	2^+		I_γ: from (n,γ) E=7.6 eV.
		≈2245	38 16	0.0	0^+		E_γ,I_γ: from (n,γ) E=7.6 eV.
2294.61	$(2)^+$	1173.1[b]	8.4[b] 16	1121.440	2^+		
		1391.23 8	46 5	903.307	2^+		
		2183.62 15	100 15	111.2174	2^+		
		2294.5[b]	4.9[b] 22	0.0	0^+		
2320.4	$(1^-,2^-)$	1417.1[b]	100[b]	903.307	2^+		
2328.7?	$(1,2^+)$	2328.7 5	100	0.0	0^+		
2349.9		2349.9[b]	100[b]	0.0	0^+		
2370.1	$(1)^+$	2258.6 4	100 26	111.2174	2^+		

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$\gamma(^{184}W)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[c]	Comments
2370.1	$(1)^+$	2370.4 *4*	93 *14*	0.0	0^+			
2389.14	$(4^-,5,6^-)$	359.2[#] *3*	22[#] *6*	2029.83	$(5^-,6,7^-)$			
		807.68[#] *10*	100[#] *12*	1581.46	(6^-)			
		942.9[#] *4*	21[#] *4*	1446.266	6^-			
		1043.1[#] *8*	≈1.5[#]	1345.37	(4^-)			
		1093.8[#] *10*	4[#] *3*	1294.94	5^+			
		1104.4[#] *3*	9[#] *4*	1284.997	5^-			
2390.3	$(1)^+$	2279.1[b]	27[b] *9*	111.2174	2^+			
		2390.3[b]	100[b] *16*	0.0	0^+			
2395.8	$(1)^+$	782.2[de] *3*	<14[d]	1613.512	(1^+)			
		1274.3[b]	20.6[b] *18*	1121.440	2^+			
		2031.7[b]	16[b] *3*	364.069	4^+			
		2284.2 *4*	100 *6*	111.2174	2^+			I_γ: from (n,γ) E=thermal: $\gamma\gamma$ coin.
		2395.9 *5*	48 *4*	0.0	0^+			I_γ: from (n,γ) E=thermal: $\gamma\gamma$ coin. Other: 37 *14* in (n,γ) E=thermal.
2404.2	0^+	1500.9[b]	100[b] *13*	903.307	2^+			
		2292.9[b]	49[b] *12*	111.2174	2^+			
2439.8		2328.6[b]	100[b]	111.2174	2^+			
2458.4	1	2347.1[b]	19[b] *4*	111.2174	2^+			
		2458.4[b]	100[b] *9*	0.0	0^+	D		Mult.: from anisotropy in (γ,γ').
2471.7	10^+	546.3	100	1925.4	8^+	[E2]	0.0169	B(E2)(W.u.)=224 *+12−41* E_γ: from Coulomb excitation.
2479.3	$(8^-,9,10^+)$	554		1925.4	8^+			E_γ: from $^{198}Pt(^{136}Xe,X\gamma)$.
		1227		1252.2	8^+			E_γ: from $^{198}Pt(^{136}Xe,X\gamma)$.
2492.67	$(4^-,5,6)$	1046.4[#] *6*	15[#] *5*	1446.266	6^-			
		1207.67[#] *10*	100[#] *10*	1284.997	5^-			
2509.4		1606.1[b]	22[b] *7*	903.307	2^+			
		2398.1[b]	100[b] *13*	111.2174	2^+			
2520.7		2409.5[b]	100[b]	111.2174	2^+			
2546.1	1	2435	44 *11*	111.2174	2^+			E_γ,I_γ: from (γ,γ').
		2546 *1*	100	0.0	0^+	D		E_γ,I_γ,Mult.: from (γ,γ').
2555.0		2443.8[b]	100[b]	111.2174	2^+			
2557.0	12^+	696.2	100	1860.8	10^+	E2	0.00965 *14*	B(E2)(W.u.)=208 *+19−17* E_γ,Mult.: from Coulomb excitation. B(E2)(W.u.): From measured B(E2)↑=1.54 *+14−12* in Coulomb excitation.

$^{184}_{74}W_{110}$-20

$\gamma(^{184}W)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	Comments
2573.4		2462.2[b]	100[b]	111.2174	2^+		
2613.3		1710.0[b]	100[b] *26*	903.307	2^+		
		2502.1[b]	54[b] *21*	111.2174	2^+		
2618.8		2618.8[b]	100[b]	0.0	0^+		
2630.7		2519.4[b]	34[b] *9*	111.2174	2^+		
		2630.7[b]	100[b] *17*	0.0	0^+		
2649.0		2537.8[b]	100[b]	111.2174	2^+		
2655.8		2544.5[b]	39[b] *16*	111.2174	2^+		
		2655.8[b]	100[b] *26*	0.0	0^+		
2694.4	1	2694.4[b]	100[b]	0.0	0^+	D	Other Eγ: 2693 *1* from (γ,γ'). Mult.: from γ anisotropy in (γ,γ').
2706.7		1803.4[b]	100[b] *14*	903.307	2^+		
		2595.5[b]	32[b] *11*	111.2174	2^+		
		2706.7[b]	26[b] *13*	0.0	0^+		
2719.8		1816.5[b]	100[b]	903.307	2^+		
2732.5		2621.3[b]	100[b]	111.2174	2^+		
2739.3		260		2479.3	$(8^-,9,10^+)$		E_γ: from $^{198}Pt(^{136}Xe,X\gamma)$.
2757.6		2646.4[b]	100[b]	111.2174	2^+		
2763.2	1	2397.1[b]	20[b] *5*	364.069	4^+		
		2651.9[b]	82[b] *12*	111.2174	2^+		
		2763.2[b]	100[b] *12*	0.0	0^+	D	Mult.: from γ anisotropy in (γ,γ').
2767.6		2656.3[b]	100[b] *16*	111.2174	2^+		
		2767.6[b]	25[b] *9*	0.0	0^+		
2798.2		2798.2[b]	100[b]	0.0	0^+		
2802.7		2691.5[b]	100[b]	111.2174	2^+		
2813		2813 *1*	100	0.0	0^+		E_γ: from (γ,γ').
2815.0		2450.9[b]	25[b] *5*	364.069	4^+		
		2703.7[b]	100[b] *10*	111.2174	2^+		
2825.1	0^+	1921.8[b]	63[b] *25*	903.307	2^+		
		2713.9[b]	100[b] *28*	111.2174	2^+		
2836.9		2725.7[b]	100[b]	111.2174	2^+		
2870.5	(0^+)	1967.2[b]	100[b]	903.307	2^+		
2892.1	1	2780.9	35 *12*	111.2174	2^+		E_γ: from (n,γ) E=thermal: $\gamma\gamma$ coin. I_γ: from (γ,γ'). Other: 25 *13* from (n,γ) E=thermal: $\gamma\gamma$ coin.

$^{184}_{74}W_{110}$-21

$\gamma(^{184}W)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[c]	Comments
2892.1	1	2892.1	100	0.0	0^+	D		E_γ: from (n,γ) E=thermal: $\gamma\gamma$ coin. I_γ: from (γ,γ'). Mult.: from γ anisotropy in (γ,γ').
2905.8		2000.8[b]	100[b] *25*	903.307	2^+			
		2905.8[b]	49[b] *25*	0.0	0^+			
2919.5		2808.3[b]	100[b]	111.2174	2^+			
2946.8		2043.5[b]	100[b] *47*	903.307	2^+			
		2835.5[b]	91[b] *47*	111.2174	2^+			
2951.0	1	2839.7	56 *11*	111.2174	2^+			E_γ: from (n,γ) E=thermal: $\gamma\gamma$ coin. I_γ: from (γ,γ'). Other: 34 *21* from (n,γ) E=thermal: $\gamma\gamma$ coin.
		2951.0	100	0.0	0^+	D		E_γ: from (n,γ) E=thermal: $\gamma\gamma$ coin. I_γ: from (γ,γ'). Mult.: from γ anisotropy in (γ,γ').
2968.7	(1^+)	2857.4[b]	33[b] *7*	111.2174	2^+			
		2968.7[b]	100[b] *24*	0.0	0^+			
2983.6		2983.6[b]	100[b]	0.0	0^+			
3017.1		3017.1[b]	100[b]	0.0	0^+			
3022.9		2911.6[b]	71[b] *29*	111.2174	2^+			
		3022.9[b]	100[b] *20*	0.0	0^+			
3029.0		2917.8[b]	100[b]	111.2174	2^+			
3037.1	(1^+)	1915.7[b]	100[b] *22*	1121.440	2^+			
		2925.9[b]	78[b] *24*	111.2174	2^+			
		3037.1[b]	90[b] *31*	0.0	0^+			
3053.4		2942.2[b]	100[b]	111.2174	2^+			
3060.3		321		2739.3				E_γ: from $^{198}Pt(^{136}Xe,X\gamma)$.
		581[e]		2479.3	$(8^-,9,10^+)$			E_γ: from $^{198}Pt(^{136}Xe,X\gamma)$.
3068.5		2957.3[b]	100[b]	111.2174	2^+			
3071.2	1	3071.2[b]	100[b]	0.0	0^+	D		Mult.: from γ anisotropy in (γ,γ').
3084.0	1	3084 *1*	100	0.0	0^+	D		E_γ,I_γ: from (γ,γ'). Mult.: from γ anisotropy in (γ,γ').
3088	1	3088 *1*	100	0.0	0^+	D		E_γ,I_γ: from (γ,γ'). Mult.: from γ anisotropy in (γ,γ').
3104.2		2200.9[b]	42[b] *7*	903.307	2^+			
		2992.9[b]	28[b] *7*	111.2174	2^+			
		3104.2[b]	100[b] *12*	0.0	0^+			
3108.8?	(12^+)	637.1[e]	100	2471.7	10^+	[E2]	0.01178	B(E2)(W.u.)=245 *+21−97*

$^{184}_{74}W_{110}$-22

$\gamma(^{184}W)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[c]	Comments
								E_γ: from Coulomb excitation. B(E2)(W.u.): From measured B(E2)↑=1.79 +*15*−*71* in Coulomb excitation.
3124	1	3124 *1*	100	0.0	0^+	D		E_γ,I_γ: from (γ,γ'). Mult.: from γ anisotropy in (γ,γ').
3133	1	3133 *1*	100	0.0	0^+	D		Mult.,E_γ: from γ anisotropy in (γ,γ').
3134.6		2231.3[b]	100[b]	903.307	2^+			
3136.8		3136.8[b]	100[b]	0.0	0^+			
3164.1		3052.9[b]	78[b] *32*	111.2174	2^+			
		3164.1[b]	100[b] *28*	0.0	0^+			
3166.2		3055.0[b]	100[b]	111.2174	2^+			
3169.1		3057.9[b]	100[b]	111.2174	2^+			
3177.9		3177.9[b]	100[b]	0.0	0^+			
3183.8		3072.6[b]	100[b]	111.2174	2^+			
3187.1		3075.9[b]	100[b]	111.2174	2^+			
3193.3		3082.1[b]	100[b]	111.2174	2^+			
3201.8		3090.6[b]	100[b]	111.2174	2^+			
3224.6		3113.4[b]	100[b]	111.2174	2^+			
3226.3		2323.0[b]	100[b]	903.307	2^+			
3233.7		2330.4[b]	78[b] *40*	903.307	2^+			
		3122.4[b]	100[b] *36*	111.2174	2^+			
3248.8		3137.6[b]	100[b]	111.2174	2^+			
3264.0		3264.0[b]	100[b]	0.0	0^+			
3266.4		3155.2[b]	100[b]	111.2174	2^+			
3288.3		2385.0[b]	100[b]	903.307	2^+			
3290.0		3290.0[b]	100[b]	0.0	0^+			
3293.5		3293.5[b]	100[b]	0.0	0^+			
3304.3		2401.4[b]	100[b]	903.307	2^+			
3307.4		3196.2[b]	100[b]	111.2174	2^+			
3318.5		3207.3[b]	100[b]	111.2174	2^+			
3319.9	14^+	762.9	100	2557.0	12^+	[E2]	0.0079	B(E2)(W.u.)=250 +*18*−*44* E_γ: from Coulomb excitation. B(E2)(W.u.): From measured B(E2)↑=1.80 +*13*−*32* in Coulomb excitation.
3329.2		3218.0[b]	100[b]	111.2174	2^+			
3341.4		3230.2[b]	100[b]	111.2174	2^+			

$^{184}_{74}W_{110}$-23

$\gamma(^{184}W)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	Comments
3345.1		2223.7[b]	100[b]	1121.440	2^+		
3349.1		3237.9[b]	100[b]	111.2174	2^+		
3352.6		3241.4[b]	68[b] *23*	111.2174	2^+		
		3352.6[b]	100[b] *29*	0.0	0^+		
3372.9		3261.7[b]	100[b]	111.2174	2^+		
3377.5		3266.3[b]	100[b]	111.2174	2^+		
3384.3		3273.1[b]	100[b]	111.2174	2^+		
3392.0		3280.8[b]	84[b] *38*	111.2174	2^+		
		3392.0[b]	100[b] *46*	0.0	0^+		
3413.7		3302.5[b]	100[b]	111.2174	2^+		
3422.4		3311.2[b]	100[b]	111.2174	2^+		
		3422.4	81 *28*	0.0	0^+		E_γ: from (n,γ) E=thermal: $\gamma\gamma$ coin. I_γ: weighted average of 71 *39* from (n,γ) E=thermal: $\gamma\gamma$ coin, 91 *41* from (γ,γ').
3427.2		3316.0[b]	100[b]	111.2174	2^+		
3441.3		381		3060.3			E_γ: from ^{198}Pt(^{136}Xe,Xγ).
		702[e]		2739.3			E_γ: from ^{198}Pt(^{136}Xe,Xγ).
3448.2		3337.0[b]	100[b]	111.2174	2^+		
3455.6		3344.4[b]	100[b] *36*	111.2174	2^+		
		3455.6[b]	98[b] *38*	0.0	0^+		
3466.2	1	3355	100	111.2174	2^+		E_γ: from level energy difference.
		3466.2[b]	76[b] *13*	0.0	0^+	D	Other Eγ: 3464 *1* in (γ,γ'). I_γ: from (γ,γ').
3473.3		3362.1[b]	94[b] *42*	111.2174	2^+		
		3473.3[b]	100[b] *45*	0.0	0^+		
3488.2		3377.0[b]	100[b]	111.2174	2^+		
3500.7		3389.5[b]	98[b] *33*	111.2174	2^+		
		3500.7[b]	100[b] *38*	0.0	0^+		
3507.1	(1)	3396	70 *20*	111.2174	2^+		I_γ: from (γ,γ').
		3507 *1*	100	0.0	0^+	(D)	Mult.: from γ anisotropy in (γ,γ').
3516.2		3405.0[b]	100[b]	111.2174	2^+		
3522.5		3411.3[b]	100[b]	111.2174	2^+		
3571.1	(1)	3460	100	111.2174	2^+		
		3571 *1*	56 *12*	0.0	0^+	(D)	I_γ: from (γ,γ'). Mult.: from γ anisotropy in (γ,γ').
3618.1		3618.1[b]	100[b]	0.0	0^+		

$^{184}_{74}W_{110}$-24

Adopted Levels, Gammas (continued)

$\gamma(^{184}W)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[c]	Comments
3633.1	1	3522	45 *12*	111.2174	2^+			I_γ: from (γ,γ').
		3633 *1*	100	0.0	0^+	D		Mult.: from γ anisotropy in (γ,γ').
3634.7		3523.5[b]	100[b] *24*	111.2174	2^+			
		3634.7[b]	80[b] *24*	0.0	0^+			
3649.2		3538.0[b]	100[b]	111.2174	2^+			
3654.2		3543.0[b]	100[b]	111.2174	2^+			
3670.3		3559.1[b]	100[b]	111.2174	2^+			
3682.1	(1)	3571	46 *14*	111.2174	2^+			E_γ,I_γ: from (γ,γ').
		3682 *1*	100	0.0	0^+	(D)		E_γ,I_γ: from (γ,γ'). Mult.: from γ anisotropy in (γ,γ').
3684.5		3573.3[b]	100[b]	111.2174	2^+			
3706.6		3595.4[b]	100[b]	111.2174	2^+			
3715.3		274	100	3441.3				E_γ: from $^{198}Pt(^{136}Xe,X\gamma)$ (2004Wh02.
3715.6		3604.4[b]	100[b]	111.2174	2^+			
3863.2	$(14^-,15,17^-)$	148	100	3715.3		(M1)	1.552	B(M1)(W.u.)=1.4×10^{-5} *3* E_γ: from $^{198}Pt(^{136}Xe,X\gamma)$. Mult.: α(exp)=4.3 *24* in $(^{136}Xe,X\gamma)$ favors M1, but uncertainty is large and authors do not rule out E2 and E1 which are within 2σ of deduced α(exp).
3962.4		3851.2[b]	37[b] *13*	111.2174	2^+			
		3962.4[b]	100[b] *20*	0.0	0^+			
4116.9	16^+	797.0	100	3319.9	14^+	[E2]	0.00720 *10*	B(E2)(W.u.)=225 *+23−58* E_γ: from Coulomb excitation. B(E2)(W.u.): From measured B(E2)↑=1.59 *+16−41* in Coulomb excitation.
4278.8		4167.5[b]	51[b] *18*	111.2174	2^+			
		4278.8[b]	100[b] *25*	0.0	0^+			
6543.5		6543.5[b]	100[b]	0.0	0^+			
6556.1		5433	28 *17*	1121.440	2^+			E_γ,I_γ: from (γ,γ').
		6444	64 *32*	111.2174	2^+			E_γ,I_γ: from (γ,γ').
		6555	100	0.0	0^+			E_γ,I_γ: from (γ,γ').
6580.8		6580.8[b]	100[b]	0.0	0^+			
6622.7		6511.5[b]	100[b]	111.2174	2^+			
6760.1	1^+	6648	71 *25*	111.2174	2^+			E_γ,I_γ: from (γ,γ').
		6760	100	0.0	0^+	M1		E_γ,I_γ,Mult.: from (γ,γ').

† From (n,γ) E=thermal, except as noted.

γ(^{184}W) (continued)

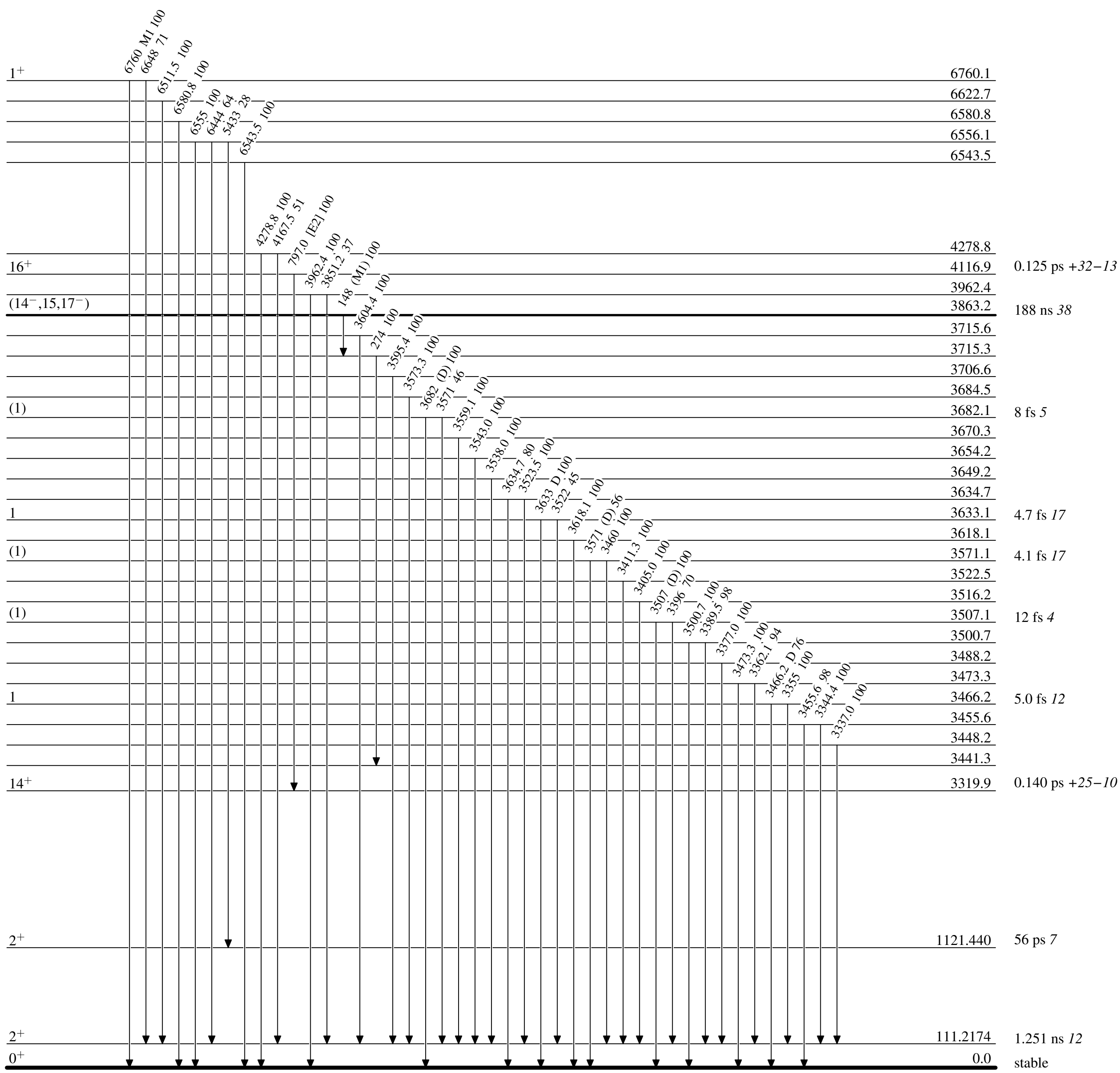
‡ From ^{184}Re ε decay, except as noted.
# From β^- decay.
@ From ε decay (169 d).
& From ε decay (35.4 d).
[a] From (n,n$'\gamma$).
[b] From (n,γ) E=thermal: $\gamma\gamma$ coin.
[c] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
[d] Multiply placed with undivided intensity.
[e] Placement of transition in the level scheme is uncertain.

$^{184}_{74}$W$_{110}$-26

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{184}_{74}W_{110}$

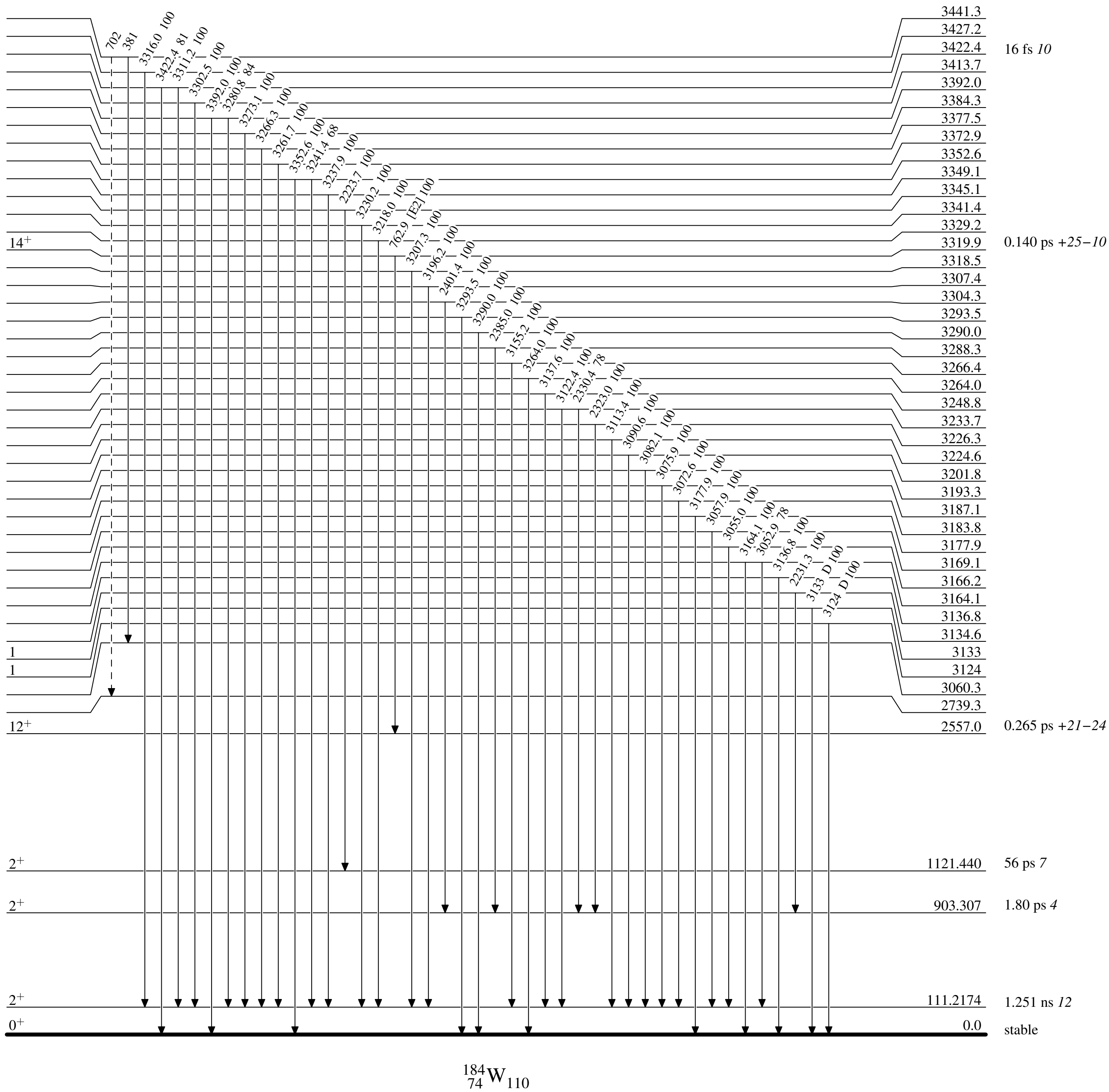
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

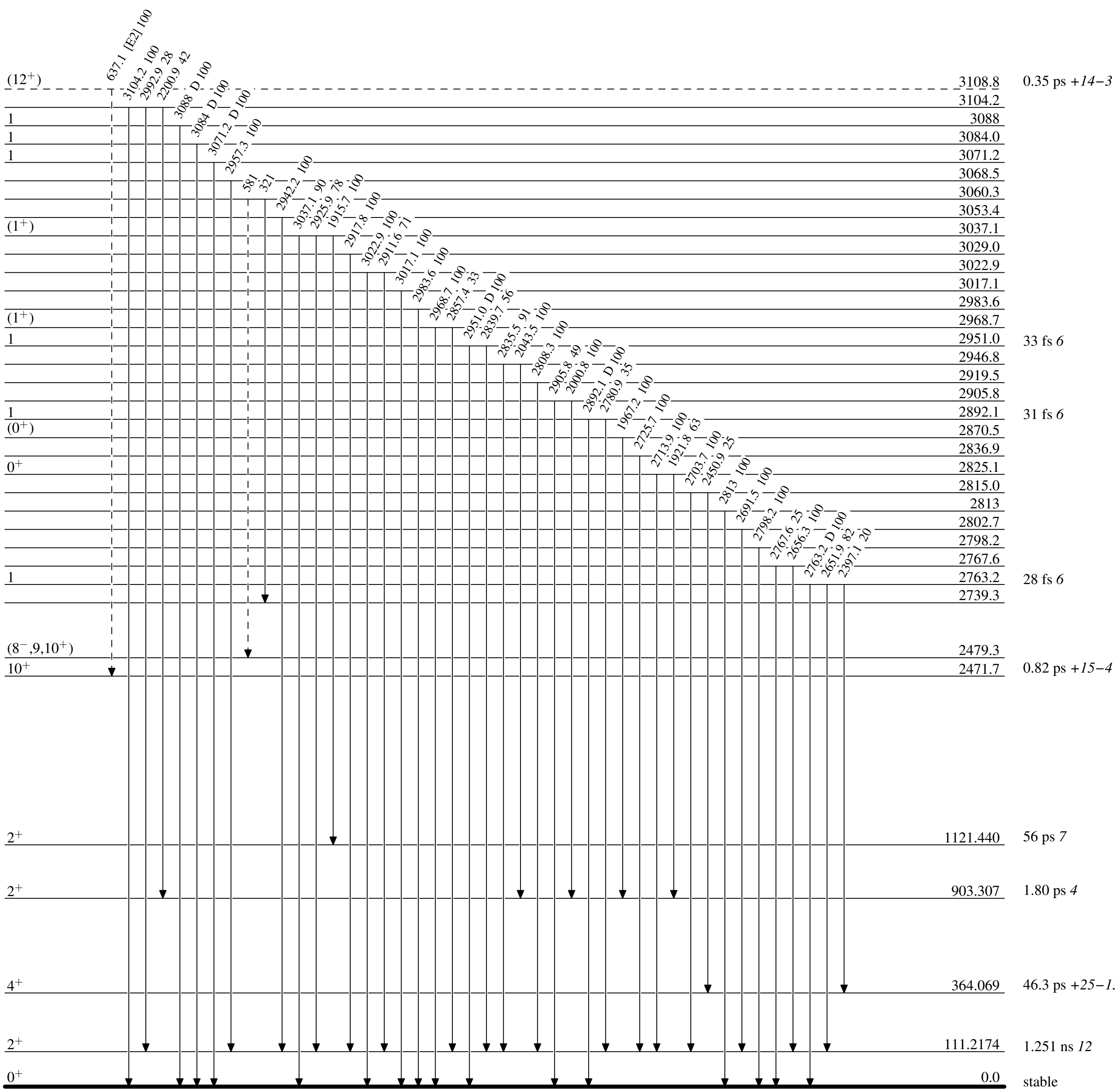
γ Decay (Uncertain)



Adopted Levels, Gammas

Level Scheme (continued)

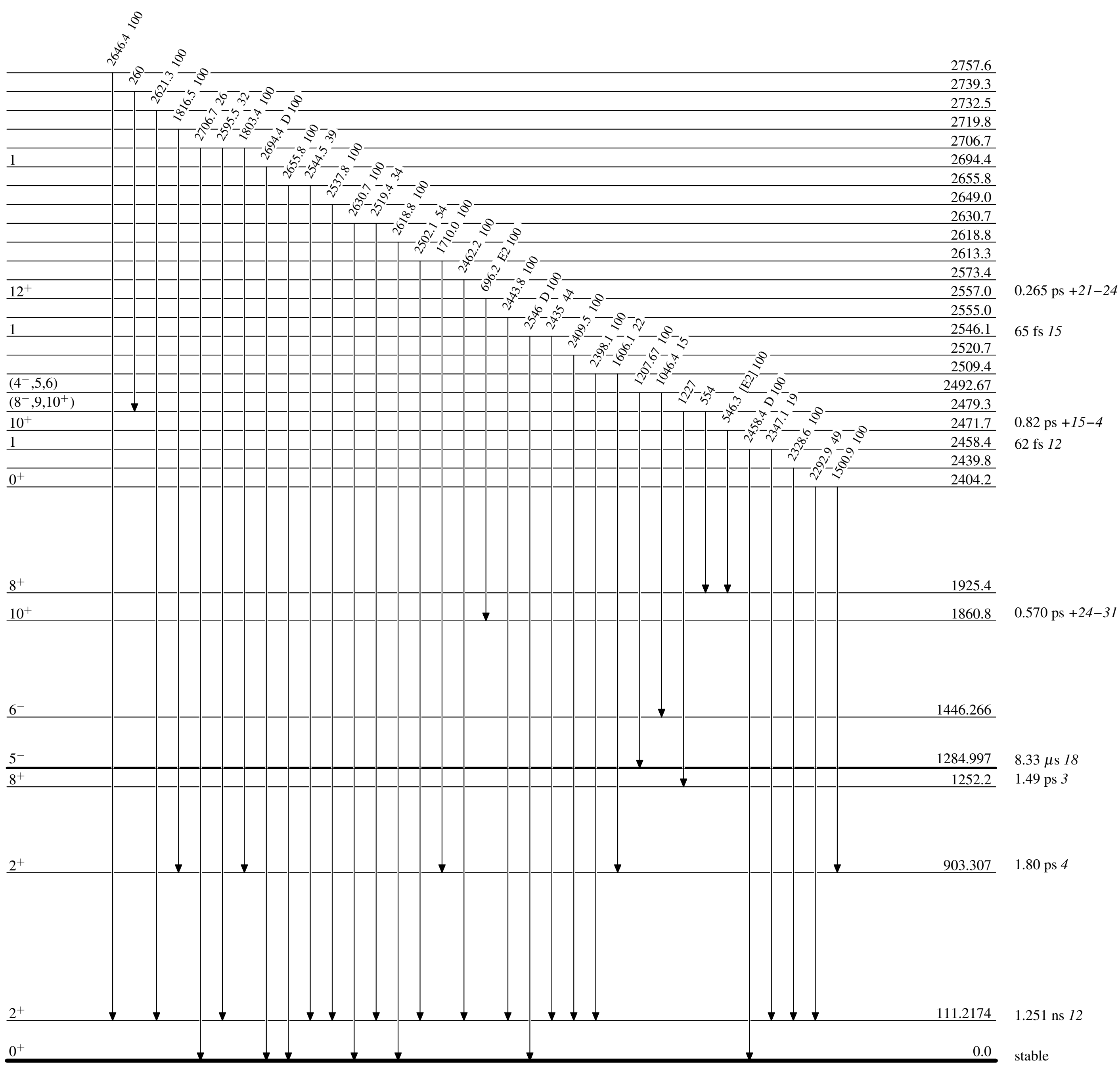
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{184}_{74}W_{110}$

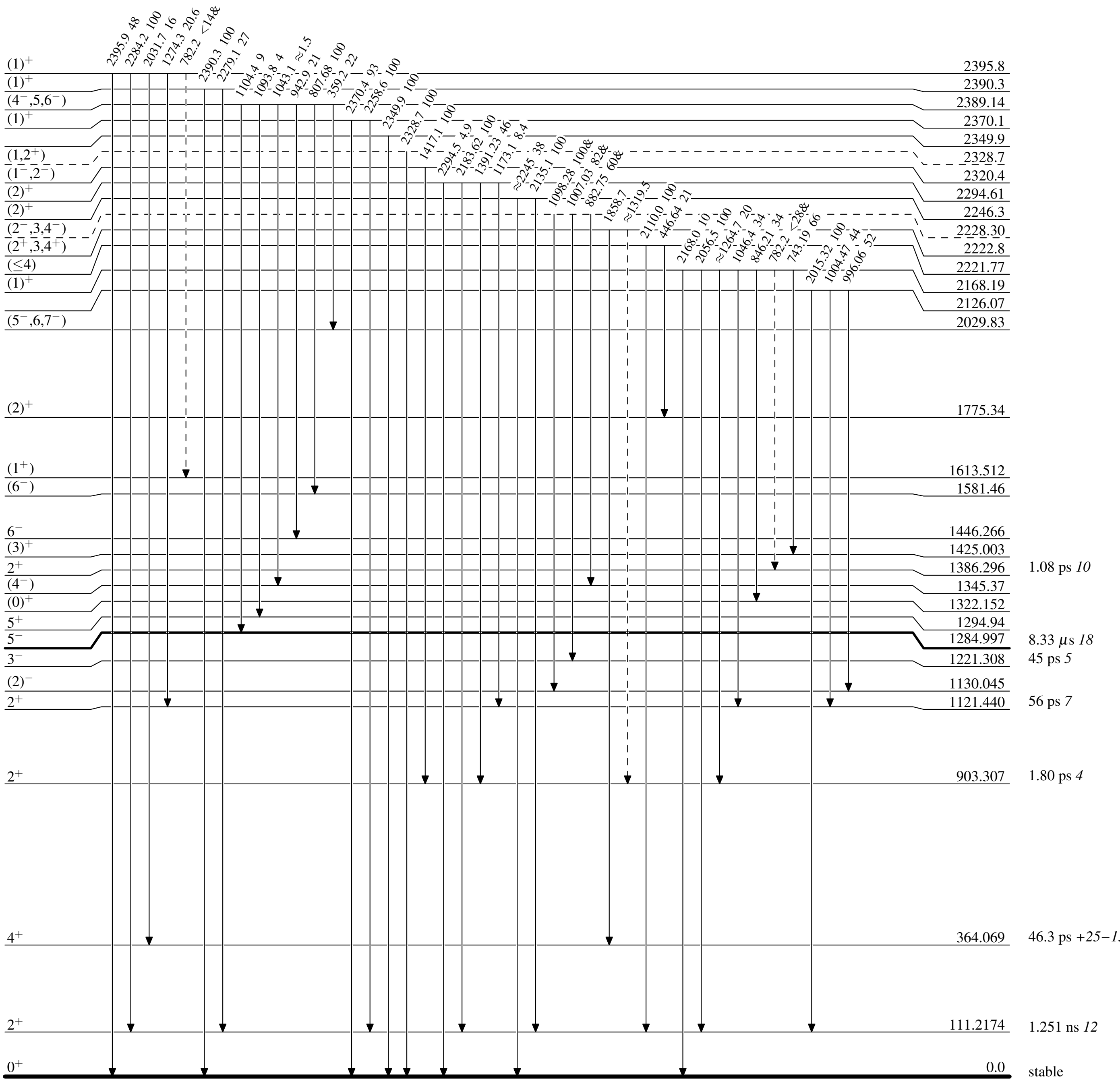
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)



$^{184}_{74}W_{110}$

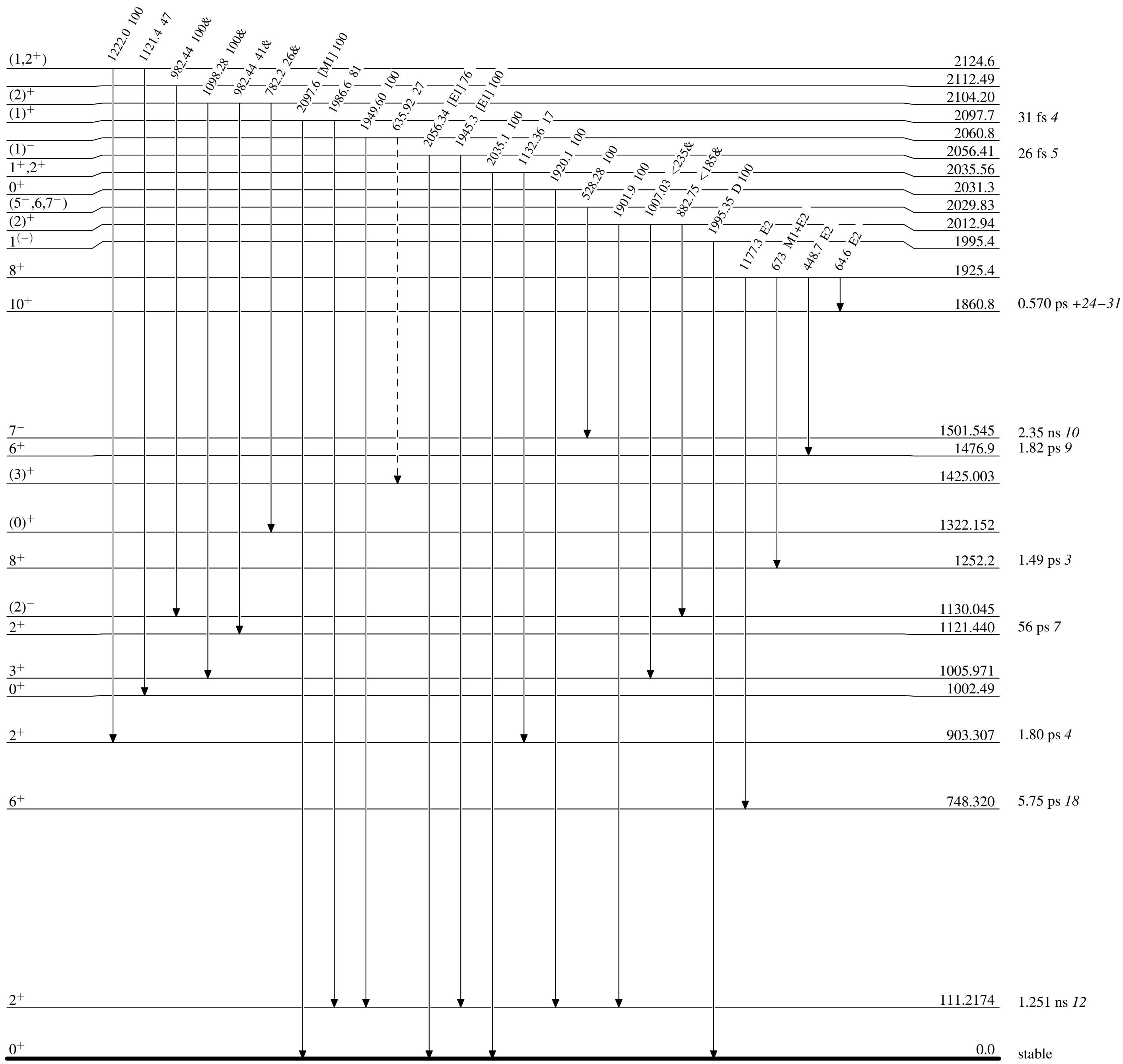
Adopted Levels, Gammas

Level Scheme (continued)

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

Legend

γ Decay (Uncertain)



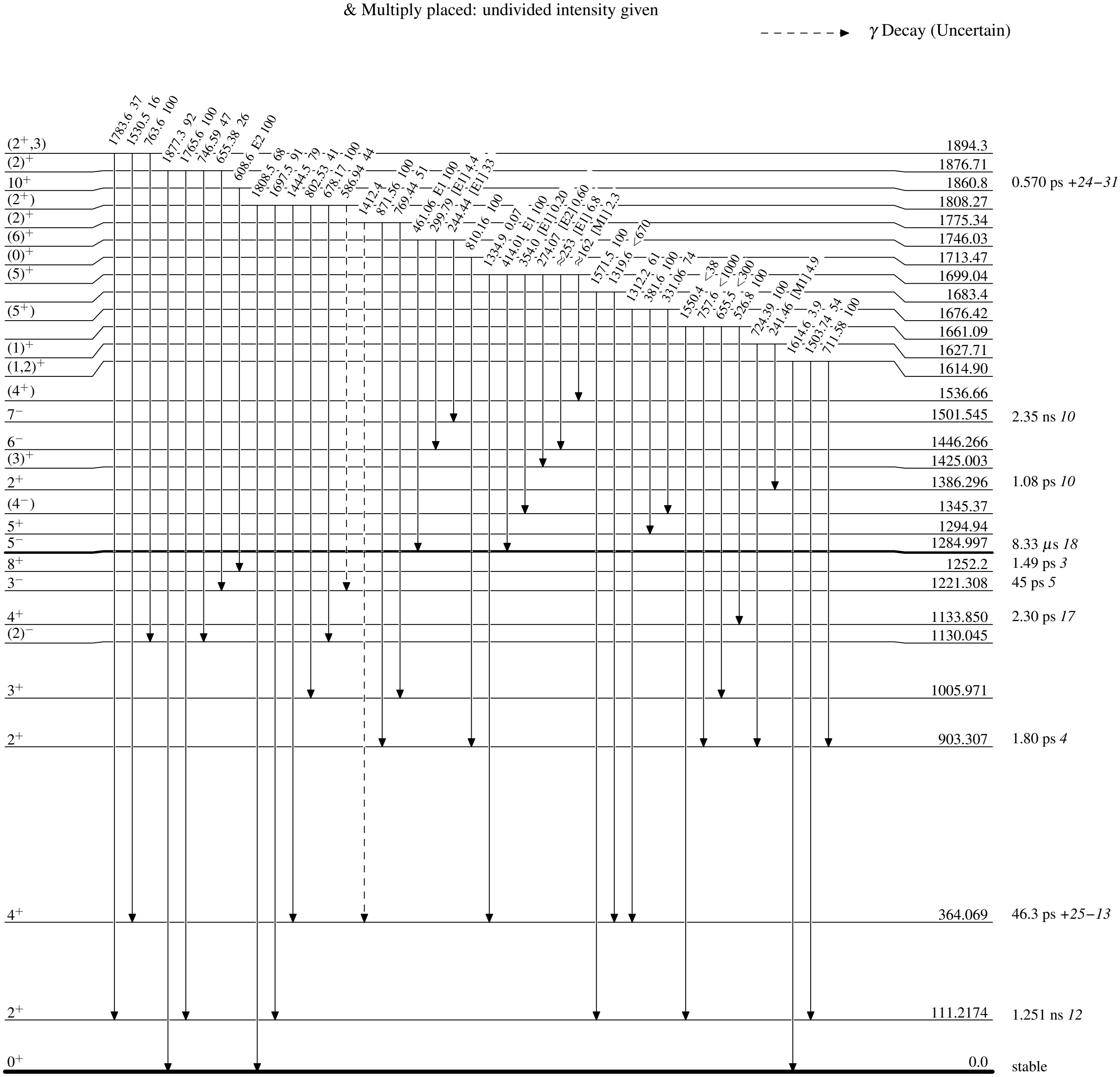
$^{184}_{74}W_{110}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

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



$^{184}_{74}$W$_{110}$

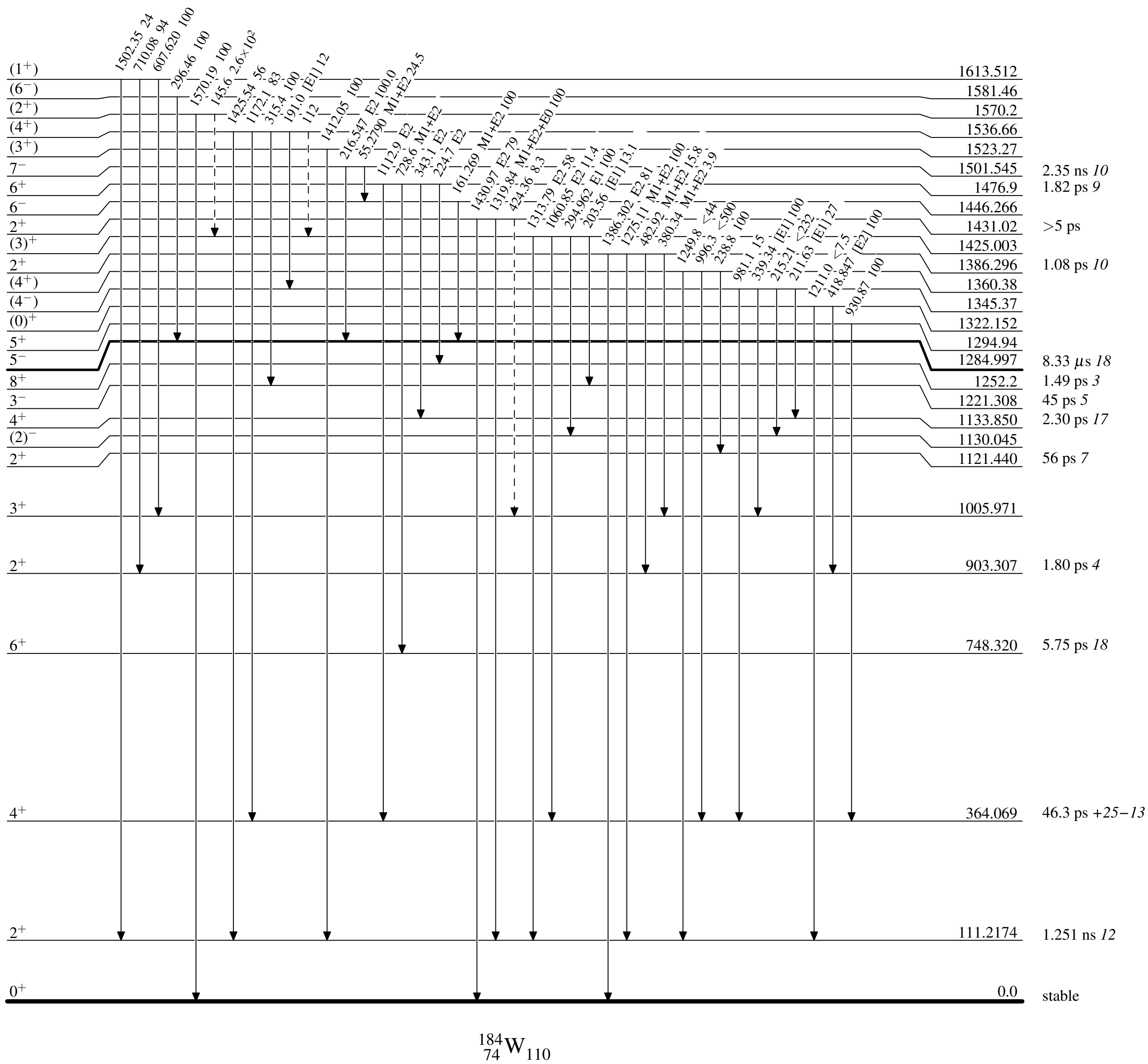
Adopted Levels, Gammas

Level Scheme (continued)

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

Legend

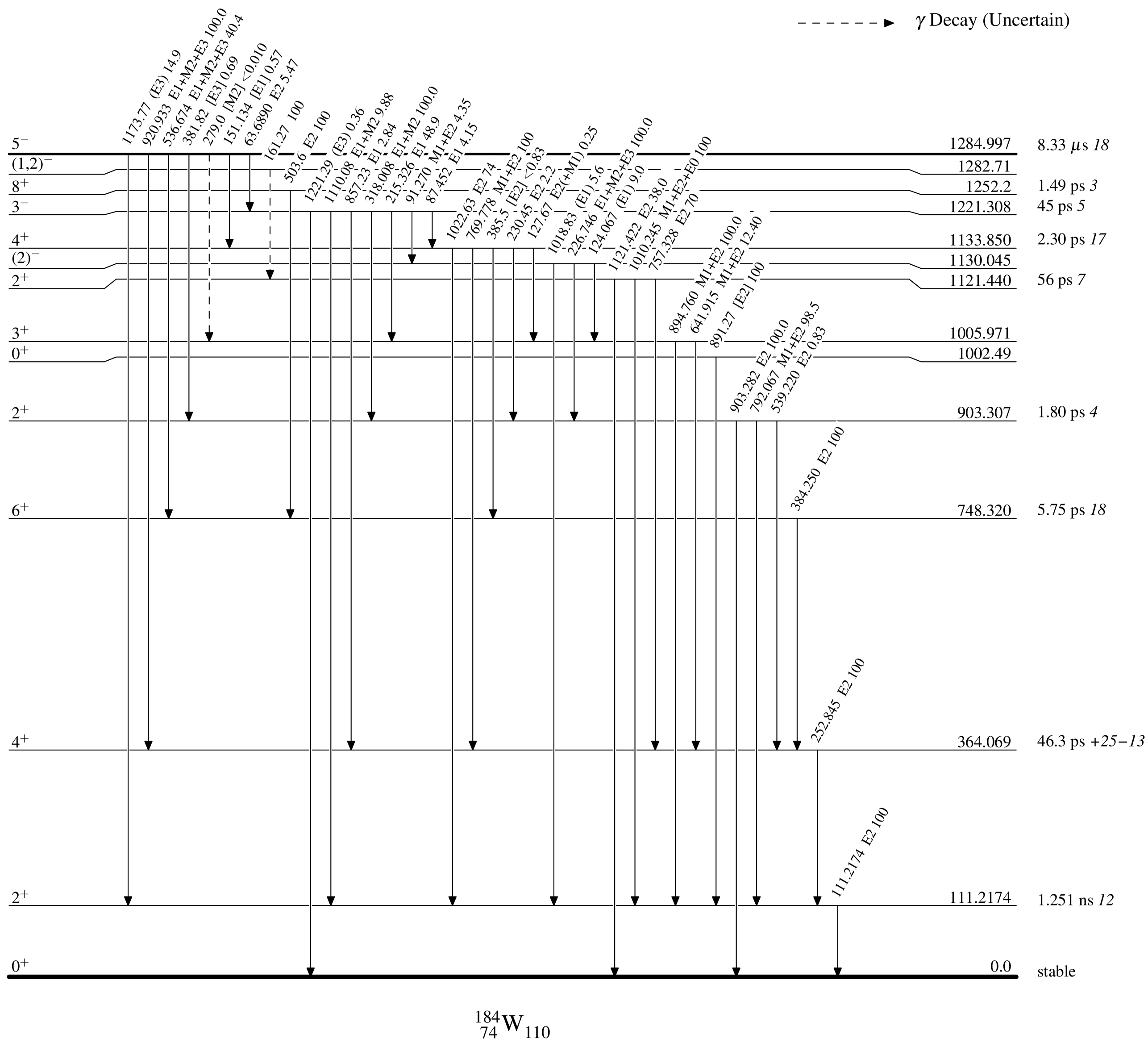
γ Decay (Uncertain)



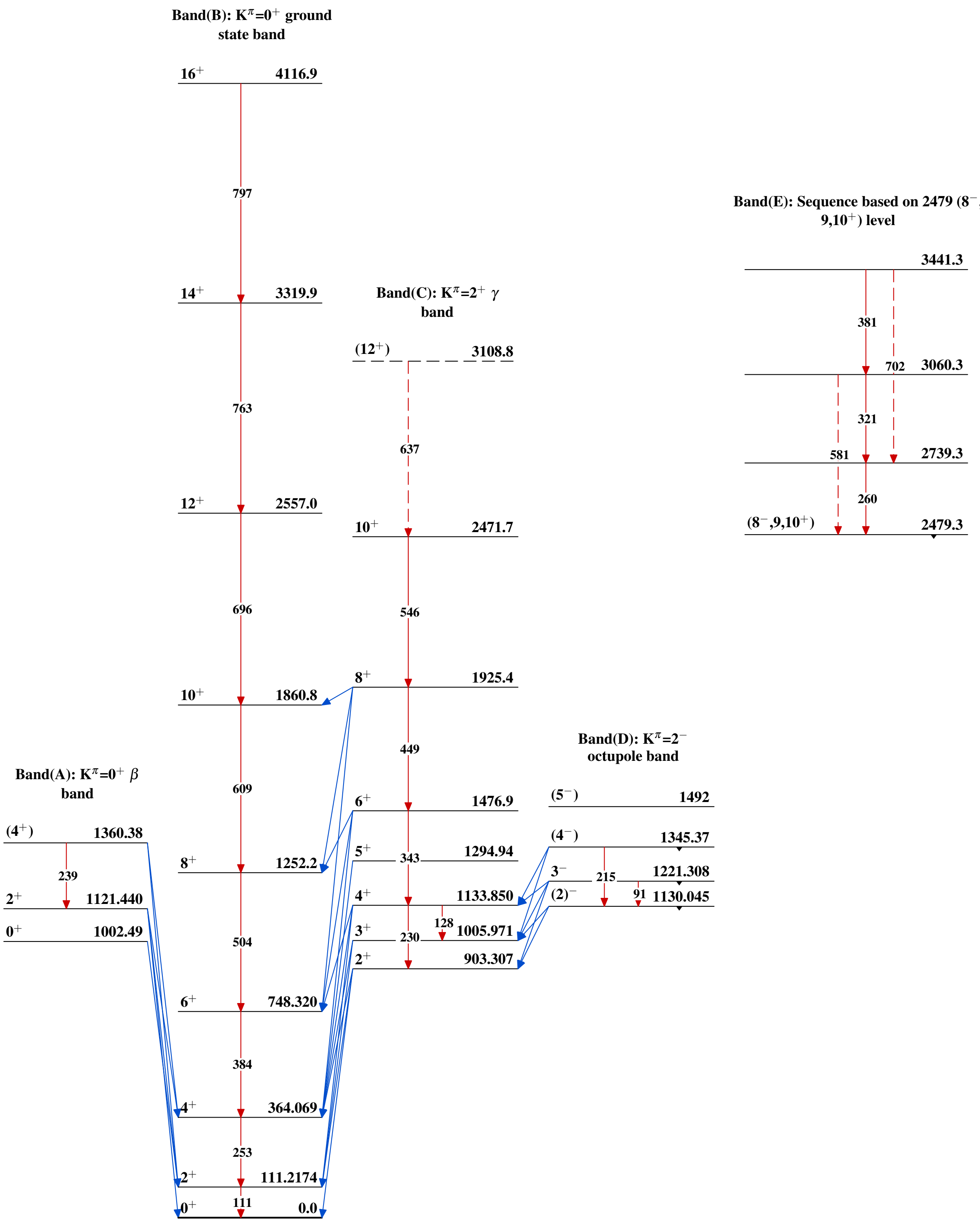
Adopted Levels, Gammas

Level Scheme (continued)

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

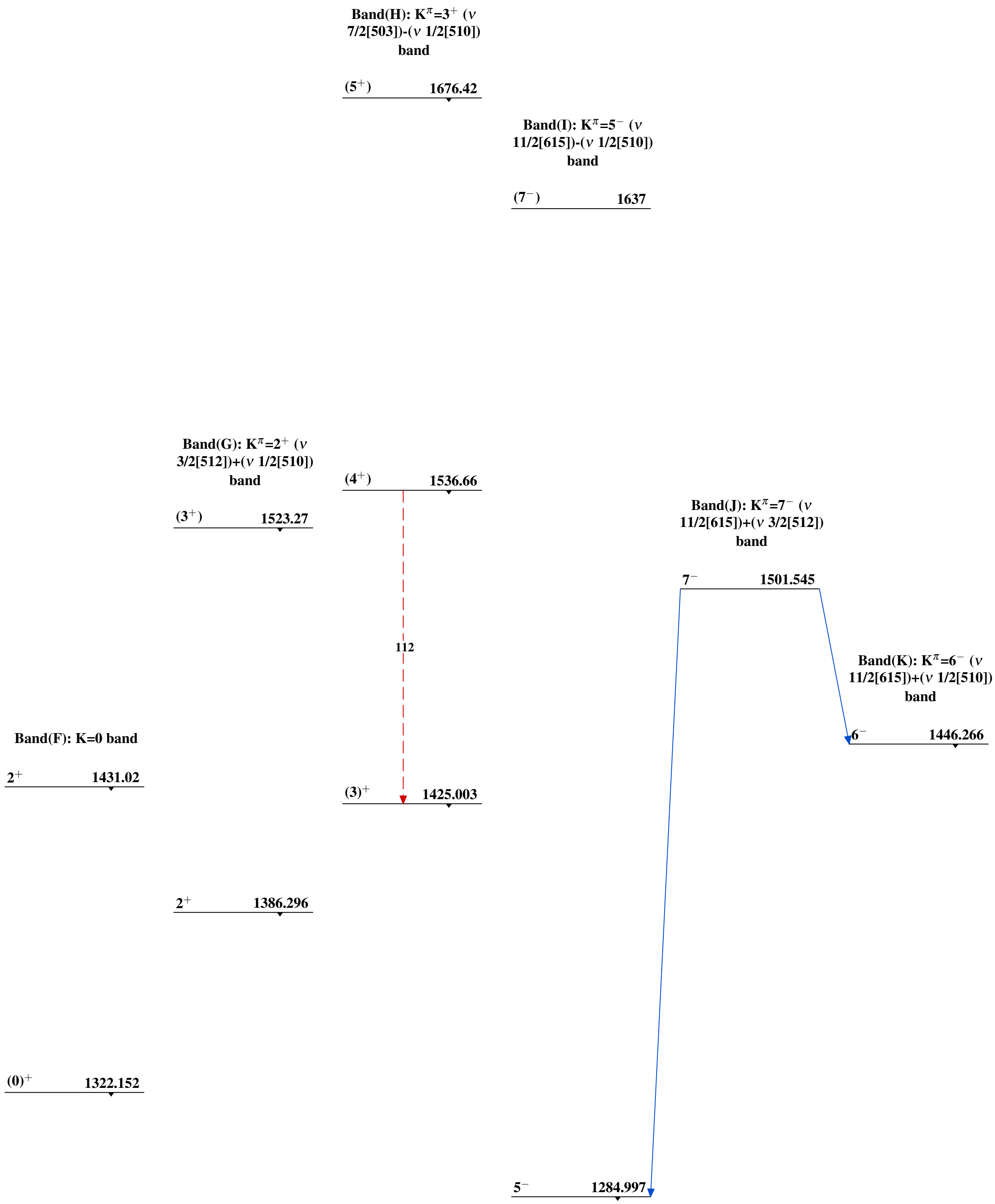


Adopted Levels, Gammas



$^{184}_{74}W_{110}$

Adopted Levels, Gammas (continued)



$^{184}_{74}W_{110}$