Energy levels and branching ratios [94Br18, 80Mo11]. $^{178}_{74}W$

E^* [keV]	J^π	L	$d\sigma/d\Omega$ μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
0.0	0^+	0	741	21.6(3) d	80Mo11
106.06(22)	2^+		294		80Mo11
343.29(24)	4^+		21		80Mo11
694.9(3)	6^+		4		80Mo11
997(5)	0^+	0	63		80Mo11
1045.0(3)	$\langle 2\rangle^-$				
1082.8(4)	2^+		69		80Mo11
1110.8(3)	$\langle 2^+\rangle$		16		80Mo11
1120.9(3)	$\langle 3\rangle^-$		incl		80Mo11
1142.6(3)	$\langle 8^+\rangle$				
1226.0(3)	$\langle 4\rangle^-$				
1275.8(4)	4^+		6		80Mo11
1345.5(3)	$\langle 5^-\rangle$				
1356(5)	0^+	0	22		80Mo11
1380.7(3)	$\langle 4^+\rangle$				
1435(5)			2		80Mo11
1449.8(4)	$\langle 2^+\rangle$		6		80Mo11
1509.5(3)	$\langle 6^-\rangle$				
1556.8(3)	6^+				
1598.5(4)					
1643(5)	0^+	0	9		80Mo11
1657.3(3)	$\langle 7\rangle^-$				
1665.8(3)	$\langle 6^+\rangle$			3.0(4) ns	
1666.4(3)	$\langle 10^+\rangle$				
1739.6(3)*	$\langle 7^-\rangle$		10	9.6(5) ns	80Mo11
1790*			3		80Mo11
1828.1(3)	$\langle 8^-\rangle$		1		80Mo11
1836.5(3)	$\langle 7^+\rangle$				
1864.4(4)*	$\langle 4^+\rangle$		2		80Mo11
1889.4(3)	$\langle 8^-\rangle$				
1917.4(6)	$\langle 8^+\rangle$				
1965.4(3)*	$\langle 9^-\rangle$		6		80Mo11
2024.6(3)	$\langle 8^+\rangle$				
2030(5)			21		80Mo11
2043.1(3)	$\langle 9^-\rangle$				
2060(5)			11		80Mo11
2091(5)			7		80Mo11
2116(5)			11		80Mo11
2134.1(3)	$\langle 10^-\rangle$				
2228.6(3)	$\langle 9^+\rangle$				
2245.4(3)	$\langle 12^+\rangle$				
2328.8(3)	$\langle 11^-\rangle$				
2340.9(3)	$\langle 10^+\rangle$				
2357.2(3)	$\langle 10^-\rangle$				
2445.7(3)	$\langle 10^+\rangle$				

(continued) $^{178}_{74}$W

E^* [keV]	J^π	L	$d\sigma/d\Omega$ μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
2490.8(3)	$\langle 11^- \rangle$				
2547.3(3)	$\langle 12^- \rangle$				
2674.1(3)	$\langle 11^+ \rangle$				
2785.8(3)	$\langle 13^- \rangle$				
2805.1(3)	$\langle 12^+ \rangle$				
2859.6(3)	$\langle 14^+ \rangle$				
2903.0(3)	$\langle 12^- \rangle$				
3045.7(3)	$\langle 14^- \rangle$				
3055.1(3)	$\langle 11 \rangle$				
3141.9(3)	$\langle 13^+ \rangle$				
3237.4(3)	$\langle 12 \rangle$				
3301.5(4)					
3318.8(3)	$\langle 15^- \rangle$				
3320.5(4)	$\langle 14^+ \rangle$				
3369.5(3)	$\langle 2^+ \rangle$				
3383.4(4)					
3489.4(3)	$\langle 16^+ \rangle$				
3499.7(4)					
3505.9(5)					
3512.2(4)	$\langle 2^+ \rangle$				
3515.4(5)					
3527.8(3)	$\langle 14 \rangle$			35(3) ns	
3551.4(4)					
3580.6(5)					
3585.9(5)					
3595.2(5)					
3614.4(3)	$\langle 16^- \rangle$				
3634.9(5)					
3706.8(5)					
3807.7(5)					
3811.2(5)					
4101.9(10)	$\langle 18^+ \rangle$				
			80Mo11		Ref.

Additional data on this isotope can be found in [00Ya22, 98Ki14, 77Mo15].
* doublet or multiplet [80Mo11]

Energy levels and branching ratios [94Br18, 80Mo11]. Part 2

$^{178}_{74}W$

E^*	J^π					Branching ratios in percentage						
		E_f^*:	0.0	106.06	343.29	694.9	1045.0	1082.8	1120.9	1142.6	1226.0	1345.49
[keV]		J_f^π:	0^+	2^+	4^+	6^+	$\langle 2\rangle^-$	2^+	$\langle 3\rangle^-$	$\langle 8^+\rangle$	$\langle 4\rangle^-$	$\langle 5^-\rangle$
106.06(22)	2^+		100									
343.29(24)	4^+			100								
694.9(3)	6^+				100							
1045.0(3)	$\langle 2\rangle^-$			100								
1082.8(4)	2^+			93(15)	7(3)							
1110.8(3)	$\langle 2^+\rangle$		72(13)	15(5)	13(5)							
1120.9(3)	$\langle 3\rangle^-$				100							
1142.6(3)	$\langle 8^+\rangle$					100						
1226.0(3)	$\langle 4\rangle^-$				51(10)		33(10)		16(3)			
1275.8(4)	4^+			29(14)	71(7)							
1345.5(3)	$\langle 5^-\rangle$				21.8(10)	49(3)			29(2)			
1380.7(3)	$\langle 4^+\rangle$			52(9)	47(14)	0.5(1)						
1449.8(4)	$\langle 2^+\rangle$		64(17)	0.3(2)	35(12)							
1509.5(3)	$\langle 6^-\rangle$										87(6)	13.5(10)
1556.8(3)	6^+					100						
1598.5(4)				50(10)	50(10)							
1657.3(3)	$\langle 7\rangle^-$					33(2)				7.5(11)		60(4)
1665.8(3)	$\langle 6^+\rangle$				53(3)	39(2)						
1666.4(3)	$\langle 10^+\rangle$									100		
1864.4(4)*	$\langle 4^+\rangle$			37(11)	21(11)	42(21)						
1917.4(6)	$\langle 8^+\rangle$									100		
2043.1(3)	$\langle 9^-\rangle$									29.8(18)		
3301.5(4)				23(7)	77(17)							
3369.5(3)	$\langle 2^+\rangle$		13(4)	32(11)	0.16(5)		16(8)	24(8)	16(6)			
3383.4(4)			25(8)	75(27)								
3499.7(4)				23(8)	77(25)							
3505.9(5)			11(5)	89(23)								
3512.2(4)	$\langle 2^+\rangle$		6(2)	27(7)	51(11)						17(6)	
3515.4(5)				35(12)	65(23)							
3551.4(4)				45(5)	35(10)			10(5)			10(5)	
3580.6(5)				24(8)	76(24)							
3585.9(5)				26(8)	74(26)							
3595.2(5)				17(4)	83(28)							
3634.9(5)				28(9)	31(11)							
3706.8(5)					57(17)	43(14)						
3807.7(5)					23(5)	77(25)						
3811.2(5)					23(5)	77(25)						

Energy levels and branching ratios [94Br18, 80Mo11]. Part 3 $^{178}_{74}W$

E^*	J^π	Branching ratios in percentage									
	E_f^*:	1380.7	1509.5	1556.8	1598.5	1657.31	1665.8	1666.4	1739.6	1828.1	1836.5
[keV]	J_f^π:	$\langle 4^+\rangle$	$\langle 6^-\rangle$	6^+		$\langle 7\rangle^-$	$\langle 6^+\rangle$	$\langle 10^+\rangle$	$\langle 7^-\rangle$	$\langle 8^-\rangle$	$\langle 7^+\rangle$
1665.8(3)	$\langle 6^+\rangle$	7.2(5)									
1739.6(3)*	$\langle 7^-\rangle$						100				
1828.1(3)	$\langle 8^-\rangle$								100		
1836.5(3)	$\langle 7^+\rangle$						100				
1889.4(3)	$\langle 8^-\rangle$		100								
1917.4(6)	$\langle 8^+\rangle$			x							
1965.4(3)*	$\langle 9^-\rangle$								29.4(17)	71(4)	
2024.6(3)	$\langle 8^+\rangle$						75(5)				25.0(14)
2043.1(3)	$\langle 9^-\rangle$					70(4)					
2134.1(3)	$\langle 10^-\rangle$									61.3(3)	
2228.6(3)	$\langle 9^+\rangle$										80(6)
2245.4(3)	$\langle 12^+\rangle$							100			
2340.9(3)	$\langle 10^+\rangle$							100			
2490.8(3)	$\langle 11^-\rangle$							2.3(3)			
3237.4(3)	$\langle 12\rangle$						x				
3634.9(5)					40(13)						

Energy levels and branching ratios [94Br18, 80Mo11]. Part 4 $^{178}_{74}W$

E^*	J^π	Branching ratios in percentage									
	E_f^*:	1889.4	1917.4	1965.4	2024.6	2043.1	2134.1	2228.6	2245.4	2328.8	2340.9
[keV]	J_f^π:	$\langle 8^-\rangle$	$\langle 8^+\rangle$	$\langle 9^-\rangle$	$\langle 8^+\rangle$	$\langle 9^-\rangle$	$\langle 10^-\rangle$	$\langle 9^+\rangle$	$\langle 12^+\rangle$	$\langle 11^-\rangle$	$\langle 10^+\rangle$
2134.1(3)	$\langle 10^-\rangle$			39(2)							
2228.6(3)	$\langle 9^+\rangle$				20(4)						
2328.8(3)	$\langle 11^-\rangle$			72(7)			27.7(15)				
2340.9(3)	$\langle 10^+\rangle$		x								
2357.2(3)	$\langle 10^-\rangle$	100									
2445.7(3)	$\langle 10^+\rangle$				79(4)			21(2)			
2490.8(3)	$\langle 11^-\rangle$					98(5)					
2547.3(3)	$\langle 12^-\rangle$						74(4)			26.2(18)	
2674.1(3)	$\langle 11^+\rangle$							42(3)			
2785.8(3)	$\langle 13^-\rangle$									43(3)	
2805.1(3)	$\langle 12^+\rangle$								100		x
2859.6(3)	$\langle 14^+\rangle$								100		
3055.1(3)	$\langle 11\rangle$			56(5)			44(5)			x	
3237.4(3)	$\langle 12\rangle$								x		
3527.8(3)	$\langle 14\rangle$								x		

Energy levels and branching ratios [94Br18, 80Mo11]. Part 5 **$^{178}_{74}$W**

E^*	J^π					Branching ratios in percentage						
		E_f^*:	2357.2	2445.7	2547.3	2674.1	2785.8	2859.6	3045.7	3055.1	3237.4	3489.4
[keV]		J_f^π:	$\langle 10^- \rangle$	$\langle 10^+ \rangle$	$\langle 12^- \rangle$	$\langle 11^+ \rangle$	$\langle 13^- \rangle$	$\langle 14^+ \rangle$	$\langle 14^- \rangle$	$\langle 11 \rangle$	$\langle 12 \rangle$	$\langle 16^+ \rangle$
2674.1(3)	$\langle 11^+ \rangle$			58(4)								
2785.8(3)	$\langle 13^- \rangle$				57(4)							
2903.0(3)	$\langle 12^- \rangle$		100									
3045.7(3)	$\langle 14^- \rangle$				90(4)		10.5(12)					
3141.9(3)	$\langle 13^+ \rangle$					100						
3237.4(3)	$\langle 12 \rangle$									100		
3318.8(3)	$\langle 15^- \rangle$						100					
3320.5(4)	$\langle 14^+ \rangle$							100				
3489.4(3)	$\langle 16^+ \rangle$							100				
3527.8(3)	$\langle 14 \rangle$										100	
3614.4(3)	$\langle 16^- \rangle$								100			
4101.9(10)	$\langle 18^+ \rangle$											100

Energy levels and branching ratios [94Ba52]. **$^{179}_{74}$W**

E^*	$2J^\pi$	L	$d\sigma/d\Omega$	$T_{1/2}$ or	Ref.
[keV]		(d,t)	μb/sr	Γ_{cm}	
0.0	$\langle 7 \rangle^-$		≈3	37.05(16) m	72Ca01
119.913(2)	$\langle 9 \rangle^-$				
221.926(8)	$\langle 1 \rangle^-$		218	6.40(7) m	72Ca01
264.610(22)	$\langle 11 \rangle^-$				
304.777(9)	$\langle 3 \rangle^-$		53		72Ca01
308.966(2)	$\langle 9 \rangle^+$		obsc	1.53(10) ns	72Ca01
318.368(9)	$\langle 5 \rangle^-$		58		72Ca01
372.825(3)	$\langle 11 \rangle^+$				
≈390			≈6		72Ca01
430.221(8)	$\langle 5 \rangle^-$		14		72Ca01
432.637(9)	$\langle 13 \rangle^-$				
468.618(6)	$\langle 13^+ \rangle$		44		73Kl07
477.337(7)	$\langle 7 \rangle^+$				
508.968(14)	$\langle 7 \rangle^-$		90		72Ca01
531.420(11)	$\langle 7 \rangle^-$		189		72Ca01
533.248(23)	$\langle 9 \rangle^-$		incl		72Ca01
≈560			≈7		72Ca01
606.057(7)	$\langle 15 \rangle^+$				
622.96(5)	$\langle 15 \rangle^-$				
634.6(3)	$\langle 1 \rangle^-$				
654.4(4)	$\langle 9^+ \rangle$				
688.95(5)	$\langle 3 \rangle^-$		22		72Ca01
720.190(18)	$\langle 3 \rangle^+$		12		72Ca01
748.185(7)	$\langle 17 \rangle^+$		23		72Ca01

(continued) **$^{179}_{74}$W**

E^* [keV]	$2J^\pi$	L (d,t)	$d\sigma/d\Omega$ μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
773.701(8)	$\langle 5\rangle^+$				
787.345(20)	$\langle 5^-\rangle$		27		72Ca01
809.1(7)	$\langle 11^+\rangle$				
823.38(11)	$\langle 11\rangle^-$		≈9		72Ca01
834.15(7)	$\langle 17\rangle^-$				
855.257(10)	$\langle 7\rangle^+$				
856.97(15)	$\langle 13\rangle^-$				
910.4(5)	$\langle 13\rangle^+$				
913.9(4)	$\langle 7^-\rangle$				
915.74(10)	$\langle 13^+\rangle$		≈40		73Kl07
958(6)					
960.79(5)	$\langle 19\rangle^+$				
1029.10(3)	$\langle 5^+,7^+\rangle$		22		72Ca01
1064.58(8)	$\langle 19\rangle^-$				
1072.31(3)	$\langle 5^-\rangle$		86		72Ca01
1089.8(6)	$\langle 9^-\rangle$				
1107.7(8)	$\langle 15^+\rangle$				
1123.25(7)	$\langle 21\rangle^+$				
1127.29(9)	$\langle 15^+\rangle$				
1150.52(8)	$\langle 13^+\rangle$				
1216.27(8)	$\langle 17^+\rangle$				
1224.88(19)	$\langle 15\rangle^-$				
1272.70(20)	$\langle 17\rangle^-$				
1290.9(9)	$\langle 11^-\rangle$		34		72Ca01
1312.62(12)	$\langle 21^-\rangle$				
1425.01(8)	$\langle 23^+\rangle$				
1480.31(3)	$\langle 7\rangle$				
1517.22(8)	$\langle 17^+\rangle$				
1532.46(10)	$\langle 19^+\rangle$				
1539.4(9)	$\langle 13^-\rangle$				
1575.98(11)	$\langle 23^-\rangle$				
1582.96(10)	$\langle 25^+\rangle$				
1606.345(13)	$\langle 3\rangle^+$				
1631.90(8)	$\langle 21^+\rangle$			390(30) ns	
1649.01(4)	$\langle 7\rangle$				
1680.253(10)	$\langle 7\rangle^+$				
1698.4(3)	$\langle 19^-\rangle$				
1750.31(4)	$\langle 3\rangle$				
1754.83(23)	$\langle 21\rangle^-$				
1808.890(13)	$\langle 7^+\rangle$				
1832.30(14)	$\langle 23^-\rangle$			<0.5 ns	
1854.16(13)	$\langle 25^-\rangle$				
1873.39(14)	$\langle 23^+\rangle$				
1987.63(11)	$\langle 27^+\rangle$				
2012.11(14)	$\langle 23^+\rangle$			<1.0 ns	

(continued) **$^{179}_{74}$W**

E^* [keV]	$2J^\pi$	L (d,t)	$d\sigma/d\Omega$ μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
2037.88(15)	$\langle 25^- \rangle$				
2088.50(22)	$\langle 23^- \rangle$			<0.5 ns	
2120.52(12)	$\langle 29^+ \rangle$				
2138.01(15)	$\langle 25^+ \rangle$				
2141.31(12)	$\langle 27^- \rangle$				
2206.19(3)	$\langle 7^+ \rangle$				
2222.2(4)	$\langle 23^- \rangle$				
2261.39(13)	$\langle 27^- \rangle$				
2273.0(3)	$\langle 25^- \rangle$				
2291.75(19)	$\langle 25^+ \rangle$				
2299.7(3)	$\langle 25 \rangle$				
2424.43(17)	$\langle 27^+ \rangle$				
2442.68(15)	$\langle 29^- \rangle$				
2504.85(15)	$\langle 29^- \rangle$				
2546.8(4)	$\langle 27 \rangle$				
2586.33(16)	$\langle 27^+ \rangle$				
2633.73(23)	$\langle 31^+ \rangle$				
2723.46(25)	$\langle 33^+ \rangle$				
2730.88(17)	$\langle 29^+ \rangle$				
2738.78(12)	$\langle 31^- \rangle$				
2767.1(4)	$\langle 27^- \rangle$				
2772.66(14)	$\langle 31^- \rangle$				
2798.4(3)	$\langle 29^- \rangle$				
2822.1(4)	$\langle 29 \rangle$				
2893.82(19)	$\langle 29^+ \rangle$				
3031.99(16)	$\langle 33^- \rangle$				
3055.06(22)	$\langle 31^+ \rangle$				
3082.18(17)	$\langle 33^- \rangle$				
3121.1(5)	$\langle 31 \rangle$				
3210.57(22)	$\langle 31^+ \rangle$				
3225.01(17)	$\langle 31^+ \rangle$			<0.5 ns	
3326.36(16)	$\langle 35^- \rangle$				
3328.2(3)	$\langle 33^- \rangle$				
3343.6(3)	$\langle 35^+ \rangle$				
3346.3(5)	$\langle 31^- \rangle$				
3348.45(16)	$\langle 35^- \rangle$			750(80) ns	00Sc32
3348.63(19)	$\langle 33^+ \rangle$				
3370.7(4)	$\langle 37^+ \rangle$				
3391.40(22)	$\langle 33^+ \rangle$				
3401.77(19)	$\langle 35^- \rangle$				
3439.1(5)	$\langle 33 \rangle$				
3535.0(3)	$\langle 33^+ \rangle$				
3535.51(23)	$\langle 35^- \rangle$				
3570.11(20)	$\langle 35^+ \rangle$				
3582.68(23)	$\langle 37^+ \rangle$			<0.5 ns	

(continued) **$^{179}_{74}$W**

E^* [keV]	$2J^\pi$	L (d,t)	$d\sigma/d\Omega$ μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
3596.56(22)	$\langle 37^- \rangle$			0.7(2) ns	
3637.9(3)	$\langle 37^- \rangle$				
3711.8(3)	$\langle 37^- \rangle$				
3748.3(3)	$\langle 37^- \rangle$				
3778.23(24)	$\langle 39^+ \rangle$			<0.5 ns	
3779.1(11)	$\langle 35 \rangle$				
3827.23(22)	$\langle 37^+ \rangle$				
3853.3(4)	$\langle 37^- \rangle$				
3906.5(3)	$\langle 39^+ \rangle$				
3920.13(23)	$\langle 37^- \rangle$				
3963.8(3)	$\langle 39^- \rangle$				
3968.7(3)	$\langle 39^- \rangle$				
3985.3(11)	$\langle 35^- \rangle$				
4041.3(4)	$\langle 41^+ \rangle$				
4090.6(3)	$\langle 39^- \rangle$				
4091.4(4)	$\langle 39^+ \rangle$				
4094.8(3)	$\langle 39^- \rangle$				
4117.28(24)	$\langle 39^+ \rangle$				
4120.2(4)	$\langle 41^+ \rangle$				
4186.3(3)	$\langle 39^- \rangle$				
4243.5(3)	$\langle 41^+ \rangle$				
4305.1(4)	$\langle 41^- \rangle$				
4354.6(3)	$\langle 41^- \rangle$				
4435.6(3)	$\langle 41^+ \rangle$				
4464.4(4)	$\langle 41^- \rangle$				
4476.9(4)	$\langle 43^+ \rangle$				
4477.5(3)	$\langle 41^- \rangle$				
4574.4(3)	$\langle 41^- \rangle$				
4597.0(3)	$\langle 43^+ \rangle$				
4609.9(3)	$\langle 43^+ \rangle$			0.7(2) ns	
4666.7(4)	$\langle 43^- \rangle$				
4738.3(5)	$\langle 45^+ \rangle$				
4748.4(4)	$\langle 43^- \rangle$				
4779.4(3)	$\langle 43^+ \rangle$				
4800.8(4)	$\langle 45^+ \rangle$				
4845.2(4)	$\langle 43^- \rangle$				
4847.3(5)	$\langle 43^+ \rangle$				
4849.9(4)	$\langle 45^+ \rangle$				
4864.6(8)	$\langle 43^- \rangle$				
4921.6(4)	$\langle 45^- \rangle$				
4967.9(3)	$\langle 45^+ \rangle$				
5036.8(4)	$\langle 45^- \rangle$				
5120.0(4)	$\langle 47^+ \rangle$				
5141.4(4)	$\langle 45^- \rangle$				
5147.0(4)	$\langle 45^+ \rangle$				

(continued) **$^{179}_{74}$W**

E^* [keV]	$2J^\pi$	L (d,t)	$d\sigma/d\Omega$ μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
5178.4(4)	$\langle 47 \rangle$				
5233.4(4)	$\langle 45^- \rangle$				
5239.7(4)	$\langle 47^+ \rangle$				
5278.4	$\langle 45^- \rangle$				
5357.2(3)	$\langle 47^+ \rangle$				
5436.8(4)	$\langle 47^- \rangle$				
5487.1(5)	$\langle 49^+ \rangle$				
5489.7(4)	$\langle 49^+ \rangle$				
5497.5(4)	$\langle 49 \rangle$				
5536.9(4)	$\langle 47^+ \rangle$				
5611.3(5)	$\langle 47^+ \rangle$				
5646.5(4)	$\langle 49^+ \rangle$				
5648.8(4)	$\langle 47^- \rangle$				
5764.2(4)	$\langle 49^+ \rangle$				
5833.7(5)	$\langle 49^- \rangle$				
5852.1(4)	$\langle 51 \rangle$				
5895.5(4)	$\langle 51^+ \rangle$				
5947.6(4)	$\langle 49^+ \rangle$				
6069.5	$\langle 51^+ \rangle$				
6234.9(4)	$\langle 53 \rangle$				
6268.8	$\langle 51^- \rangle$				
6310.2(6)	$\langle 53^+ \rangle$				
6330.9(4)	$\langle 53^+ \rangle$				
6623.5	$\langle 55 \rangle$				
6708.7	$\langle 53^- \rangle$				
6792.6(5)	$\langle 55^+ \rangle$				
			72Ca01		Ref.

Additional data on this isotope can be found in [00Wo13, 00Sc32, 94Wa05, 91Wa26, 73Li06].

Energy levels and branching ratios [94Ba52]. Part 2 **$^{179}_{74}$W**

E^* [keV]	$2J^\pi$	E_f^*: $2J_f^\pi$:	Branching ratios in percentage 0.0 $\langle 7 \rangle^-$	119.9 $\langle 9 \rangle^-$	222 $\langle 1 \rangle^-$	265 $\langle 11 \rangle^-$	305 $\langle 3 \rangle^-$	309.0 $\langle 9 \rangle^+$	318.4 $\langle 5 \rangle^-$	372.8 $\langle 11 \rangle^+$	430.2 $\langle 5 \rangle^-$	432.6 $\langle 13 \rangle^-$
119.913(2)	$\langle 9 \rangle^-$		100									
221.926(8)	$\langle 1 \rangle^-$		100	0.009(1)								
264.610(22)	$\langle 11 \rangle^-$		87(7)	12.7(17)								
304.777(9)	$\langle 3 \rangle^-$				100							
308.966(2)	$\langle 9 \rangle^+$		35(3)	65(3)								
318.368(9)	$\langle 5 \rangle^-$				100							
372.825(3)	$\langle 11 \rangle^+$			52(7)		8(2)		40(8)				
430.221(8)	$\langle 5 \rangle^-$		96(19)	2.0(5)	0.5(3)		1.1(6)		0.19(4)			

(continued) **$^{179}_{74}$W**

E^*	$2J^\pi$					Branching ratios in percentage						
		E_f^*:	0.0	119.9	222	265	305	309.0	318.4	372.8	430.2	432.6
[keV]		$2J_f^\pi$:	$\langle 7\rangle^-$	$\langle 9\rangle^-$	$\langle 1\rangle^-$	$\langle 11\rangle^-$	$\langle 3\rangle^-$	$\langle 9\rangle^+$	$\langle 5\rangle^-$	$\langle 11\rangle^+$	$\langle 5\rangle^-$	$\langle 13\rangle^-$
432.637(9)	$\langle 13\rangle^-$			93(13)		7(3)						
468.618(6)	$\langle 13^+\rangle$					31(6)		16(2)		53(7)		
477.337(7)	$\langle 7\rangle^+$		84(17)	5.8(3)				9.9(5)				
508.968(14)	$\langle 7\rangle^-$						57(3)		24(3)		18(9)	
531.420(11)	$\langle 7\rangle^-$		23(4)	61(4)							16.5(13)	
533.248(23)	$\langle 9\rangle^-$								100			
606.057(7)	$\langle 15\rangle^+$									61(12)		4.0(7)
622.96(5)	$\langle 15\rangle^-$					100						≤16
634.6(3)	$\langle 1\rangle^-$				16(3)		7.4(15)				77(15)	
654.4(4)	$\langle 9^+\rangle$		44(8)									
688.95(5)	$\langle 3\rangle^-$				60(7)		40(4)					
720.190(18)	$\langle 3\rangle^+$				11.0(5)		20.4(10)		14.1(7)		52(3)	
773.701(8)	$\langle 5\rangle^+$		3.3(8)				3.0(3)	22.1(11)	8.4(5)		0.35(13)	
787.345(20)	$\langle 5^-\rangle$		60(5)		4.3(14)		32(2)					
855.257(10)	$\langle 7\rangle^+$		10(3)	6.6(10)				43(3)				
910.4(5)	$\langle 13\rangle^+$							41(8)				
913.9(4)	$\langle 7^-\rangle$						79(17)					
915.74(10)	$\langle 13^+\rangle$									43(11)		
1029.10(3)	$\langle 5^+,7^+\rangle$							7.4(14)				
1072.31(3)	$\langle 5^-\rangle$		17(4)		52(12)							
1150.52(8)	$\langle 13^+\rangle$					17(4)		9(4)		9(4)		9(4)
1480.31(3)	$\langle 7\rangle$							6(2)				
1606.345(13)	$\langle 3\rangle^+$				0.9(3)		1.9(5)		3.8(6)			
1649.01(4)	$\langle 7\rangle$		63(6)	18(3)				19(3)				
1680.253(10)	$\langle 7\rangle^+$		74(4)	18.4(11)				6.1(3)			0.49(10)	
1750.31(4)	$\langle 3\rangle$								7(2)		23(3)	
1808.890(13)	$\langle 7^+\rangle$		68(5)	13.3(14)				5.8(8)				

Energy levels and branching ratios [94Ba52]. Part 3 **$^{179}_{74}$W**

E^*	$2J^\pi$					Branching ratios in percentage						
		E_f^*:	468.6	477.3	509.0	531.4	533.2	606.1	623.0	634.6	654.4	688.9
[keV]		$2J_f^\pi$:	$\langle 13^+\rangle$	$\langle 7\rangle^+$	$\langle 7\rangle^-$	$\langle 7\rangle^-$	$\langle 9\rangle^-$	$\langle 15\rangle^+$	$\langle 15\rangle^-$	$\langle 1\rangle^-$	$\langle 9^+\rangle$	$\langle 3\rangle^-$
533.248(23)	$\langle 9\rangle^-$				≤44							
606.057(7)	$\langle 15\rangle^+$		35(5)									
654.4(4)	$\langle 9^+\rangle$			56(12)								
720.190(18)	$\langle 3\rangle^+$			2.1(5)								
748.185(7)	$\langle 17\rangle^+$		65(9)					26(4)	8(2)			
773.701(8)	$\langle 5\rangle^+$			51(3)		10(2)						
787.345(20)	$\langle 5^-\rangle$					3.3(12)				1.1(2)		
809.1(7)	$\langle 11^+\rangle$										100	
823.38(11)	$\langle 11\rangle^-$				68(12)		32(6)					

(continued) **$^{179}_{74}$W**

E^*	$2J^\pi$		Branching ratios in percentage									
		E^*_f:	468.6	477.3	509.0	531.4	533.2	606.1	623.0	634.6	654.4	688.9
[keV]		$2J^\pi_f$:	$\langle 13^+\rangle$	$\langle 7\rangle^+$	$\langle 7\rangle^-$	$\langle 7\rangle^-$	$\langle 9\rangle^-$	$\langle 15\rangle^+$	$\langle 15\rangle^-$	$\langle 1\rangle^-$	$\langle 9^+\rangle$	$\langle 3\rangle^-$
834.15(7)	$\langle 17\rangle^-$								[100]			
855.257(10)	$\langle 7\rangle^+$			18(1)	4(1)	3(1)	6(2)					
856.97(15)	$\langle 13\rangle^-$						100					
910.4(5)	$\langle 13\rangle^+$										41(8)	
913.9(4)	$\langle 7^-\rangle$											21(4)
915.74(10)	$\langle 13^+\rangle$		25(7)					32(11)				
960.79(5)	$\langle 19\rangle^+$							60(8)				
1029.10(3)	$\langle 5^+,7^+\rangle$			31(4)								
1064.58(8)	$\langle 19\rangle^-$								96(3)			
1072.31(3)	$\langle 5^-\rangle$			31(5)								
1127.29(9)	$\langle 15^+\rangle$		45(7)					28(7)				
1150.52(8)	$\langle 13^+\rangle$		39(13)					13(4)	4(4)			
1216.27(8)	$\langle 17^+\rangle$		8(1)					44(3)				
1480.31(3)	$\langle 7\rangle$				39(3)		51(4)					
1517.22(8)	$\langle 17^+\rangle$							6(3)	11(4)			
1680.253(10)	$\langle 7\rangle^+$			0.52(10)	0.46(11)	0.24(8)						
1750.31(4)	$\langle 3\rangle$											14(2)
1808.890(13)	$\langle 7^+\rangle$			2.4(5)		2.1(6)						
2206.19(3)	$\langle 7^+\rangle$			18(4)	8(2)							

Energy levels and branching ratios [94Ba52]. Part 4 **$^{179}_{74}$W**

E^*	$2J^\pi$		Branching ratios in percentage									
		E^*_f:	720.2	748.2	773.7	787.3	809.1	823.4	834.2	855.3	857.0	910.4
[keV]		$2J^\pi_f$:	$\langle 3\rangle^+$	$\langle 17\rangle^+$	$\langle 5\rangle^+$	$\langle 5^-\rangle$	$\langle 11^+\rangle$	$\langle 11\rangle^-$	$\langle 17\rangle^-$	$\langle 7\rangle^+$	$\langle 13\rangle^-$	$\langle 13\rangle^+$
773.701(8)	$\langle 5\rangle^+$		2(2)									
855.257(10)	$\langle 7\rangle^+$		11(3)									
910.4(5)	$\langle 13\rangle^+$						17(4)					
960.79(5)	$\langle 19\rangle^+$			33(5)					6.5(14)			
1029.10(3)	$\langle 5^+,7^+\rangle$				2.4(8)	59(17)						
1064.58(8)	$\langle 19\rangle^-$			1.5(4)					2.6(3)			
1089.8(6)	$\langle 9^-\rangle$					80(16)						
1107.7(8)	$\langle 15^+\rangle$						44(9)					56(11)
1123.25(7)	$\langle 21\rangle^+$			85(12)								
1127.29(9)	$\langle 15^+\rangle$			21(7)								
1216.27(8)	$\langle 17^+\rangle$			20(2)								
1224.88(19)	$\langle 15\rangle^-$							100				
1272.70(20)	$\langle 17\rangle^-$										100	
1312.62(12)	$\langle 21^-\rangle$								96.6(22)			
1480.31(3)	$\langle 7\rangle$									4.4(10)		
1517.22(8)	$\langle 17^+\rangle$			20(3)								
1532.46(10)	$\langle 19^+\rangle$			36(12)								

(continued) **$^{179}_{74}$W**

E^*	$2J^\pi$		Branching ratios in percentage									
		E_f^*:	720.2	748.2	773.7	787.3	809.1	823.4	834.2	855.3	857.0	910.4
[keV]		$2J_f^\pi$:	$\langle 3\rangle^+$	$\langle 17\rangle^+$	$\langle 5\rangle^+$	$\langle 5^-\rangle$	$\langle 11^+\rangle$	$\langle 11\rangle^-$	$\langle 17\rangle^-$	$\langle 7\rangle^+$	$\langle 13\rangle^-$	$\langle 13\rangle^+$
1606.345(13)	$\langle 3\rangle^+$		42(3)		50(4)							
1631.90(8)	$\langle 21^+\rangle$			49(2)								
1750.31(4)	$\langle 3\rangle$		31(3)			25(2)						
1808.890(13)	$\langle 7^+\rangle$									8.4(10)		
2206.19(3)	$\langle 7^+\rangle$		14(3)		12(3)							

Energy levels and branching ratios [94Ba52]. Part 5 **$^{179}_{74}$W**

E^*	$2J^\pi$		Branching ratios in percentage									
		E_f^*:	913.9	915.7	960.8	1064.6	1072.3	1089.8	1123.2	1127.3	1150.5	1216.3
[keV]		$2J_f^\pi$:	$\langle 7^-\rangle$	$\langle 13^+\rangle$	$\langle 19\rangle^+$	$\langle 19\rangle^-$	$\langle 5^-\rangle$	$\langle 9^-\rangle$	$\langle 21\rangle^+$	$\langle 15^+\rangle$	$\langle 13^+\rangle$	$\langle 17^+\rangle$
1089.8(6)	$\langle 9^-\rangle$		20(10)									
1123.25(7)	$\langle 21\rangle^+$				14.7(21)							
1127.29(9)	$\langle 15^+\rangle$			7(4)								
1216.27(8)	$\langle 17^+\rangle$			7(2)	19(2)					1.6(8)		
1290.9(9)	$\langle 11^-\rangle$							100				
1312.62(12)	$\langle 21^-\rangle$					3.4(8)						
1425.01(8)	$\langle 23^+\rangle$				85(17)				15(3)			
1517.22(8)	$\langle 17^+\rangle$			12(4)						21(3)	29(3)	
1532.46(10)	$\langle 19^+\rangle$				24(8)				12(4)	28(8)		
1539.4(9)	$\langle 13^-\rangle$							41(9)				
1575.98(11)	$\langle 23^-\rangle$					98.2(19)			0.5(2)			
1582.96(10)	$\langle 25^+\rangle$								95.2(15)			
1606.345(13)	$\langle 3\rangle^+$						1.5(4)					
1631.90(8)	$\langle 21^+\rangle$				7.1(4)				15.9(8)			20.4(8)

Energy levels and branching ratios [94Ba52]. Part 6 **$^{179}_{74}$W**

E^*	$2J^\pi$		Branching ratios in percentage									
		E_f^*:	1224.9	1272.7	1290.9	1312.6	1425.0	1517.2	1532.5	1576.0	1583.0	1606.3
[keV]		$2J_f^\pi$:	$\langle 15\rangle^-$	$\langle 17\rangle^-$	$\langle 11^-\rangle$	$\langle 21^-\rangle$	$\langle 23^+\rangle$	$\langle 17^+\rangle$	$\langle 19^+\rangle$	$\langle 23^-\rangle$	$\langle 25^+\rangle$	$\langle 3\rangle^+$
1539.4(9)	$\langle 13^-\rangle$				59(12)							
1575.98(11)	$\langle 23^-\rangle$					1.29(24)						
1582.96(10)	$\langle 25^+\rangle$						4.8(15)					
1631.90(8)	$\langle 21^+\rangle$						4.7(2)	2.6(2)	0.5(1)			
1698.4(3)	$\langle 19^-\rangle$		100									
1754.83(23)	$\langle 21\rangle^-$			100								
1854.16(13)	$\langle 25^-\rangle$					100						
1987.63(11)	$\langle 27^+\rangle$						86(17)				14(3)	

(continued) **$^{179}_{74}$W**

E^*	$2J^\pi$	Branching ratios in percentage									
	E_f^*:	1224.9	1272.7	1290.9	1312.6	1425.0	1517.2	1532.5	1576.0	1583.0	1606.3
[keV]	$2J_f^\pi$:	$\langle 15\rangle^-$	$\langle 17\rangle^-$	$\langle 11^-\rangle$	$\langle 21^-\rangle$	$\langle 23^+\rangle$	$\langle 17^+\rangle$	$\langle 19^+\rangle$	$\langle 23^-\rangle$	$\langle 25^+\rangle$	$\langle 3\rangle^+$
2120.52(12)	$\langle 29^+\rangle$									96(19)	
2141.31(12)	$\langle 27^-\rangle$								98.4(22)	0.4(2)	
2206.19(3)	$\langle 7^+\rangle$										6(2)
2261.39(13)	$\langle 27^-\rangle$								6(1)		

Energy levels and branching ratios [94Ba52]. Part 7 **$^{179}_{74}$W**

E^*	$2J^\pi$	Branching ratios in percentage									
	E_f^*:	1631.9	1649.0	1698.4	1754.8	1832.3	1854.2	1873.4	1987.6	2012.1	2037.9
[keV]	$2J_f^\pi$:	$\langle 21^+\rangle$	$\langle 7\rangle$	$\langle 19^-\rangle$	$\langle 21\rangle^-$	$\langle 23^-\rangle$	$\langle 25^-\rangle$	$\langle 23^+\rangle$	$\langle 27^+\rangle$	$\langle 23^+\rangle$	$\langle 25^-\rangle$
1832.30(14)	$\langle 23^-\rangle$	100									
1873.39(14)	$\langle 23^+\rangle$	100									
2012.11(14)	$\langle 23^+\rangle$	13(4)				15(3)		72(4)			
2037.88(15)	$\langle 25^-\rangle$					92(6)		8.2(7)			
2088.50(22)	$\langle 23^-\rangle$	100									
2120.52(12)	$\langle 29^+\rangle$								3.8(8)		
2138.01(15)	$\langle 25^+\rangle$	37(2)						63(3)			
2141.31(12)	$\langle 27^-\rangle$						1.25(10)				
2206.19(3)	$\langle 7^+\rangle$		42(6)								
2222.2(4)	$\langle 23^-\rangle$			100							
2261.39(13)	$\langle 27^-\rangle$					47(2)					47(2)
2273.0(3)	$\langle 25^-\rangle$				100						
2291.75(19)	$\langle 25^+\rangle$							3.1(12)		97(4)	
2424.43(17)	$\langle 27^+\rangle$							49(3)			
2442.68(15)	$\langle 29^-\rangle$						100				
2504.85(15)	$\langle 29^-\rangle$						28(5)				50(3)
2586.33(16)	$\langle 27^+\rangle$									11(4)	
2633.73(23)	$\langle 31^+\rangle$								100		

Energy levels and branching ratios [94Ba52]. Part 8 **$^{179}_{74}$W**

E^*	$2J^\pi$	Branching ratios in percentage									
	E_f^*:	2088.5	2120.5	2138.0	2141.3	2222.2	2261.4	2273.0	2291.7	2299.7	2424.4
[keV]	$2J_f^\pi$:	$\langle 23^-\rangle$	$\langle 29^+\rangle$	$\langle 25^+\rangle$	$\langle 27^-\rangle$	$\langle 23^-\rangle$	$\langle 27^-\rangle$	$\langle 25^-\rangle$	$\langle 25^+\rangle$	$\langle 25\rangle$	$\langle 27^+\rangle$
2299.7(3)	$\langle 25\rangle$	100									
2424.43(17)	$\langle 27^+\rangle$			51(3)							
2504.85(15)	$\langle 29^-\rangle$						22(6)				
2546.8(4)	$\langle 27\rangle$									100	
2586.33(16)	$\langle 27^+\rangle$			7(2)					83(3)		

(continued) **$^{179}_{74}$W**

E^*	$2J^\pi$	Branching ratios in percentage									
	E_f^*:	2088.5	2120.5	2138.0	2141.3	2222.2	2261.4	2273.0	2291.7	2299.7	2424.4
[keV]	$2J_f^\pi$:	$\langle 23^- \rangle$	$\langle 29^+ \rangle$	$\langle 25^+ \rangle$	$\langle 27^- \rangle$	$\langle 23^- \rangle$	$\langle 27^- \rangle$	$\langle 25^- \rangle$	$\langle 25^+ \rangle$	$\langle 25 \rangle$	$\langle 27^+ \rangle$
2633.73(23)	$\langle 31^+ \rangle$		x								
2723.46(25)	$\langle 33^+ \rangle$		100								
2730.88(17)	$\langle 29^+ \rangle$			60(2)							40(14)
2738.78(12)	$\langle 31^- \rangle$		0.4(2)		96(3)		1.3(4)				
2767.1(4)	$\langle 27^- \rangle$					100					
2772.66(14)	$\langle 31^- \rangle$				64(9)		36(8)				
2798.4(3)	$\langle 29^- \rangle$							100			
2822.1(4)	$\langle 29 \rangle$									<57	
2893.82(19)	$\langle 29^+ \rangle$								24(4)		2.4(12)
3055.06(22)	$\langle 31^+ \rangle$										69(3)
3225.01(17)	$\langle 31^+ \rangle$										2.3(9)

Energy levels and branching ratios [94Ba52]. Part 9 **$^{179}_{74}$W**

E^*	$2J^\pi$	Branching ratios in percentage									
	E_f^*:	2442.7	2504.8	2546.8	2586.3	2633.7	2723.5	2730.9	2738.8	2767.1	2772.7
[keV]	$2J_f^\pi$:	$\langle 29^- \rangle$	$\langle 29^- \rangle$	$\langle 27 \rangle$	$\langle 27^+ \rangle$	$\langle 31^+ \rangle$	$\langle 33^+ \rangle$	$\langle 29^+ \rangle$	$\langle 31^- \rangle$	$\langle 27^- \rangle$	$\langle 31^- \rangle$
2738.78(12)	$\langle 31^- \rangle$	1.5(5)	0.4(2)								
2822.1(4)	$\langle 29 \rangle$			100							
2893.82(19)	$\langle 29^+ \rangle$				73(22)						
3031.99(16)	$\langle 33^- \rangle$	72(12)	20(4)								8(2)
3055.06(22)	$\langle 31^+ \rangle$							31(10)			
3082.18(17)	$\langle 33^- \rangle$	100									
3121.1(5)	$\langle 31 \rangle$			x							
3210.57(22)	$\langle 31^+ \rangle$				32(4)						
3225.01(17)	$\langle 31^+ \rangle$				33(2)			4.0(13)			
3326.36(16)	$\langle 35^- \rangle$								93(7)		5.3(12)
3343.6(3)	$\langle 35^+ \rangle$					100					
3346.3(5)	$\langle 31^- \rangle$									100	
3348.45(16)	$\langle 35^- \rangle$						0.5(2)		96(4)		0.9(2)
3348.63(19)	$\langle 33^+ \rangle$							25(8)			
3370.7(4)	$\langle 37^+ \rangle$						100				
3391.40(22)	$\langle 33^+ \rangle$							78(22)			
3401.77(19)	$\langle 35^- \rangle$								54(11)		46(11)

Energy levels and branching ratios [94Ba52]. Part 10 $^{179}_{74}W$

E^*	$2J^\pi$	Branching ratios in percentage									
	E_f^*:	2798.4	2822.1	2893.8	3032.0	3055.1	3082.2	3121.1	3210.6	3225.0	3326.4
[keV]	$2J_f^\pi$:	$\langle 29^- \rangle$	$\langle 29 \rangle$	$\langle 29^+ \rangle$	$\langle 33^- \rangle$	$\langle 31^+ \rangle$	$\langle 33^- \rangle$	$\langle 31 \rangle$	$\langle 31^+ \rangle$	$\langle 31^+ \rangle$	$\langle 35^- \rangle$
3121.1(5)	$\langle 31 \rangle$		100								
3210.57(22)	$\langle 31^+ \rangle$			68(5)							
3225.01(17)	$\langle 31^+ \rangle$			61(4)							
3326.36(16)	$\langle 35^- \rangle$						1.4(7)				
3328.2(3)	$\langle 33^- \rangle$	100									
3348.45(16)	$\langle 35^- \rangle$				2.6(5)		0.21(11)				
3348.63(19)	$\langle 33^+ \rangle$									75(5)	x
3391.40(22)	$\langle 33^+ \rangle$					22(9)					
3439.1(5)	$\langle 33 \rangle$		x					100			
3535.0(3)	$\langle 33^+ \rangle$			x					100		
3570.11(20)	$\langle 35^+ \rangle$					10(4)				19(5)	
3637.9(3)	$\langle 37^- \rangle$				100						
3748.3(3)	$\langle 37^- \rangle$						100				
3779.1(11)	$\langle 35 \rangle$							x			
3920.13(23)	$\langle 37^- \rangle$						39(8)				
3963.8(3)	$\langle 39^- \rangle$										100

Energy levels and branching ratios [94Ba52]. Part 11 $^{179}_{74}W$

E^*	$2J^\pi$	Branching ratios in percentage									
	E_f^*:	3328.2	3343.6	3346.3	3348.4	3348.6	3370.7	3391.4	3401.8	3439.1	3535.5
[keV]	$2J_f^\pi$:	$\langle 33^- \rangle$	$\langle 35^+ \rangle$	$\langle 31^- \rangle$	$\langle 35^- \rangle$	$\langle 33^+ \rangle$	$\langle 37^+ \rangle$	$\langle 33^+ \rangle$	$\langle 35^- \rangle$	$\langle 33 \rangle$	$\langle 35^- \rangle$
3535.51(23)	$\langle 35^- \rangle$				100						
3570.11(20)	$\langle 35^+ \rangle$					60(4)		11(4)			
3582.68(23)	$\langle 37^+ \rangle$				100						
3596.56(22)	$\langle 37^- \rangle$				86(4)						14.5(5)
3711.8(3)	$\langle 37^- \rangle$				100						
3779.1(11)	$\langle 35 \rangle$									100	
3827.23(22)	$\langle 37^+ \rangle$					49(3)					
3853.3(4)	$\langle 37^- \rangle$										100
3920.13(23)	$\langle 37^- \rangle$	61(12)									
3985.3(11)	$\langle 35^- \rangle$			x							
4041.3(4)	$\langle 41^+ \rangle$						100				
4090.6(3)	$\langle 39^- \rangle$					x					
4091.4(4)	$\langle 39^+ \rangle$		100								
4094.8(3)	$\langle 39^- \rangle$								100		
4186.3(3)	$\langle 39^- \rangle$										35(13)

Energy levels and branching ratios [94Ba52]. Part 12 **$^{179}_{74}$W**

E^*	$2J^\pi$		Branching ratios in percentage									
		E_f^*:	3570.1	3582.7	3596.6	3637.9	3711.8	3748.3	3778.2	3827.2	3853.3	3906.5
[keV]		$2J_f^\pi$:	$\langle 35^+\rangle$	$\langle 37^+\rangle$	$\langle 37^-\rangle$	$\langle 37^-\rangle$	$\langle 37^-\rangle$	$\langle 37^-\rangle$	$\langle 39^+\rangle$	$\langle 37^+\rangle$	$\langle 37^-\rangle$	$\langle 39^+\rangle$
3778.23(24)	$\langle 39^+\rangle$			11.9(8)	88(4)							
3827.23(22)	$\langle 37^+\rangle$		51(3)									
3906.5(3)	$\langle 39^+\rangle$			100								
3968.7(3)	$\langle 39^-\rangle$				100							
4090.6(3)	$\langle 39^-\rangle$						100					
4117.28(24)	$\langle 39^+\rangle$		65(5)							35(3)		
4120.2(4)	$\langle 41^+\rangle$								100			
4186.3(3)	$\langle 39^-\rangle$										65(18)	
4243.5(3)	$\langle 41^+\rangle$			11.1(20)								89(4)
4305.1(4)	$\langle 41^-\rangle$					100						
4354.6(3)	$\langle 41^-\rangle$				30(4)							
4435.6(3)	$\langle 41^+\rangle$									65(10)		
4464.4(4)	$\langle 41^-\rangle$							100				
4476.9(4)	$\langle 43^+\rangle$								17(5)			
4477.5(3)	$\langle 41^-\rangle$						100					
4597.0(3)	$\langle 43^+\rangle$											19(6)
4609.9(3)	$\langle 43^+\rangle$								79.6(19)			

Energy levels and branching ratios [94Ba52]. Part 13 **$^{179}_{74}$W**

E^*	$2J^\pi$		Branching ratios in percentage									
		E_f^*:	3920.1	3963.8	3968.7	4041.3	4090.6	4091.4	4094.8	4117.3	4120.2	4243.5
[keV]		$2J_f^\pi$:	$\langle 37^-\rangle$	$\langle 39^-\rangle$	$\langle 39^-\rangle$	$\langle 41^+\rangle$	$\langle 39^-\rangle$	$\langle 39^+\rangle$	$\langle 39^-\rangle$	$\langle 39^+\rangle$	$\langle 41^+\rangle$	$\langle 41^+\rangle$
4354.6(3)	$\langle 41^-\rangle$				70(8)							
4435.6(3)	$\langle 41^+\rangle$									35(12)		
4476.9(4)	$\langle 43^+\rangle$										83(5)	
4477.5(3)	$\langle 41^-\rangle$						x					
4574.4(3)	$\langle 41^-\rangle$		100									
4597.0(3)	$\langle 43^+\rangle$											81(8)
4609.9(3)	$\langle 43^+\rangle$											20.4(16)
4666.7(4)	$\langle 43^-\rangle$			100								
4738.3(5)	$\langle 45^+\rangle$					100						
4748.4(4)	$\langle 43^-\rangle$				100							
4779.4(3)	$\langle 43^+\rangle$									100		
4845.2(4)	$\langle 43^-\rangle$								100			
4847.3(5)	$\langle 43^+\rangle$							100				
4849.9(4)	$\langle 45^+\rangle$										30(6)	
4864.6(8)	$\langle 43^-\rangle$						x					
4967.9(3)	$\langle 45^+\rangle$											35(7)

Energy levels and branching ratios [94Ba52]. Part 14 **$^{179}_{74}$W**

E^*	$2J^\pi$					Branching ratios in percentage						
		E_f^*:	4305.1	4354.6	4435.6	4464.4	4476.9	4477.5	4574.4	4597.0	4609.9	4666.7
[keV]		$2J_f^\pi$:	$\langle 41^- \rangle$	$\langle 41^- \rangle$	$\langle 41^+ \rangle$	$\langle 41^- \rangle$	$\langle 43^+ \rangle$	$\langle 41^- \rangle$	$\langle 41^- \rangle$	$\langle 43^+ \rangle$	$\langle 43^+ \rangle$	$\langle 43^- \rangle$
4748.4(4)	$\langle 43^- \rangle$			x								
4800.8(4)	$\langle 45^+ \rangle$										100	
4849.9(4)	$\langle 45^+ \rangle$						70(23)					
4864.6(8)	$\langle 43^- \rangle$							x				
4921.6(4)	$\langle 45^- \rangle$										100	
4967.9(3)	$\langle 45^+ \rangle$									65(22)		
5036.8(4)	$\langle 45^- \rangle$		100									
5120.0(4)	$\langle 47^+ \rangle$										x	
5141.4(4)	$\langle 45^- \rangle$			100								
5147.0(4)	$\langle 45^+ \rangle$				100							
5233.4(4)	$\langle 45^- \rangle$					100						
5239.7(4)	$\langle 47^+ \rangle$						29(9)					
5278.4	$\langle 45^- \rangle$								100			
5357.2(3)	$\langle 47^+ \rangle$									20(8)		
5436.8(4)	$\langle 47^- \rangle$											100

Energy levels and branching ratios [94Ba52]. Part 15 **$^{179}_{74}$W**

E^*	$2J^\pi$					Branching ratios in percentage						
		E_f^*:	4738.3	4748.4	4779.4	4800.8	4845.2	4847.3	4849.9	4921.6	4967.9	5036.8
[keV]		$2J_f^\pi$:	$\langle 45^+ \rangle$	$\langle 43^- \rangle$	$\langle 43^+ \rangle$	$\langle 45^+ \rangle$	$\langle 43^- \rangle$	$\langle 43^+ \rangle$	$\langle 45^+ \rangle$	$\langle 45^- \rangle$	$\langle 45^+ \rangle$	$\langle 45^- \rangle$
5120.0(4)	$\langle 47^+ \rangle$					100						
5141.4(4)	$\langle 45^- \rangle$			x								
5178.4(4)	$\langle 47 \rangle$					41(5)				59(4)		
5239.7(4)	$\langle 47^+ \rangle$								71(25)			
5357.2(3)	$\langle 47^+ \rangle$										80(28)	
5487.1(5)	$\langle 49^+ \rangle$		100									
5489.7(4)	$\langle 49^+ \rangle$					28(9)						
5497.5(4)	$\langle 49 \rangle$									19(5)		
5536.9(4)	$\langle 47^+ \rangle$				100							
5611.3(5)	$\langle 47^+ \rangle$							100				
5646.5(4)	$\langle 49^+ \rangle$								40(15)			
5648.8(4)	$\langle 47^- \rangle$						100					
5764.2(4)	$\langle 49^+ \rangle$										40(15)	
5833.7(5)	$\langle 49^- \rangle$											100

Energy levels and branching ratios [94Ba52]. Part 16 **$^{179}_{74}$W**

E^*	$2J^\pi$		Branching ratios in percentage									
		E_f^*:	5120.0	5147.0	5178.4	5239.7	5357.2	5436.8	5487.1	5489.7	5497.5	5646.5
[keV]		$2J_f^\pi$:	$\langle 47^+\rangle$	$\langle 45^+\rangle$	$\langle 47\rangle$	$\langle 47^+\rangle$	$\langle 47^+\rangle$	$\langle 47^-\rangle$	$\langle 49^+\rangle$	$\langle 49^+\rangle$	$\langle 49\rangle$	$\langle 49^+\rangle$
5489.7(4)	$\langle 49^+\rangle$		72(12)									
5497.5(4)	$\langle 49\rangle$				81(28)							
5646.5(4)	$\langle 49^+\rangle$					60(20)						
5764.2(4)	$\langle 49^+\rangle$						60(20)					
5852.1(4)	$\langle 51\rangle$				29(6)						71(9)	
5895.5(4)	$\langle 51^+\rangle$		38(7)							62(9)		
5947.6(4)	$\langle 49^+\rangle$			100								
6069.5	$\langle 51^+\rangle$					36(18)						64(27)
6234.9(4)	$\langle 53\rangle$										39(10)	
6268.8	$\langle 51^-\rangle$							100				
6310.2(6)	$\langle 53^+\rangle$								100			
6330.9(4)	$\langle 53^+\rangle$									45(15)		

Energy levels and branching ratios [94Ba52]. Part 17 **$^{179}_{74}$W**

E^*	$2J^\pi$		Branching ratios in percentage				
		E_f^*:	5833.7	5852.1	5895.5	6234.9	6330.9
[keV]		$2J_f^\pi$:	$\langle 49^-\rangle$	$\langle 51\rangle$	$\langle 51^+\rangle$	$\langle 53\rangle$	$\langle 53^+\rangle$
6234.9(4)	$\langle 53\rangle$			61(7)			
6330.9(4)	$\langle 53^+\rangle$				55(10)		
6623.5	$\langle 55\rangle$			x		x	
6708.7	$\langle 53^-\rangle$		100				
6792.6(5)	$\langle 55^+\rangle$				100		x

Energy levels and branching ratios [03Wu10, 80Mo11]. **$^{180}_{74}$W**

E^*	J^π	L	σ (p,t)	σ (d,d′)	Ratio	$T_{1/2}$ or	Ref.
[keV]		(p,t)	μb/sr	μb/sr	(d,d′)	Γ_{cm}	
0.0	0^+	0	500	80200	4.4	Stable	80Mo11
103.531(10)	2^+	$\langle 2\rangle$	180	4739	1.7	1.28(5) ns	80Mo11
337.516(12)	4^+	$\langle 4\rangle$	22	43	0.5		80Mo11
688.414(16)	6^+		4				80Mo11
1006.334(10)	2^-		$\langle 2\rangle$			7.4(4) ns	80Mo11
1082.342(11)	3^-		13	104	1.7		80Mo11
1117.280(10)	2^+		21	145	1.4		80Mo11
1138.43(3)	8^+						
1184.853(12)	4^-		3				80Mo11
1232.658(14)	3^+		2				80Mo11

(continued) **$^{180}_{74}$W**

E^* [keV]	J^π	L (p,t)	σ (p,t) μb/sr	σ (d,d′) μb/sr	Ratio (d,d′)	$T_{1/2}$ or Γ_{cm}	Ref.
1307.541(13)	5^-						
1322.07(19)	$\langle 2^+ \rangle$		8	13			80Mo11
1360.48(4)	4^+		4				80Mo11
1382(5)			4				80Mo11
1461.788(15)	6^-						
1470(5)			5				80Mo11
1516(5)	0^+	0	36				80Mo11
1529.01(3)	8^-					5.47(9) ms	
1535.58(6)	5^+						
1568.13(11)	$\langle 4^+–6^+ \rangle$						
1587.240(24)	$\langle 1^-,2^+ \rangle$		51				80Mo11
1624.176(23)	7^-						
1632.868(20)	$\langle 1^–3 \rangle$		8				80Mo11
1634.64(4)	$\langle 3,4^+ \rangle$		incl	9	0.5		80Mo11
1639.771(20)	5		incl	incl		19.2(3) ns	80Mo11
1664.14(4)	10^+						
1693.56(15)				12	1.1		
1695(5)	0^+	0	11				80Mo11
1702.94(8)	6^+						
1725.54(4)	9^-						
1729.81(7)	$\langle 4^+–6^+ \rangle$		7	16	1.5		80Mo11
1764.402(22)	6						
1784.807(23)	$\langle 4^+,5^+ \rangle$						
1814.81(6)	$\langle 2^+,3 \rangle$		6	30	0.6		80Mo11
1830.81(4)	8^-						
1831.689(11)	2^-						
1851.12(6)							
1855.16(16)							
1911.55(5)	7		21				80Mo11
1918.09(19)							
1926.39(16)							
1932.15(11)	7^+						
1945.01(5)	10^-		15				80Mo11
1954.49(15)							
2024.52(8)	9^-						
2059.31(12)			10				80Mo11
2082.51(7)	8		10				80Mo11
2117.48(13)							
2127.35(9)							
2133.00(9)	8^+						
2164(10)			25				80Mo11
2176.722(24)							
2186.99(10)	11^-						
2203(10)			8				80Mo11
2212(10)			10	11	0.4		80Mo11

(continued) **$^{180}_{74}$W**

E^* [keV]	J^π	L (p,t)	σ (p,t) μb/sr	σ (d,d′) μb/sr	Ratio (d,d′)	$T_{1/2}$ or Γ_{cm}	Ref.
2227.82(5)							
2235.19(10)	12^+						
2256.56(3)			10				80Mo11
2273.66(8)	9						
2274.00(17)	9^+						
2283.96(15)	10^-		5				80Mo11
2356(10)			18	6	1.0		80Mo11
2400(10)			7				80Mo11
2415.733(12)	2^-						
2423.86(14)	10^+						
2435.147(13)	2^-						
2451.38(12)	12^-						
2501.12(13)	11^-						
2522.56(4)							
2531.47(4)							
2546.85(7)							
2589.10(17)	11^+						
2736.36(20)	13^-						
2763.54(15)	12^+						
2813.3(4)	12^-						
2822.5(3)	14^+						
2884.064(15)	2^-						
2909.92(6)							
2966.11(20)	13^+						
3042.3(3)	14^-						
3047.6(4)	13^-						
3176.24(21)	14^+						
3264.56(21)	14^-					2.33(19) μs	
3389.5(10)	15^+						
3411.2(5)	14^-						
3412.3(4)	16^+						
3421.7(3)	15^+						
3514.5(10)	$\langle 15 \rangle$						
3547.5(14)	16^+						
3695.3(3)	16^+						
3744.4(13)	$\langle 16^- \rangle$						
3830.5(13)	$\langle 16 \rangle$						
3967.1(4)	17^+						
4001.3(14)	$\langle 17^- \rangle$						
4017.0(5)	18^+						
4146.5(14)	$\langle 17 \rangle$						
4269.3(15)	$\langle 18^- \rangle$						
4339.2(5)	18^+						
4553.3(15)	$\langle 19^- \rangle$						
4606.5(5)	19^+						

(continued) **$^{180}_{74}$W**

E^* [keV]	J^π	L (p,t)	σ (p,t) μb/sr	σ (d,d′) μb/sr	Ratio (d,d′)	$T_{1/2}$ orRef. Γ_{cm}
4672.5(6)	20^+					
4710.5(15)	$\langle 19\rangle$					
4851.5(14)	$\langle 21\rangle$					
4856.3(15)	$\langle 20^-\rangle$					
5095.1(6)	20^+					
5127.5(14)	$\langle 22\rangle$					
5177.2(15)	$\langle 21^-\rangle$					
5339.7(6)	21^+					
5401.4(6)	22^+					
5453.3(14)	$\langle 23\rangle$					
5518.2(15)	$\langle 22^-\rangle$					
5814.3(14)	$\langle 24\rangle$					
5876.2(14)	$\langle 23^-\rangle$					
5974.1(13)	$\langle 24\rangle$					
6114.1(13)	$\langle 24\rangle$					
6210.9(7)	24^+					
6303.0(11)	$\langle 25\rangle$					
6733.0(13)	$\langle 26\rangle$					
7176.0(13)	$\langle 27\rangle$					
7632.0(15)	$\langle 28\rangle$					

Additional data on this isotope can be found in [00Ya22, 93Wa11].

Abundance: 0.12(1) %.

Three bands based on states with J^π=0^+, 8^- (E^*=1529 keV) and 8^+ (E^*=2132 keV) were considered in [93Wa11].

Data for this isotope are considered in vol. LB I/18C.

Energy levels and branching ratios [03Wu10, 80Mo11]. Part 2 **$^{180}_{74}$W**

E^* [keV]	J^π	Branching ratios in percentage									
	E^*_f:	0.0	103	337	688	1006	1082	1117	1138.43	1184.85	1232.66
	J^π_f:	0^+	2^+	4^+	6^+	2^-	3^-	2^+	8^+	4^-	3^+
103.531(10)	2^+	100									
337.516(12)	4^+		100								
688.414(16)	6^+			100							
1006.334(10)	2^-	0.547(21)	99(3)	0.47(4)							
1082.342(11)	3^-			61(6)		39(2)					
1117.280(10)	2^+	45.6(14)	54(2)								
1138.43(3)	8^+				100						
1184.853(12)	4^-		4.6(9)	19(3)		62(6)	15(3)				
1232.658(14)	3^+		86(17)	14(3)							
1307.541(13)	5^-			5.0(10)	3.4(7)		84(17)			7.8(16)	
1322.07(19)	$\langle 2^+\rangle$	27(5)	45(9)	27(5)							

(continued) **$^{180}_{74}$W**

E^*	J^π		Branching ratios in percentage									
		E_f^*:	0.0	103	337	688	1006	1082	1117	1138.43	1184.85	1232.66
[keV]		J_f^π:	0^+	2^+	4^+	6^+	2^-	3^-	2^+	8^+	4^-	3^+
1360.48(4)	4^+			37(8)	63(13)							
1461.788(15)	6^-										96(19)	
1529.01(3)	8^-									100		
1535.58(6)	5^+				89(18)	10.7(21)						
1568.13(11)	$\langle 4^+–6^+\rangle$				67(13)	33(7)						
1587.240(24)	$\langle 1^-,2^+\rangle$		8(1)	44(4)			48(8)					
1632.868(20)	$\langle 1^-–3\rangle$			26(2)			19(7)	55(4)				
1634.64(4)	$\langle 3,4^+\rangle$				8(2)			7(1)	43(9)		12(2)	30(6)
1639.771(20)	5					4(1)					33(7)	
1664.14(4)	10^+									100		
1693.56(15)					100							
1702.94(8)	6^+				32(6)	68(14)						
1729.81(7)	$\langle 4^+–6^+\rangle$				30(6)	70(14)						
1784.807(23)	$\langle 4^+,5^+\rangle$				32(7)	14(3)						18(4)
1814.81(6)	$\langle 2^+,3\rangle$			36(6)	20(7)		44(8)					
1831.689(11)	2^-			0.49(6)			86(3)	9.7(3)	2.43(16)			1.29(16)
1855.16(16)						100						
1918.09(19)					x	x						
1926.39(16)						x				x		
1932.15(11)	7^+					88(18)				12(3)		
1954.49(15)					13(3)	34(7)						
2024.52(8)	9^-									14(3)		
2117.48(13)										100		
2127.35(9)										100		
2133.00(9)	8^+									100		
2176.722(24)			19(2)	14(2)					68(3)			
2227.82(5)								7(4)	41(5)			52(5)
2256.56(3)				61(4)			39(7)					
2415.733(12)	2^-			1.8(4)			46(2)	5.3(5)	33.7(9)			10.9(9)
2423.86(14)	10^+									x		
2435.147(13)	2^-			11.2(6)			5(1)	37(3)	23(1)		7(1)	10.6(9)
2522.56(4)							26(5)		35(3)			21(3)
2531.47(4)							42(2)	9(3)				
2546.85(7)									74(13)			26(7)
2884.064(15)	2^-			2.4(3)			39(2)	25(17)	16(2)			12.2(9)
2909.92(6)							43(6)		26(7)			31(8)

Energy levels and branching ratios [03Wu10, 80Mo11]. Part 3 **$^{180}_{74}$W**

E^*	J^π	Branching ratios in percentage									
	E_f^*:	1307.54	1360.48	1461.79	1529.01	1587.24	1624.18	1632.87	1634.64	1639.77	1664.14
[keV]	J_f^π:	5^-	4^+	6^-	8^-	$\langle 1^-,2^+\rangle$	7^-		$\langle 3,4^+\rangle$	5	10^+
1461.788(15)	6^-	4.3(9)									
1624.176(23)	7^-	97(19)		2.8(6)							
1639.771(20)	5	45(9)	15(3)	3.7(8)							
1725.54(4)	9^-				100						
1764.402(22)	6									100	
1784.807(23)	$\langle 4^+,5^+\rangle$		36(7)								
1830.81(4)	8^-			97(19)			3.0(6)				
1851.12(6)										100	
1911.55(5)	7									48(10)	
1945.01(5)	10^-				32(6)						
1954.49(15)									53(11)		
2024.52(8)	9^-						86(17)				
2235.19(10)	12^+										100
2415.733(12)	2^-							2.6(9)			
2423.86(14)	10^+										x
2435.147(13)	2^-					6(1)					
2522.56(4)						18(4)					
2763.54(15)	12^+										x

Energy levels and branching ratios [03Wu10, 80Mo11]. Part 4 **$^{180}_{74}$W**

E^*	J^π	Branching ratios in percentage									
	E_f^*:	1725.54	1729.81	1764.40	1814.81	1830.81	1831.69	1911.55	1945.01	2024.52	2082.51
[keV]	J_f^π:	9^-		6	$\langle 2^+,3\rangle$	8^-	2^-	7	10^-	9^-	8
1911.55(5)	7			52(10)							
1945.01(5)	10^-	68(14)									
2059.31(12)			100								
2082.51(7)	8			61(12)				39(8)			
2186.99(10)	11^-	38(8)							62(12)		
2273.66(8)	9							80(16)			20(4)
2274.00(17)	9^+	x									
2283.96(15)	10^-					100					
2423.86(14)	10^+	x									
2451.38(12)	12^-								47(10)		
2501.12(13)	11^-									100	
2531.47(4)							50(15)				
2589.10(17)	11^+								x		
2884.064(15)	2^-				6(1)						

Energy levels and branching ratios [03Wu10, 80Mo11]. Part 5 $^{180}_{74}W$

E^*	J^π	Branching ratios in percentage									
	E_f^*:	2133.00	2186.99	2235.19	2273.66	2274.00	2283.96	2423.86	2451.38	2501.12	2589.10
[keV]	J_f^π:	8^+	11^-	12^+	9	9^+	10^-	10^+	12^-	11^-	11^+
2274.00(17)	9^+	x									
2423.86(14)	10^+					x					
2451.38(12)	12^-		53(11)								
2589.10(17)	11^+				x			x			
2736.36(20)	13^-		x						x		
2763.54(15)	12^+			x				x			x
2813.3(4)	12^-						100				
2822.5(3)	14^+			100							
2966.11(20)	13^+										x
3042.3(3)	14^-								x		
3047.6(4)	13^-									100	
3176.24(21)	14^+			x							
3264.56(21)	14^-								27(4)		

Energy levels and branching ratios [03Wu10, 80Mo11]. Part 6 $^{180}_{74}W$

E^*	J^π	Branching ratios in percentage									
	E_f^*:	2736.36	2763.54	2813.3	2822.5	2966.11	3042.3	3176.24	3264.56	3389.5	3412.3
[keV]	J_f^π:	13^-	12^+	12^-	14^+	13^+	14^-	14^+	14^-	15^+	16^+
2966.11(20)	13^+		x								
3042.3(3)	14^-	x									
3176.24(21)	14^+		x								
3264.56(21)	14^-	36(4)				0.002	38(4)				
3389.5(10)	15^+								100		
3411.2(5)	14^-			100							
3412.3(4)	16^+				100						
3421.7(3)	15^+					x		x			
3514.5(10)	$\langle 15 \rangle$								100		
3547.5(14)	16^+									100	
3695.3(3)	16^+				x			x			
3744.4(13)	$\langle 16^- \rangle$									100	
4017.0(5)	18^+										100

Energy levels and branching ratios [03Wu10, 80Mo11]. Part 7 **$^{180}_{74}$W**

E^*	J^π					Branching ratios in percentage						
		E_f^*:	3421.7	3514.5	3695.3	3744.4	3830.5	3967.1	4001.3	4017.0	4146.5	4269.3
[keV]		J_f^π:	15^+	$\langle 15\rangle$	16^+	$\langle 16^-\rangle$	$\langle 16\rangle$	17^+	$\langle 17^-\rangle$	18^+	$\langle 17\rangle$	$\langle 18^-\rangle$
3830.5(13)	$\langle 16\rangle$			100								
3967.1(4)	17^+		x									
4001.3(14)	$\langle 17^-\rangle$					100						
4146.5(14)	$\langle 17\rangle$						100					
4269.3(15)	$\langle 18^-\rangle$								100			
4339.2(5)	18^+				100							
4553.3(15)	$\langle 19^-\rangle$								x			x
4606.5(5)	19^+							100				
4672.5(6)	20^+									100		
4710.5(15)	$\langle 19\rangle$										100	
4856.3(15)	$\langle 20^-\rangle$											x

Energy levels and branching ratios [03Wu10, 80Mo11]. Part 8 **$^{180}_{74}$W**

E^*	J^π						Branching ratios in percentage						
		E_f^*:	4339.2	4553.3	4606.5	4672.5	4710.5	4851.5	4856.3	5127.5	5177.2	5401.4
[keV]		J_f^π:	18^+	$\langle 19^-\rangle$	19^+	20^+	$\langle 19\rangle$	$\langle 21\rangle$	$\langle 20^-\rangle$	$\langle 22\rangle$	$\langle 21^-\rangle$	22^+
4851.5(14)	$\langle 21\rangle$						100					
4856.3(15)	$\langle 20^-\rangle$			x								
5095.1(6)	20^+		100									
5127.5(14)	$\langle 22\rangle$							100				
5177.2(15)	$\langle 21^-\rangle$			x					x			
5339.7(6)	21^+				x							
5401.4(6)	22^+					100						
5453.3(14)	$\langle 23\rangle$							x		x		
5518.2(15)	$\langle 22^-\rangle$								x		x	
5814.3(14)	$\langle 24\rangle$									x		
5876.2(14)	$\langle 23^-\rangle$										x	
5974.1(13)	$\langle 24\rangle$									x		
6210.9(7)	24^+											100

Energy levels and branching ratios [03Wu10, 80Mo11]. Part 9 **$^{180}_{74}$W**

E^*	J^π						Branching ratios in percentage					
		E_f^*:	5453.3	5518.2	5814.3	5876.2	5974.1	6114.1	6210.9	6303.0	6733.0	7176.0
[keV]		J_f^π:	$\langle 23\rangle$	$\langle 22^-\rangle$	$\langle 24\rangle$	$\langle 23^-\rangle$	$\langle 24\rangle$	$\langle 24\rangle$	24^+	$\langle 25\rangle$	$\langle 26\rangle$	$\langle 27\rangle$
5814.3(14)	$\langle 24\rangle$		x									
5876.2(14)	$\langle 23^-\rangle$			x								
5974.1(13)	$\langle 24\rangle$		x		x							

(continued) **$^{180}_{74}$W**

E^*	J^π					Branching ratios in percentage						
		E_f^*:	5453.3	5518.2	5814.3	5876.2	5974.1	6114.1	6210.9	6303.0	6733.0	7176.0
[keV]		J_f^π:	⟨23⟩	⟨22$^-$⟩	⟨24⟩	⟨23$^-$⟩	⟨24⟩	⟨24⟩	24$^+$	⟨25⟩	⟨26⟩	⟨27⟩
6114.1(13)	⟨24⟩					100						
6303.0(11)	⟨25⟩						x	x	x			
6733.0(13)	⟨26⟩									x		
7176.0(13)	⟨27⟩									x	x	
7632.0(15)	⟨28⟩										x	x

Energy levels and branching ratios [91Fi01]. **$^{181}_{74}$W**

E^*	$2J^\pi$	L	σ (d,p)	σ (d,t)	σ (τ,α)	L	σ (p,t)	$T_{1/2}$ or	Ref.	Branching ratios in percentage				
										E_f^*:	0.0	113	251	366
[keV]		(d,p)	μb/sr	μb/sr	μb/sr	(p,t)	μb/sr	Γ_{cm}		$2J_f^\pi$:	9$^+$	11$^+$	13$^+$	5$^-$
0.0	9$^+$	4	3	13			xx	121.2(2) d	72Ca01					
113.40(14)	11$^+$			≈1.5							100			
250.7(2)	13$^+$	6	27	48	30				73Kl07			100		
365.55(13)	5$^-$	3	<2	11		2	xx	14.5(2) μs	72Ca01		98(10)	1.7(4)		
385.19(15)	1$^-$	1	20	288					72Ca01					100
409.23(16)	7$^-$	3	<3	23					72Ca01		35(12)			65(12)
414.3(4)	15$^+$											51(10)	49(10)	
450.16(16)	3$^-$	1	135	≈95					72Ca01					
457.84(16)	1$^-$					0								
475.60(14)	7$^-$	3	51	246					72Ca01		28(8)			72(14)
488.43(17)	5$^-$	3	11	107					72Ca01					
528.6(5)	9$^-$	5	140	33					72Ca01					
529.42(16)	3$^-$		incl	incl					72Ca01					21(9)
560.43(15)	5$^-$	3	164	23		2			72Ca01					9(4)
599.4(4)	17$^+$												61(13)	
609.2(4)	9$^-$		<1	4					72Ca01					83(17)
643.03(16)	7$^-$	3	≈50	70					72Ca01					27(8)
661.67(16)	7$^-$	3	296	45					72Ca01		89(12)			6.0(11)
675.2(5)	11$^-$													
715	⟨7⟩$^-$	3	<14	33					72Ca01					
726.27(18)	3$^-$	1	107	11					72Ca01					93(19)
761.7(4)	⟨11$^-$⟩	5							72Ca01					
784(5)				7					72Ca01					
805.3(4)	⟨9$^-$⟩													
807.51(16)	5$^-$	3	126	13					72Ca01					33(17)
814.2(5)	19$^+$													
848.2(5)	13$^-$													
937(6)	⟨7$^-$⟩		≈67						72Ca01					
953.45(16)	7$^+$										93(23)	7(3)		
975.3(11)	⟨11$^-$⟩													
993.5(3)	⟨9⟩$^+$			≈56					72Ca01		14(8)	86(21)		

(continued) **$^{181}_{74}$W**

E^* [keV]	$2J^\pi$	L (d,p)	σ (d,p) μb/sr	σ (d,t) μb/sr	σ (τ,α) μb/sr	L (p,t)	σ (p,t) μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.	Branching ratios in percentage E_f^*: 0.0 $2J_f^\pi$: 9^+	113 11^+	251 13^+	366 5^-
1009.3(2)	$\langle 5,7\rangle^+$			<4					72Ca01	80(19)			18(5)
1039.0(6)	21^+												
1046.3(6)	15^-												
1084		≥5		13					72Ca01				
1086.8(2)	$\langle 7\rangle^+$									81(20)	19(6)		
1124	$\langle 13^+\rangle$	6		51	38				73Kl07				
1188.3(2)	3^-		<10						72Ca01				6(2)
1193(5)	$\langle 5,7\rangle^-$	3		125					72Ca01				
1248.9(2)	$\langle 5\rangle^-$	$\langle 3\rangle$	204	27					72Ca01				15(5)
1262(5)													
1268.2(7)	17^-												
1272.0(2)	5^+									7(2)			
1274	$5^-,7^-$	3		26					72Ca01				
1310.2(7)	23^+												
1318		≥3		22					72Ca01				
1329.9(3)	$5^-,7^-$												
1355.3(3)	$5^-,7^-$	3		92					72Ca01				79(20)
1365.6(2)	3^+												16(3)
1369	$5^-,7^-$	3		≈21					72Ca01				
1377.73(21)	$3^+,5^+$												
1422.8(3)	$5^-,7^-$	3		72					72Ca01				51(17)
1440.19(19)	$5^+,7^+$									43(8)			23(6)
1469.10(19)	$\langle 5\rangle^+$									36(10)			30(8)
1498.15(20)	7^+									5(2)	15(5)		14(5)
1502				<20					72Ca01				
1512.9(7)	19^-												
1518(5)													
1538.0(5)	$\langle 7^+\rangle$									100			
1560.3(7)	25^+												
1652				88					72Ca01				
1653.1(6)								≈110 ns					
1667(5)													
1712(5)													
1744.9(12)								≈50 ns					
1777.2(12)	$\langle 21^-\rangle$												
1864(5)	1^+	0				0			72Ca01				
1892(5)													
1899.4(8)	27^+												
1945(5)													
1994.0(11)													
2015(5)													
2034(5)													
2061.6(9)													
2067(5)													
2155.8(7)	29^+								05Wu06				

(continued) **$^{181}_{74}$W**

E^* [keV]	$2J^\pi$	L (d,p)	σ (d,p) μb/sr	σ (d,t) μb/sr	σ (τ,α) μb/sr	L (p,t)	σ (p,t) μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.	Branching ratios in percentage E_f^*: 0.0 113 251 366 $2J_f^\pi$: 9^+ 11^+ 13^+ 5^-
2270.9(11)	$\langle 27^- \rangle$								05Wu06	
2569.9(12)	$\langle 29^- \rangle$								05Wu06	
2577.4(9)	31^+								05Wu06	
2823.9(9)	33^+								05Wu06	
2890.9(13)	$\langle 31^- \rangle$								05Wu06	
3231.9(14)	$\langle 33^- \rangle$								05Wu06	
3564.9(14)	37^+								05Wu06	
3592.9(15)	$\langle 35^- \rangle$								05Wu06	
3943.9(16)	37								05Wu06	
4374.0(17)	41^+								05Wu06	
5240.0(20)	45^+								05Wu06	
6140.0(22)	49^+								05Wu06	
7069.0(24)	53^+								05Wu06	
8021(3)	57^+								05Wu06	
8041(3)	57								05Wu06	
8655(3)									05Wu06	
			72Ca01	72Ca01	73Kl07	05Wu06	05Wu06		Ref.	

Additional data on this isotope can be found in [73Li17].
12 bands (A-L) are assigned to excited states of this nucleus in [05Wu06].
Data for this isotope are considered in vol. LB I/18C.

Energy levels and branching ratios [91Fi01]. Part 2 **$^{181}_{74}$W**

E^* [keV]	$2J^\pi$	E_f^*: $2J_f^\pi$:	Branching ratios in percentage 385 1^-	409.23 7^-	414.4 15^+	450.16 3^-	457.84 1^-	475.54 7^-	488.35 5^-	528.6 9^-	529.42 3^-	560.46 5^-
450.16(16)	3^-		100									
457.84(16)	1^-		100									
488.43(17)	5^-		74(29)			26(7)						
528.6(5)	9^-			100								
529.42(16)	3^-		61(24)				18(7)					
560.43(15)	5^-		24(12)			52(12)	14(6)				0.9(4)	
599.4(4)	17^+				39(8)							
609.2(4)	9^-							17(3)				
643.03(16)	7^-					14(5)		16(5)	44(17)			
661.67(16)	7^-							5.2(9)				
675.2(5)	11^-			60(12)						40(8)		
726.27(18)	3^-		0.18(7)	0.42(14)		3.0(7)			0.46(14)		2.4(10)	0.6(3)
761.7(4)	$\langle 11^- \rangle$							57(11)				
807.51(16)	5^-			20(5)				43(12)				
814.2(5)	19^+				69(14)							
848.2(5)	13^-									85(17)		

(continued) **$^{181}_{74}$W**

E^*	$2J^\pi$					Branching ratios in percentage						
		E_f^*:	385	409.23	414.4	450.16	457.84	475.54	488.35	528.6	529.42	560.46
[keV]		$2J_f^\pi$:	1^-	7^-	15^+	3^-	1^-	7^-	5^-	9^-	3^-	5^-
1009.3(2)	$\langle 5,7\rangle^+$							1.9(10)				
1188.3(2)	3^-		59(29)			12(4)	3(1)		5(2)		9(3)	5(2)
1248.9(2)	$\langle 5\rangle^-$							4(2)				
1272.0(2)	5^+			11(3)								
1329.9(3)	$5^-,7^-$							22(7)				18(6)
1365.6(2)	3^+		0.9(3)				5(1)		2(1)		2.1(5)	14(7)
1377.73(21)	$3^+,5^+$								6.3(12)		7(2)	7(2)
1422.8(3)	$5^-,7^-$							38(13)				
1440.19(19)	$5^+,7^+$							5(2)				
1469.10(19)	$\langle 5\rangle^+$					6(2)		9(5)				

Energy levels and branching ratios [91Fi01]. Part 3 **$^{181}_{74}$W**

E^*	$2J^\pi$					Branching ratios in percentage						
		E_f^*:	599.4	609.2	642.84	661.66	675.2	726.27	805.3	807.47	814.2	848.2
[keV]		$2J_f^\pi$:	17^+	9^-	7^-	7^-	11^-	3^-	$\langle 9^-\rangle$	5^-	19^+	13^-
761.7(4)	$\langle 11^-\rangle$			43(9)								
805.3(4)	$\langle 9^-\rangle$					100						
807.51(16)	5^-				4(2)							
814.2(5)	19^+		31(6)									
848.2(5)	13^-						15(3)					
975.3(11)	$\langle 11^-\rangle$								100			
1039.0(6)	21^+		76(16)								24(5)	
1046.3(6)	15^-						75(15)					25(5)
1248.9(2)	$\langle 5\rangle^-$					38(10)		13(4)		25(12)		
1268.2(7)	17^-											75(15)
1310.2(7)	23^+										81(16)	
1329.9(3)	$5^-,7^-$					37(12)			23(8)			
1355.3(3)	$5^-,7^-$					21(7)						
1365.6(2)	3^+							30(6)		10(2)		
1377.73(21)	$3^+,5^+$							55(16)		24(6)		
1422.8(3)	$5^-,7^-$							10(5)				
1440.19(19)	$5^+,7^+$									3(1)		
1653.1(6)			19								81	

Energy levels and branching ratios [91Fi01]. Part 4 **$^{181}_{74}$W**

E^*	$2J^\pi$	Branching ratios in percentage									
	E_f^*:	953.42	1009.36	1039.0	1046.3	1086.77	1188.25	1268.2	1271.97	1310.2	1560.3
[keV]	$2J_f^\pi$:	7^+	$\langle 5,7\rangle^+$	21^+	15^-	$\langle 7\rangle^+$	3^-	17^-	5^+	23^+	25^+
1248.9(2)	$\langle 5\rangle^-$		5(2)								
1268.2(7)	17^-				25(5)						
1272.0(2)	5^+	69(19)	13(4)								
1310.2(7)	23^+			19(4)							
1365.6(2)	3^+	5(1)	8(4)				7(3)		0.5(2)		
1440.19(19)	$5^+,7^+$	16(8)				≈10					
1469.10(19)	$\langle 5\rangle^+$	7(2)				12(4)					
1498.15(20)	7^+	18(6)	47(24)								
1512.9(7)	19^-				100						
1560.3(7)	25^+			73(15)						27(calc)	
1777.2(12)	$\langle 21^-\rangle$							100			
1899.4(8)	27^+									88(18)	12(3)
2155.8(7)	29^+										93(19)

Energy levels and branching ratios [91Fi01]. Part 5 **$^{181}_{74}$W**

E^*	$2J^\pi$	Branching ratios in percentage		
	E_f^*:	1653.1	1899.4	2155.9
[keV]	$2J_f^\pi$:		27^+	$\langle 29^+\rangle$
1744.9(12)		100		
2155.8(7)	29^+		7.2(15)	
2577.4(9)	31^+		100	
2823.9(9)	33^+			100

Energy levels and branching ratios [95Si04]. **$^{182}_{74}$W**

E^*	J^π	σ (t,p)	L	σ (d,t)	σ (τ,α)	σ (d,d′)	σ (p,t)	$I_{s,0}$	$\Gamma_\circ^{red}$	$B(M1)$	$T_{1/2}$ or	Ref.
[keV]		μb/sr	(d,t)	μb/sr	μb/sr	μb/sr	μb/sr	[eVb]	[meV]	[μ_N^2]	Γ_{cm}	
0.0	0^+	283		4		49450	700				Stable	80Mo11
100.1060(1)	2^+	77	1,3	169	0.8	3620	200				1.369(10) ns	80Mo11
329.4267(7)	4^+	33	3	39	0.6	105	26				62(3) ps	80Mo11
680.50(5)	6^+			1.8			6				8.2(9) ps	80Mo11
1135.81(8)	0^+	147		0.9		≈3	100					80Mo11
1144.4(1)	8^+										2.01(17) ps	
1221.4110(5)	2^+	41	1,3	3		78	60				0.434(11) ps	80Mo11
1257.4232(6)	2^+	20	1,3	11		23	12				1.71(13) ps	80Mo11
1289.1610(5)	2^-			0.6							1.12(2) ns	
1331.1267(6)	3^+		3	36	1.1						<0.6 ns	

(continued) **$^{182}_{74}$W**

E^* [keV]	J^π	σ (t,p) μb/sr	L (d,t)	σ (d,t) μb/sr	σ (τ,α) μb/sr	σ (d,d′) μb/sr	σ (p,t) μb/sr	$I_{s,0}$ [eVb]	$\Gamma_\circ^{red}$ [meV]	$B(M1)$ [μ_N^2]	$T_{1/2}$ or Γ_{cm}	Ref.
1373.8418(5)	3^-						7				78(10) ps	80Mo11
1442.823(18)	4^+	10	>3	4		5	12				0.32(3) ps	80Mo11
1487.5144(5)	4^-										<49 ps	
1510.19(3)	4^+		>3	8								
1553.2364(5)	4^-		4	5							1.23(2) ns	
1621.286(21)	5^-		⟨4⟩	2.1		≈2	3					80Mo11
1623.55(3)	$\langle 5\rangle^+$						incl					80Mo11
1660.396(20)	5^-		⟨4⟩	2.1		4	5					80Mo11
1711.9(2)	10^+										0.76(7) ps	
1756.801(19)	6^+						15					80Mo11
1765.43(20)							incl					80Mo11
1768.969(22)	$\langle 6\rangle^-$		6	14	8	13	incl					80Mo11
1769.5(7)	$\langle 6^+\rangle$						incl					80Mo11
1809.69(3)	5^-		4	11			2					80Mo11
1810.91(3)	$\langle 6\rangle^-$						incl					80Mo11
1813.4(3)							incl					80Mo11
1829.548(22)	6^-		⟨6⟩	5	2.1		8					80Mo11
1833.1(6)												
1856.03(8)	2^+		⟨1,3⟩	19		5	8					80Mo11
1856.9(4)	2^+			incl		incl	incl					80Mo11
1871.17(13)	1^-											
1887.85(21)							20					80Mo11
1916.99(7)	$\langle 7\rangle^-$		6	16	8							
1918.6(4)				≤4								
1959.28(18)	2^+			≈21			22					80Mo11
1960.35(3)	$\langle 7\rangle^-$		6	≈12	7	9	incl					80Mo11
1960.79(4)	6^-		6	incl	incl	incl	incl					80Mo11
1971.12(5)	$\langle 7\rangle^+$			≈21								
1978.39(3)	$\langle 7\rangle^-$			≈5								
1981.83(25)				incl								
1993.79(14)	$\langle 7^-\rangle$											
2023.56(3)	$\langle 3^+\rangle$		1,3	8								
2057.40(5)	$\langle 2^-\rangle$		1,3	11								
≈2071				≈3								
2087.67(14)				5			5					80Mo11
2109.87(24)	2^-,3^-		1	107								
2114.44(5)	$\langle 8\rangle^-$						3					80Mo11
2116.1(6)							incl					80Mo11
2120.51(12)	$\langle 8^-\rangle$						incl					80Mo11
2131.4(4)	$\langle 7^-\rangle$		6	12	≈6							
2143.1(10)												
2148.13(17)	$\langle 2^-\rangle$			22		≈3	14					80Mo11
2173.9(5)			3,1	17		≈2	17					80Mo11
2180.5(7)	$\langle 8^+\rangle$											
2184.05(4)	2^-,3^-											

(continued) **$^{182}_{74}$W**

E^* [keV]	J^π	L (d,t)	σ (d,t) μb/sr	σ (τ,α) μb/sr	σ (d,d′) μb/sr	σ (p,t) μb/sr	$I_{s,0}$ [eVb]	$\Gamma_\circ^{red}$ [meV]	$B(M1)$ [μ_N^2]	$B(E1)$ [$10^{-3}e^2fm^2$]	$T_{1/2}$ or Γ_{cm}	Ref.
2204.58(6)	$\langle 8\rangle^-$	>3	13		15							
2207.04(16)	$\langle 3^-\rangle$					15						80Mo11
2209.00(14)	3^-											
2212.82(15)	$\langle 8^+\rangle$		7									
2225.51(14)	$\langle 8^-\rangle$											
2230.9(2)	$\langle 10^+\rangle$										1.4(1) μs	
2240.6(3)	$\langle 3^+\rangle$	1	127			4						80Mo11
2274.0(2)	$\langle 9^-\rangle$		≈3		≈3	14						80Mo11
2274.63(4)	$\langle 3\rangle^-$		incl		incl	incl						80Mo11
2283.5(5)		1	147			incl						80Mo11
2316.1(21)						13						80Mo11
2323.8(3)	$\langle 8^-\rangle$	3	≥61		≈3	incl						80Mo11
2328.17(15)	$\langle 9^-\rangle$					7						80Mo11
2334.3(3)						incl						80Mo11
2359		3	22									
2372.3(3)	12^+										0.38(2) ps	
2376*		4	≈37			[34]						80Mo11
2382(1)	1	1,3	≈26				21.6(25)	1.76(25)	0.46(6)	5.04(68)	7.9(11) fs	93He15
2395*		3,1	38									
2446.09(19)	$\langle 9^-\rangle$	[3]	[18]									
2455.88(15)	$\langle 9^-\rangle$	>3	62									
2474(1)	1	3	14				21.8(26)	1.21(17)	0.31(5)	3.46(50)	15(2) fs	93He15
2480.24(20)	$\langle 9^+\rangle$											
2487.47(19)			16									
2493.1(2)	$\langle 11^+\rangle$		incl									
2520(10)	0^+					14						80Mo11
2552(10)	0^+					10						80Mo11
2564.27(20)	$\langle 10^-\rangle$											
2625**						30						80Mo11
2711.8(1)						12						80Mo11
2725(10)	0^+					22						80Mo11
2731.2(3)	$\langle 10^-\rangle$											
2739.6(4)	$\langle 10^-\rangle$											
2770.7(3)	$\langle 10^+\rangle$					10						80Mo11
2776.0(2)	$\langle 12^+\rangle$					incl						80Mo11
2824.47(24)	$\langle 11^-\rangle$					5						80Mo11
2884(1)	1						20.9(23)	0.85(12)	0.22(3)	2.44(33)	16(2) fs	93He15
2892(1)	$\langle 1\rangle$						4.0(21)	0.29(18)	0.07(4)	0.8(5)	27(17) fs	93He15
2941(2)							weak					93He15
2980.59(24)	$\langle 11^-\rangle$											
2996(1)	1						13(2)	0.94(18)	0.25(5)	2.70(53)	6.7(13) fs	93He15
3030.0(3)	$\langle 11^-\rangle$											
3078.9(3)	$\langle 13^+\rangle$											
3080(1)	1						13(2)	0.56(11)	0.15(3)	1.6(3)	17(3) fs	93He15
3104.3(5)	$\langle 12^-\rangle$											

(continued) **$^{182}_{74}$W**

E^* [keV]	J^π	σ (t,p) μb/sr	σ (d,t) μb/sr	σ (τ,α) μb/sr	σ (d,d′) μb/sr	σ (p,t) μb/sr	$I_{s,0}$ [eVb]	$\Gamma_\circ^{red}$ [meV]	$B(M1)$ [μ_N^2]	$B(E1)$ [$10^{-3}e^2fm^2$]	$T_{1/2}$ or Γ_{cm}	Ref.
3112.3(4)	$\langle 14^+\rangle$										0.24(4) ps	
3163(1)	1						22.2(25)	0.91(12)	0.24(3)	2.6(4)	10.3(14) fs	93He15
3198(1)	$\langle 1,2\rangle$						12.8(22)	0.54(11)	0.14(3)	1.54(30)	16(3) fs	93He15
3365(1)	1						15(3)	0.66(13)	0.17(4)	1.9(3)	11.1(23) fs	93He15
3398.9(3)	$\langle 14^+\rangle$											
3422(1)	$\langle 1,2\rangle$						19.1(27)	0.72(12)	0.19(3)	2.06(35)	10.3(20) fs	93He15
3601(1)	1						21.4(33)	0.89(18)	0.23(4)	2.54(45)	6.2(12) fs	93He15
3640(2)							weak					93He15
3727(2)							weak					93He15
3736.4(5)	$\langle 15^+\rangle$											
3755.1(4)	$\langle 15^+\rangle$										54(10) ns	
3882(2)							weak					93He15
3893.6(6)	$\langle 16^+\rangle$										$\leq$7 ns	
3909.2(7)	$\langle 16^+\rangle$										0.14(3) ps	
3920(2)	1						weak					93He15
4040.2(7)	$\langle 17^-\rangle$										17(7) ns	
4218.1(8)	$\langle 17^+\rangle$											
4421.0(9)	$\langle 18^-\rangle$											
4569.7(8)	$\langle 18^+\rangle$											
4747.1(12)	$\langle 18^+\rangle$										0.09(2) ns	
4779.2(10)	$\langle 18\rangle$											
4820.0(9)	$\langle 19^-\rangle$											
5238.7(10)	$\langle 20^-\rangle$											
		76Ca10	73Kl06	73Kl06	73Kl06	80Mo11	93He15	93He15	93He15	93He15		Ref.

Additional data on this isotope can be found in [00De59, 00Ya22, 98Be62, 95Sh27, 94Re03, 93He15, 93Cl04, 91Wu05, 71Gu17].
Abundance: 26.50(16) %.
* Not included in adopted levels [95Si04].
** doublet or multiplet [80Mo11]
σ (d,d′) is the mean value of differential cross sections at 90° and 125° [71Gu17] given in [73Kl06].
High-spin states were assigned to 11 bands in [95Sh27].
Data for this isotope are considered in vol. LB I/18C.

Energy levels and branching ratios [95Si04]. Part 2 **$^{182}_{74}$W**

E^*	J^π		Branching ratios in percentage				
		E_f^*:	0.0	100.1	329	680.50	1135.81
[keV]		J_f^π:	0^+	2^+	4^+	6^+	0^+
100.1060(1)	2^+		100				
329.4267(7)	4^+			100			
680.50(5)	6^+				100		
1135.81(8)	0^+		x	100			

(continued) **$^{182}_{74}$W**

E^*	J^π		Branching ratios in percentage				
		E^*_f:	0.0	100.1	329	680.50	1135.81
[keV]		J^π_f:	0^+	2^+	4^+	6^+	0^+
1144.4(1)	8^+					100	
1221.4110(5)	2^+		43.6(2)	56.4(2)	0.090(5)		
1257.4232(6)	2^+		53.25(12)	24(2)	22.2(2)		0.10(3)
1289.1610(5)	2^-		2.264(8)	27.22(6)	0.585(8)		
1331.1267(6)	3^+			84.70(18)	15.30(10)		
1373.8418(5)	3^-		1.918(12)	5.71(2)	2.07(3)		
1442.823(18)	4^+			36.0(2)	64.0(6)		
1487.5144(5)	4^-			1.10(1)	6.4(8)		
1510.19(3)	4^+			28.8(7)	60(2)	11(4)	
1553.2364(5)	4^-			0.163(4)	1.4(2)		
1621.286(21)	5^-			0.93(10)	2.3(2)		
1623.55(3)	$\langle 5\rangle^+$				75.2(14)	25(5)	
1660.396(20)	5^-			0.08(1)	2.3(2)		
1756.801(19)	6^+				46.3(8)	50(1)	
1768.969(22)	$\langle 6\rangle^-$				1.74(11)	2.2(2)	
1769.5(7)	$\langle 6^+\rangle$				x	x	
1833.1(6)				100			
1856.03(8)	2^+		6.5(5)	12(2)	0.7(3)		
1856.9(4)	2^+		74(17)	26(9)			
1871.17(13)	1^-		48(4)	52(5)			
1887.85(21)					44(11)		
1918.6(4)				100			
1959.28(18)	2^+		5(2)	28(9)	39(5)		
1960.79(4)	6^-				0.57(11)	2.8(4)	
1981.83(25)				37(7)	31(9)		
2057.40(5)	$\langle 2^-\rangle$		47(4)	23(1)			
2109.87(24)	2^-,3^-		<69	46(6)			
2116.1(6)				100			
2143.1(10)					100		
2148.13(17)	$\langle 2^-\rangle$		11(2)	46(4)	43(4)		
2173.9(5)				70(16)			
2180.5(7)	$\langle 8^+\rangle$					x	
2184.05(4)	2^-,3^-			2.6(2)			
2207.04(16)	$\langle 3^-\rangle$		63(6)	<87	37(11)		
2209.00(14)	3^-		32(7)	41(7)	14(4)		
2240.6(3)	$\langle 3^+\rangle$			47(8)	53(9)		
2274.63(4)	$\langle 3\rangle^-$			6.18(92)			
2283.5(5)			61(18)				
2316.1(21)			26(5)	≈74			
2382(1)	1		41	59(8)			
2474(1)	1		60	40(8)			
2884(1)	1		71	29(8)			
2892(1)	$\langle 1\rangle$		40	60(36)			
2941(2)			100				
2996(1)	1		37	63(13)			

(continued) **$^{182}_{74}$W**

E^*	J^π			Branching ratios in percentage			
		E_f^*:	0.0	100.1	329	680.50	1135.81
[keV]		J_f^π:	0^+	2^+	4^+	6^+	0^+
3080(1)	1		62	38(11)			
3163(1)	1		65	35(8)			
3198(1)	⟨1,2⟩		63	37(13)			
3365(1)	1		61	39(10)			
3422(1)	⟨1,2⟩		65	35(10)			
3601(1)	1		56	44(11)			
3640(2)			x				
3727(2)			x	x			
3882(2)			x	x			
3920(2)	1		100				

Energy levels and branching ratios [95Si04]. Part 3 **$^{182}_{74}$W**

E^*	J^π					Branching ratios in percentage						
		E_f^*:	1144.4	1221.41	1257.42	1289.16	1331.13	1373.84	1442.82	1487.51	1510.19	1553.24
[keV]		J_f^π:	8^+	2^+	2^+	2^-	3^+	3^-	4^+	4^-	4^+	4^-
1289.1610(5)	2^-			69.1(10)	0.816(10)							
1373.8418(5)	3^-			60.8(4)	3.78(4)	23.2(4)	2.44(3)					
1487.5144(5)	4^-					22.4(2)	41.0(3)	29.2(3)				
1553.2364(5)	4^-					20.6(1)	42.9(3)	17.6(1)	0.50(2)	16.7(3)		
1621.286(21)	5^-							49(3)	22(1)	23(1)	2.0(1)	
1660.396(20)	5^-							43(3)	20(1)	22(1)	3.1(3)	8.6(6)
1711.9(2)	10^+		100									
1756.801(19)	6^+								3.8(2)			
1765.43(20)				68(10)			32(8)					
1768.969(22)	⟨6⟩$^-$									62(4)		8.4(6)
1809.69(3)	5^-											99(8)
1810.91(3)	⟨6⟩$^-$									71(5)		
1813.4(3)						100						
1829.548(22)	6^-									4.7(4)		39(3)
1856.03(8)	2^+				81(9)							
1887.85(21)				20(7)			36(11)					
1959.28(18)	2^+						20(5)				8(4)	
1981.83(25)					10(3)		22(7)					
2023.56(3)	⟨3^+⟩					13.1(15)		11.5(16)		7.0(11)		68(3)
2057.40(5)	⟨2^-⟩			23(2)	7(2)							
2109.87(24)	2^-,3^-											54(15)
2173.9(5)				30(8)								
2180.5(7)	⟨8^+⟩		x									
2184.05(4)	2^-,3^-					82(7)		14.9(17)				
2209.00(14)	3^-							13(4)				
2230.9(2)	⟨10^+⟩		41(4)									

(continued) **$^{182}_{74}$W**

E^*	J^π	Branching ratios in percentage									
	E_f^*:	1144.4	1221.41	1257.42	1289.16	1331.13	1373.84	1442.82	1487.51	1510.19	1553.24
[keV]	J_f^π:	8^+	2^+	2^+	2^-	3^+	3^-	4^+	4^-	4^+	4^-
2274.63(4)	$\langle 3\rangle^-$						54.9(114)		38.9(69)		
2283.5(5)							39(18)				

Energy levels and branching ratios [95Si04]. Part 4 **$^{182}_{74}$W**

E^*	J^π	Branching ratios in percentage									
	E_f^*:	1621.29	1623.55	1660.40	1711.9	1756.80	1768.97	1809.69	1810.91	1829.55	1916.99
[keV]	J_f^π:	5^-	$\langle 5\rangle^+$	5^-	10^+	6^+	$\langle 6\rangle^-$	5^-	$\langle 6\rangle^-$	6^-	$\langle 7\rangle^-$
1660.396(20)	5^-	1.5(3)									
1768.969(22)	$\langle 6\rangle^-$	9.8(9)	7.3(6)	8.7(6)							
1809.69(3)	5^-	1.36(14)									
1810.91(3)	$\langle 6\rangle^-$	16(7)	13.1(13)				x				
1829.548(22)	6^-	2.8(3)	2.3(3)	51(4)			0.46(12)	0.16(6)			
1916.99(7)	$\langle 7\rangle^-$	46(17)				54(4)					
1960.35(3)	$\langle 7\rangle^-$	25(2)		6(1)		2.2(2)	30(2)		4.0(3)	33(2)	
1960.79(4)	6^-			77(18)				20(2)			
1971.12(5)	$\langle 7\rangle^+$					100					
1978.39(3)	$\langle 7\rangle^-$	5.8(6)				69(6)	5.2(6)			18.7(14)	
1993.79(14)	$\langle 7^-\rangle$	100									
2087.67(14)							100				
2114.44(5)	$\langle 8\rangle^-$						67(5)				
2131.4(4)	$\langle 7^-\rangle$						100				
2225.51(14)	$\langle 8^-\rangle$								100		
2230.9(2)	$\langle 10^+\rangle$				59(8)						
2274.0(2)	$\langle 9^-\rangle$										100
2323.8(3)	$\langle 8^-\rangle$										100
2372.3(3)	12^+				100						

Energy levels and branching ratios [95Si04]. Part 5 **$^{182}_{74}$W**

E^*	J^π	Branching ratios in percentage										
	E_f^*:	1960.35	1971.12	1978.39	1993.79	2087.67	2114.44	2120.51	2204.58	2212.82	2225.51	2230.9
[keV]	J_f^π:	$\langle 7\rangle^-$	$\langle 7\rangle^+$	$\langle 7\rangle^-$	$\langle 7^-\rangle$		$\langle 8\rangle^-$	$\langle 8^-\rangle$	$\langle 8\rangle^-$	$\langle 8^+\rangle$	$\langle 8^-\rangle$	$\langle 10^+\rangle$
1978.39(3)	$\langle 7\rangle^-$	1.3(3)										
2114.44(5)	$\langle 8\rangle^-$	33(5)										
2120.51(12)	$\langle 8^-\rangle$	100										
2204.58(6)	$\langle 8\rangle^-$			100								
2212.82(15)	$\langle 8^+\rangle$		100									
2328.17(15)	$\langle 9^-\rangle$						56(10)	44(4)				

(continued) **$^{182}_{74}$W**

E^*	J^π	Branching ratios in percentage										
	E_f^*:	1960.35	1971.12	1978.39	1993.79	2087.67	2114.44	2120.51	2204.58	2212.82	2225.51	2230.9
[keV]	J_f^π:	$\langle 7\rangle^-$	$\langle 7\rangle^+$	$\langle 7\rangle^-$	$\langle 7^-\rangle$		$\langle 8\rangle^-$	$\langle 8^-\rangle$	$\langle 8\rangle^-$	$\langle 8^+\rangle$	$\langle 8^-\rangle$	$\langle 10^+\rangle$
2334.3(3)				100								
2446.09(19)	$\langle 9^-\rangle$				100							
2455.88(15)	$\langle 9^-\rangle$								100			
2480.24(20)	$\langle 9^+\rangle$									100		
2487.47(19)						100						
2493.1(2)	$\langle 11^+\rangle$											100
2739.6(4)	$\langle 10^-\rangle$										100	
2770.7(3)	$\langle 10^+\rangle$									36(7)		
2776.0(2)	$\langle 12^+\rangle$											21(4)

Energy levels and branching ratios [95Si04]. Part 6 **$^{182}_{74}$W**

E^*	J^π	Branching ratios in percentage										
	E_f^*:	2274.63	2328.17	2372.3	2446.09	2455.88	2480.24	2493.1	2564.27	2731.2	2776.0	2824.47
[keV]	J_f^π:	$\langle 3\rangle^-$	$\langle 9^-\rangle$	12^+	$\langle 9^-\rangle$	$\langle 9^-\rangle$	$\langle 9^+\rangle$	$\langle 11^+\rangle$	$\langle 10^-\rangle$	$\langle 10^-\rangle$	$\langle 12^+\rangle$	$\langle 11^-\rangle$
2564.27(20)	$\langle 10^-\rangle$		100									
2711.8(1)		100										
2731.2(3)	$\langle 10^-\rangle$					100						
2770.7(3)	$\langle 10^+\rangle$						64(13)					
2776.0(2)	$\langle 12^+\rangle$							79(8)				
2824.47(24)	$\langle 11^-\rangle$								100			
2980.59(24)	$\langle 11^-\rangle$				100							
3030.0(3)	$\langle 11^-\rangle$									100		
3078.9(3)	$\langle 13^+\rangle$							38(8)			62(9)	
3104.3(5)	$\langle 12^-\rangle$											100
3112.3(4)	$\langle 14^+\rangle$			100								
3398.9(3)	$\langle 14^+\rangle$										45(9)	

Energy levels and branching ratios [95Si04]. Part 7 **$^{182}_{74}$W**

E^*	J^π	Branching ratios in percentage										
	E_f^*:	3078.9	3112.3	3398.9	3736.4	3755.1	3893.6	3909.2	4040.2	4218.1	4421.0	4820.0
[keV]	J_f^π:	$\langle 13^+\rangle$	$\langle 14^+\rangle$	$\langle 14^+\rangle$	$\langle 15^+\rangle$	$\langle 15^+\rangle$	$\langle 16^+\rangle$	$\langle 16^+\rangle$	$\langle 17^-\rangle$	$\langle 17^+\rangle$	$\langle 18^-\rangle$	$\langle 19^-\rangle$
3398.9(3)	$\langle 14^+\rangle$	55(11)										
3736.4(5)	$\langle 15^+\rangle$	67(18)		33(13)								
3755.1(4)	$\langle 15^+\rangle$	36(8)		64(11)	≈0.1							
3893.6(6)	$\langle 16^+\rangle$					100						
3909.2(7)	$\langle 16^+\rangle$		100									
4040.2(7)	$\langle 17^-\rangle$						100					

(continued) **$^{182}_{74}$W**

E^*	J^π	Branching ratios in percentage										
	E_f^*:	3078.9	3112.3	3398.9	3736.4	3755.1	3893.6	3909.2	4040.2	4218.1	4421.0	4820.0
[keV]	J_f^π:	$\langle 13^+\rangle$	$\langle 14^+\rangle$	$\langle 14^+\rangle$	$\langle 15^+\rangle$	$\langle 15^+\rangle$	$\langle 16^+\rangle$	$\langle 16^+\rangle$	$\langle 17^-\rangle$	$\langle 17^+\rangle$	$\langle 18^-\rangle$	$\langle 19^-\rangle$
4218.1(8)	$\langle 17^+\rangle$						100					
4421.0(9)	$\langle 18^-\rangle$								100			
4569.7(8)	$\langle 18^+\rangle$						19(6)			81(26)		
4747.1(12)	$\langle 18^+\rangle$							100				
4779.2(10)	$\langle 18\rangle$								100			
4820.0(9)	$\langle 19^-\rangle$								14(5)		86(21)	
5238.7(10)	$\langle 20^-\rangle$										41(12)	59(25)

Energy levels and branching ratios [92Fi02]. **$^{183}_{74}$W**

E^*	$2J^\pi$	L	σ (d,p)	I_p	R	S_N	σ (d,t)	σ (τ,α)	E^*	I_γ	$T_{1/2}$ or	Ref.
[keV]			μb/sr	*rel.*		(d,p)	μb/sr	μb/sr	[keV]	*rel.*	Γ_{cm}	
0.0	1^-		8				5		0.10(10)	1040(60)	$>1.1\cdot10^{17}$ yr	72Ca01
46.4839(4)	3^-	1	264	70(5)	0.25	0.46	150		46.5(1)	379(21)	0.188(5) ns	72Ca01
99.0793(4)	5^-	3	202	49.1(29)	0.25	0.32	103				0.77(4) ns	72Ca01
207.0115(5)	7^-		142	42.2(29)	0.2	0.14	72					72Ca01
208.8058(6)	3^-	1	incl	incl	incl	0.11	incl		208.9(3)	0.44(5)	≈245 ps	72Ca01
291.7240(5)	5^-	3	96	31.0(23)	0,24	0.68	35				60(3) ps	72Ca01
308.9455(8)	9^-	5	11	11.8(14)	0.91	0.07	7					72Ca01
309.493(3)	11^+		incl			0.004	incl				5.2(3) s	72Ca01
412.0953(6)	7^-	3	87	32(7)	0.35	0.09	44					72Ca01
453.0708(6)	7^-	3	284	74(8)	0.30	0.92	72				18.5(4) ns	72Ca01
475.4(3)	11^-											
487(4)	$\langle 13\rangle^+$	6	35	46(6)	2.7	0.996	26	15				73Kl07
533(3)	$\langle 1,3\rangle$											
551.1(6)	$\langle 9\rangle^-$		4	2.0(14)	0.7	0.11	<1					72Ca01
595.340(4)	$\langle 9\rangle^-$		≈3	4.0(17)	1.4	0.07	≈1					72Ca01
622.76(3)	9^+	4	≈2				13					72Ca01
631.2(3)	13^-										15(+4-2) ps	
689.4(10)	$[15^+]$			3.7(12)								
739.92(23)	$\langle 11^-\rangle$		4	6.6(26)	>1,3	0.005	1,3					72Ca01
772.04(12)	$\langle 11^-\rangle$											
850.6(3)	15^-											
871(3)	$\langle 1,3\rangle$											
903.5(6)	$\langle 5\rangle^-$	3,1	6				19					72Ca01
904.52(23)	$\langle 5^-\rangle$		incl				incl					
913(5)	X^-											
926.25(25)	$\langle 13^-\rangle$											
934.65(10)	$\langle 1\rangle^-$	1	15	8.3(17)	0.22	0.26	364		934.6(1)	28(2)		72Ca01
960(3)	$\langle 1,3\rangle$											
964.2(16)	$\langle 11,13\rangle^+$	6		3.5(20)		0.98	41	21				73Kl07

(continued) **$^{183}_{74}$W**

E^* [keV]	$2J^\pi$	L	σ (d,p) μb/sr	I_p *rel.*	R	S_N (d,p)	σ (d,t) μb/sr	σ (τ,α) μb/sr	E^* [keV]	I_γ *rel.*	$T_{1/2}$ or Γ_{cm}	Ref.
973.98(13)	$\langle 13^- \rangle$											
999.2(4)	7^-	3	29	14.9(29)	0.39	0.78	237					72Ca01
1026.40(6)	3^-	1	2.6				54		1026.3(1)	391(12)		72Ca01
1052.93(12)	$\langle 5 \rangle^-$	3					66					72Ca01
1062.5(4)	$\langle 17^- \rangle$										4.3(6) ps	
1069.3(4)	7^-	3	16	9.2(26)	0.54	0.06	91					72Ca01
1126.2(8)	9^-		2.8	3.2(14)	3.2	0.18	18					72Ca01
1149.8(7)	3^-	1	275	100(6)	0.21	0.77	22					72Ca01
1156(5)	$\langle 5,3 \rangle^+$											
1217.2(11)	9^-		3	3.2(14)	1.6	0.92	29					72Ca01
1229.5(3)	5^-	3	25	15.8(25)	0.51	0.16	5					72Ca01
1265(6)	$\langle 7 \rangle^-$	$\langle 3 \rangle$					69					72Ca01
1281(6)	$\langle 11^- \rangle$						4					72Ca01
1291.6(7)	$\langle 3^- \rangle$											
1310.0(4)	3^-								1309.6(2)	13(1)		
≈1314	$\langle 9^- \rangle$						8					72Ca01
1332.4(5)	$\langle 19^- \rangle$											
1337.9(5)	$\langle 7^- \rangle$	$\langle 3 \rangle$	14	8.3(23)	0.29	0.05						72Ca01
1338(5)							7					72Ca01
≈1375	$\langle 5,7 \rangle^-$	3					19					72Ca01
≈1376			5									72Ca01
1385.7(3)	9^-	5	25	22.1(26)	0.79	0.99						72Ca01
1397(12)	$\langle 11^- \rangle$						15					72Ca01
1403(3)												
1437.30(8)	$\langle 1^-,3 \rangle$						5		1437.8(3)	0.9(1)		72Ca01
1439.8(20)	$\langle 1^-,3^- \rangle$	$\langle 1 \rangle$	9									72Ca01
1460.8(7)	$\langle 1 \rangle^-$			66(5)	0.25	0.66						
1463.1(10)	$\langle 3 \rangle^-$			2.9(20)		0.014	≈3		1462.9(8)	4.1(9)		72Ca01
1470.9(1)*									1470.9(1)	40(3)		
1485.0(6)	$\langle 3 \rangle^-$	1	232	10.3(23)	0.28		24					72Ca01
1489*			17									72Ca01
1510.4(7)	$\langle 3 \rangle^-$		≈2									72Ca01
1542.8(9)				5.2(17)								
1550.3(4)	5^-	6		38(3)	0.35	0.16	26	15				73Kl07
1556.7(4)	3^-	1	124	28(4)	incl	0.14			1556.0(1)	34(2)		72Ca01
1562(6)	$\langle 3^- \rangle$						43					72Ca01
1577.8(5)		5	21	13.8(5)	0.73							72Ca01
1586.0(7)*									1586.0(7)	7(3)		
1601.6(5)	$\langle 5,7 \rangle$	3		4.6(14)			67					72Ca01
1612.09(15)	$\langle 1,3 \rangle$								1612.4(7)	6.7(20)		
1628.2(5)	$\langle 3^- \rangle$	1	81	17.5(29)	0.13				1627.9(1)	60(5)		72Ca01
1630.1(4)	$\langle 1,3 \rangle^-$	1	incl						1633.2(8)	12(3)		72Ca01
1650(6)							20					72Ca01
≈1651	$\langle 1,3 \rangle^-$	1	16						1660.8(6)	7(2)		72Ca01
1663(5)												

(continued) **$^{183}_{74}$W**

E^* [keV]	$2J^\pi$	L	σ (d,p) μb/sr	I_p *rel.*	R	S_N (d,p)	σ (d,t) μb/sr	σ (τ,α) μb/sr	E^* [keV]	I_γ *rel.*	$T_{1/2}$ or Γ_{cm}	Ref.
1666.2(9)	⟨1,3⟩											
1676.3(4)	⟨1,3⟩			15.8(23)					1672.6(1)	89(5)		
1680.3(4)	⟨5,7⟩$^-$	3		21.0(26)	0.29		19					72Ca01
1691.2(12)	⟨5,7⟩$^-$	3	56	3.2(14)								72Ca01
1692(12)							18					72Ca01
1700(3)												
1711(12)	⟨11,13⟩$^+$	6					17	12				73Kl07
1716.7(6)*									1716.7(6)	4.1(8)		
1729.5(3)	⟨5,7⟩$^-$	3	83	39(3)	0.44				1723.6(6)	4.9(8)		72Ca01
1730.0(9)	⟨1,3⟩								1730.2(1)	29(2)		
1735.7(5)	⟨1,3⟩$^-$	1	40	13.2(23)	0.15		17		1736.2(7)	4.4(8)		72Ca01
1740(6)	⟨1,3⟩$^-$	1	incl						1751.3(9)	2.1(7)		72Ca01
1763(6)	⟨5,7⟩$^-$	3					30					72Ca01
1784.1(5)	⟨1,3⟩$^-$	1	52	20.1(26)	0.17				1788.0(5)	4.4(13)		72Ca01
1793.8(6)	⟨1,3⟩			13.5(23)			19					72Ca01
1802.1(7)				8.9(20)								
1812.4(4)	⟨1,3⟩	3		36(3)	0.30				1811.0(1)	40(2)		
1816(6)		≥3	104									72Ca01
1821.5(5)	3$^-$	1	99	18.4(26)	0.07				1823.6(1)	60(3)		72Ca01
1822(6)	⟨5,7⟩	3					43		1833.5(4)	5.9(11)		72Ca01
1840.8(3)	⟨1,3⟩	1		48(4)	0.15							
1847(6)	⟨1,3⟩$^-$	1	130									72Ca01
1866.16(13)	3$^-$											
1885.34(5)	⟨1,3⟩								1886.1(1)	46(3)		
1893.4(3)*									1893.4(3)	10(1)		
1905.7(5)	⟨1,3⟩			13.2(23)								
1915.2(6)*									1915.2(6)	4(1)		
1944.5(3)	⟨1,3⟩	3		45(4)	0.34				1944.1(1)	98(6)		
1962.1(4)	⟨5,7⟩$^-$	3	86	23.0(29)	0.37							72Ca01
1967(12)		≥3					17					72Ca01
1971.6(9)	⟨1,3⟩$^-$	1	38	7.5(20)								72Ca01
1981.0(7)	⟨1$^-$,3⟩	1	27	11.2(20)					1983.7(3)	0.18(3)		72Ca01
1991.0(7)				11.2(20)			24		1989.6(3)	9(1)		72Ca01
2002.2(8)		1,3		9.2(23)	0.25							
2009.5(7)	X$^-$	1,3	40	12.6(23)	incl		≈54					72Ca01
2028.0(9)	⟨1,3⟩								2028.4(2)	28(3)		
2044.2(6)	⟨5,7⟩$^-$	3	20	12.1(23)	0.39							72Ca01
2058.6(9)	⟨1,3⟩								2058.4(7)	14(3)		
2062.5(7)	⟨1,3⟩$^-$	1	38	10.1(20)	0.14							72Ca01
2091.0(7)	⟨5,7⟩$^-$	3	19	11.5(23)	0.29							72Ca01
2099.9(9)	⟨1,3⟩			8.3(20)					2098.9(1)	17(2)		
2127.4(6)	3$^-$	1		12.6(23)	0.11				2126.3(1)	40(3)		
2134(6)	⟨1,3⟩$^-$	1	46									72Ca01
2137(6)							≈54					72Ca01
2156.7(4)*									2156.7(4)	9(2)		

(continued) **$^{183}_{74}$W**

E^* [keV]	$2J^\pi$	L	σ (d,p) μb/sr	I_p *rel.*	R	S_N (d,p)	σ (d,t) μb/sr	σ (τ,α) μb/sr	E^* [keV]	I_γ *rel.*	$T_{1/2}$ or Γ_{cm}	Ref.
2165.77(6)	3^-								2164.5(1)	42(3)		
2169.5(6)*									2169.5(6)	9(2)		
2178.4(7)	⟨1,3⟩								2176.6(1)	83(5)		
2209.6(7)				7.5(17)			≈42		2209.0(2)	17(2)		72Ca01
2233.1(9)	⟨1,3⟩								2235.0(2)	18(1)		
2256(5)									2247.7(1)	21(1)		
2279(5)												
2292.5(9)	⟨1,3⟩											
2308(5)												
2324(3)	⟨1,3⟩											
2330(5)												
2366.4(7)	⟨1,3⟩											
2389(3)												
2391.0(9)	⟨1,3⟩											
2412(5)												
2430(3)												
2500(5)												
2505.5(7)	⟨1,3⟩											
2616.4(22)	⟨1,3⟩											
2690.9(9)	⟨1,3⟩											
2714.5(11)	⟨1,3⟩											
2774.6(9)	⟨1,3⟩											
2805.5(9)	⟨1,3⟩											
2912.2(9)	⟨1,3⟩											
3206.9(9)	⟨1,3⟩											
3404.4(13)	⟨1,3⟩											
3666.1(8)	⟨1,3⟩											
			72Ca01	97Pr02	97Pr02	97Pr02	72Ca01	73Kl07	97Pr02	97Pr02		Ref.

Additional data on this isotope can be found in [97PrZY, 91Bo14, 90BoZV, 89Bo30, 88Bo44, 88BoZK, 70Fl13, 66Si04, 65Er03].
Abundance: 14.31(4) %.
* Not included in adopted levels; data from [92Fi02] or primary γ-rays [97Pr02].
Data for this isotope are considered in vol. LB I/18C.

Energy levels and branching ratios [92Fi02]. Part 2 **$^{183}_{74}$W**

$2J^\pi$	E^*		Branching ratios in percentage									
		E_f^*:	0.0	46.5	99.1	207	209	291.7	308.9	309	412.095	453.071
	[keV]	$2J_f^\pi$:	1^-	3^-	5^-	7^-	3^-	5^-	9^-	11^+	7^-	7^-
3^-	46.5(1)		100									
5^-			54.6(9)	45.4(11)								
7^-				21.4(4)	78.6(14)							

(continued) **$^{183}_{74}$W**

$2J^\pi$	E^*		Branching ratios in percentage									
		E_f^*:	0.0	46.5	99.1	207	209	291.7	308.9	309	412.095	453.071
	[keV]	$2J_f^\pi$:	1^-	3^-	5^-	7^-	3^-	5^-	9^-	11^+	7^-	7^-
3^-	208.9(3)		10.07(16)	80.1(13)	9.86(18)							
5^-			61(2)	6.5(3)	5.60(9)	21.1(7)	6.2(2)					
9^-					93.6(17)	6.4(3)						
11^+						100						
7^-				9.5(7)	61(1)	16.2(3)	7.0(2)	1.25(8)	5(3)			
7^-				0.89(5)	18.9(3)	46(1)	14.3(3)	15.0(5)	4.12(7)		0.80(8)	
11^-						57			43.3(9)			
$\langle 9\rangle^-$					26	27		47				
$\langle 9\rangle^-$									2.9(15)			97(4)
9^+										100		
13^-									99			
$\langle 11^-\rangle$						x			x		x	
$\langle 11^-\rangle$												25(7)
$\langle 5\rangle^-$			x	48	52							
$\langle 5^-\rangle$				[90(19)]								[10(2)]
$\langle 13^-\rangle$									8(2)			
$\langle 1\rangle^-$	934.6(1)			100								
3^-	1026.3(1)		56(4)	30(2)	6.7(8)		7.1(10)	0.32(11)				
$\langle 5\rangle^-$			x		10(2)	83(17)					7.4(17)	
3^-			79			21						
$\langle 3^-\rangle$			46		54							
3^-	1309.6(2)		72(14)	21(7)			7(2)					
$\langle 1^-,3\rangle$	1437.8(3)		72(14)	9(4)	6(6)		13(3)					
$\langle 1\rangle^-$			20(10)	36(9)			16(12)	28(10)				
$\langle 3\rangle^-$	1462.9(8)		x								100	
$\langle 3\rangle^-$			47	43								
$\langle 3\rangle^-$			x				25				75	
3^-	1556.0(1)		26(6)		6(3)		18(6)	20(6)			2.6(5)	
$\langle 1,3\rangle$	1612.4(7)		66(27)	34(13)								
$\langle 3^-\rangle$	1627.9(1)		57(6)	25(4)	10(2)		8(2)					
$\langle 1,3\rangle^-$	1633.2(8)							x				
$\langle 1,3\rangle$			18(9)				35(12)	47(15)				
$\langle 1,3\rangle$	1672.6(1)		14(2)	52(4)	9(3)		10(3)	15(4)				
$\langle 1,3\rangle$	1730.2(1)		33(6)	67(9)								
$\langle 1,3\rangle$	1811.0(1)			43(5)			57(9)					
3^-	1823.6(1)		5(1)				41(8)				20(8)	4(2)
$\langle 1,3\rangle$			19(8)		16(8)		65(23)					
3^-				40(17)							60(25)	
$\langle 1,3\rangle$	1886.1(1)		12(2)	19(2)	5(3)		11(6)	53(9)				
$\langle 1,3\rangle$	1944.1(1)		9(2)	18(3)			66(10)	7(3)				
$\langle 1^-,3\rangle$	1983.7(3)		49(10)					51(10)				
$\langle 1,3\rangle$	2028.4(2)		60(10)					40(12)				
$\langle 1,3\rangle$	2058.4(7)			43(14)			57(29)					
$\langle 1,3\rangle$	2098.9(1)		26(5)				30(6)					
3^-	2126.3(1)		7(2)	23(2)								<12

(continued) **$^{183}_{74}$W**

$2J^\pi$	E^*		Branching ratios in percentage									
		E_f^*:	0.0	46.5	99.1	207	209	291.7	308.9	309	412.095	453.071
	[keV]	$2J_f^\pi$:	1^-	3^-	5^-	7^-	3^-	5^-	9^-	11^+	7^-	7^-
3^-	2164.5(1)		9(4)	38(8)							17(7)	
⟨1,3⟩	2176.6(1)		57(10)	29(5)			14(6)					
⟨1,3⟩	2235.0(2)				43(14)			57(29)				
⟨1,3⟩			47(20)	53(27)								
⟨1,3⟩			36(12)	24(12)			40(16)					
⟨1,3⟩			24(7)				76(21)					
⟨1,3⟩			26(9)	56(12)	18(6)							
⟨1,3⟩			15(6)	47(8)			13(8)	25(8)				
⟨1,3⟩				44(17)			56(22)					
⟨1,3⟩			60(8)	40(8)								
⟨1,3⟩							62(19)	38(19)				
⟨1,3⟩			50(25)	50(25)								
⟨1,3⟩			35(17)	65(17)								
⟨1,3⟩			69(13)	31(13)								
⟨1,3⟩				46(23)			54(31)					
⟨1,3⟩			53(7)		14(5)		14(9)	19(9)				

Energy levels and branching ratios [92Fi02]. Part 3 **$^{183}_{74}$W**

$2J^\pi$	E^*		Branching ratios in percentage								
		E_f^*:	475.4	551.1	595.340	631.2	739.92	772.04	850.6	903.5	904.52
	[keV]	$2J_f^\pi$:	11^-	⟨9⟩$^-$	⟨9⟩$^-$	13^-	⟨11^-⟩	⟨11^-⟩	15^-	⟨5⟩$^-$	⟨5^-⟩
13^-			1.2(4)								
⟨11^-⟩				x							
⟨11^-⟩					75(20)						
15^-			79			21(2)					
⟨13^-⟩			17(4)	76			x				
⟨13^-⟩					22(6)			78(26)			
⟨17^-⟩						x					
⟨19^-⟩									x		
⟨3⟩$^-$										10	
3^-	1556.0(1)										28(6)

Energy levels and branching ratios [92Fi02]. Part 4 **$^{183}_{74}$W**

$2J^\pi$	E^*		Branching ratios in percentage		
		E_f^*:	934.65	1002.08	1026.40
	[keV]	$2J_f^\pi$:	$\langle 1\rangle^-$	$\langle 7\rangle^-$	3^-
$\langle 1,3\rangle^-$	1633.2(8)		x		
3^-	1823.6(1)			30(11)	
$\langle 1,3\rangle$	2098.9(1)		44(18)		
3^-	2126.3(1)		26(11)		44(8)
3^-	2164.5(1)			37(19)	

Energy levels and branching ratios [89Fi11]. **$^{184}_{74}$W**

E^*	J^π	L	σ (t,p)	σ (t,p)	L	σ (d,p)	σ (d,d′)	L	σ (p,t)	$I_{s,0}$	$\Gamma_\circ^{red}$	$B(M1)$	Ref.
[keV]		(t,p)	μb/sr	μb/sr	(d,p)	μb/sr	μb/sr	(p,t)	μb/sr	[eVb]	[meV]	[μ_N^2]	
0.0	0^+	0	150*	269			49800	0	740				80Mo11
111.208(4)	2^+		14.2	23.1	1,3	74	3160	$\langle 2\rangle$	144				80Mo11
364.056(6)	4^+		17.1	22.4		9	128	$\langle 4\rangle$	25				80Mo11
748.310(11)	6^+		4.8	2.6					5				76Ca10
903.281(7)	2^+	2	52.2	23.2	1,3	22	133		37				80Mo11
1002.48(4)	0^+	0	2.8					0	57				80Mo11
1005.97(1)	3^+					≈55	≈3		incl				80Mo11
1121.44(2)	2^+		21.4		3,1	17	7						73Kl06
1130.03(1)	2^-		incl						22				80Mo11
1133.84(1)	4^+		incl			≈6	6						73Kl06
1221.29(1)	3^-		9.6						8				80Mo11
1252.3(10)	8^+												
1283.6(3)	$1^-,2^-$												
1284.99(1)	5^-												04Wh02
1294.92(10)	$\langle 5^+\rangle$		≤6			2.6							73Kl06
1322.13(2)	$\langle 0\rangle^+$												
1345.38(4)	$\langle 4^-\rangle$												
1360.37(19)	$\langle 4^+\rangle$					4	≈2						73Kl06
1386.31(2)	2^+				1,3	37	17						73Kl06
1424.99(2)	$\langle 3\rangle^+$				3	129							73Kl06
1431.00(4)	2^+												
1446.26(1)	6^-				>3	16							73Kl06
1477(4)	$\langle 6^+\rangle$		6.9			≤1.6	≈4						73Kl06
1492(5)	$\langle 5^-\rangle$												
1501.54(1)	7^-												
1523.28(8)	$\langle 3^+\rangle$				1,3	30							73Kl06
1536.86(5)	$\langle 4^+\rangle$	$\langle 4\rangle$	52.0		1,3	23	20						73Kl06
1570.24(25)	$\langle 2^+\rangle$												
1581.45(9)	$\langle 6^-\rangle$				>3	1.9							73Kl06
1613.56(8)	$\langle 1\rangle^+$				1,3	67							73Kl06
1614.87(6)	1^+												

(continued) $^{184}_{74}$W

E^* [keV]	J^π	L (t,p)	σ (t,p) μb/sr	L (d,p)	σ (d,p) μb/sr	σ (d,d′) μb/sr	L (p,t)	σ (p,t) μb/sr	$I_{s,0}$ [eVb]	$\Gamma_\circ^{red}$ [meV]	$B(M1)$ [μ_N^2]	$B(E1)$ [$10^{-3}e^2fm^2$]	Ref.
1627.69(3)	1^+	⟨2⟩	5.8	1	34								73Kl06
1637(6)	⟨7^-⟩					≈2							73Kl06
1660.97(21)													
1676.45(12)	⟨5^+⟩				5								73Kl06
1683.4(4)													
1699.02(4)	4^-												
1713.47(10)	⟨0⟩$^+$												
1722(6)					4								73Kl06
1746.03(4)	⟨5,6⟩$^-$												
1755(4)	⟨4^+⟩	⟨4⟩	17	3	74	9							73Kl06
1775.41(3)	2^+			1,3	123								73Kl06
1796(6)				>3	93								73Kl06
1808.53(9)	2^+		5.4	1	27								73Kl06
1846.6(15)													
1861.3(10)	10^+		18.6										73Ca21
1876.69(9)	⟨2⟩$^+$		incl										
1894.2(4)	2^+,3				≈12								73Kl06
1921(7)					≈1								73Kl06
1926	8^+												04Wh02
1995.4(3)	⟨1^-⟩								5.1(7)	0.17(3)			93He15
2012.91(10)	2^+												
2029.82(6)	5^-–7^-				3								73Kl06
2031.3(4)	0^+,2^+												
2035.55(19)	1^+,2^+			3	21								73Kl06
2056.41(18)	1^-								9.0(7)	0.95(9)		2.7(3)	93He15
2060.90(8)													
2063.4(3)	0^+,2^+		16.4	1	8								73Kl06
2074.0(6)	0^-,2^-												
2084.8(5)	0^-,2^-												
2089.5(5)	1^-												
2097.7(3)	1^+								5.6(6)	0.44(6)	0.12(2)		93He15
2104.24(8)	2^+				≈4								73Kl06
2112.47(19)	2^+												
2126.09(5)	2^+			1,3	15	≈13							73Kl06
2168.17(4)	1^+			1,3	60								73Kl06
2182(5)	⟨0^+⟩	⟨0⟩	14.5										73Ca21
2194.7(10)													
2222.04(24)	2^+		15.9	1	26								73Kl06
2228.29(7)	2^-,3^-				incl								
2246.4(3)	2^+				4								73Kl06
2294.54(8)	2^+				6								73Kl06
2320.5(3)	0^-,2^-												
2328.7(5)	1,2^+				6								73Kl06
2352.2(2)	⟨1^-⟩				6								73Kl06
2370.1(3)	⟨1^+⟩				14								73Kl06

(continued) **$^{184}_{74}$W**

E^* [keV]	J^π	L (t,p)	σ (t,p) μb/sr	L (d,p)	σ (d,p) μb/sr	σ (d,d′) μb/sr	L (p,t)	σ (p,t) μb/sr	$I_{s,0}$ [eVb]	$\Gamma_\circ^{red}$ [meV]	$B(M1)$ [μ_N^2]	$B(E1)$ [$10^{-3}e^2fm^2$]	Ref.
2389.14(12)	4^-–6^-												
2389.3(3)	$\langle 1^+ \rangle$				34								73Kl06
2392.3(3)					incl								73Kl06
2395.6(3)	$\langle 1^+ \rangle$				incl								73Kl06
2401.8(6)													
2404.5(5)	$\langle 0,2 \rangle^+$												
2421.5(7)	$\langle 0^+ \rangle$	$\langle 0 \rangle$	17.1		16	≈2							73Ca21
2429.6(11)													
2438.9(6)					25								73Kl06
2458.7(5)	1								5.4(6)	0.31(4)	0.08(2)	0.88(11)	93He15
2471	10^+												04Wh02
2480	8–10^+												04Wh02
2485.3(12)					7								73Kl06
2492.67(10)	4^-–6												
2509.7(5)													
2518.9(3)					36	≈1							73Kl06
2532.4(6)					20								73Kl06
2546	1								6.0(10)	0.38(5)	0.10(2)	1.09(13)	93He15
2554.2(4)													
2557	12^+												04Wh02
2572.8(5)					24								73Kl06
2582.0(23)					incl								73Kl06
2592.5(6)					25								73Kl06
2614.2(9)					incl								73Kl06
2620.8(14)													
2629.8(3)					17								73Kl06
2649.7(6)													
2652.1(5)													
2675.5(7)					45								73Kl06
2693.4(4)	1								5.4(10)	0.17(3)			93He15
2704.5(9)													
2707.4(6)													
2719.6(5)													
2766.3(5)	1								6.1(8)	0.19(3)			93He15
2802.0(6)													
2814.9(7)	[1]								3.9(9)	0.12(3)			93He15
2845.4(11)													
2849.2(8)													
2853.6(6)													
2855.6(10)													
2871.5(13)													
2892.8(7)	1								11.0(8)	0.45(4)	0.12(2)	1.30(11)	93He15
2902.0(8)													
2919.3(6)													
2937.8(14)													

(continued) **$^{184}_{74}$W**

E^* [keV]	J^π	L (t,p)	σ (t,p) μb/sr	L (d,p)	σ (d,p) μb/sr	σ (d,d′) μb/sr	L (p,t)	σ (p,t) μb/sr	$I_{s,0}$ [eVb]	$\Gamma_\circ^{red}$ [meV]	$B(M1)$ [μ_N^2]	$B(E1)$ [$10^{-3}e^2fm^2$]	Ref.
2948.7(5)													
2950.8(6)	1								7.6(7)	0.35(4)	0.09(2)	1.00(12)	93He15
2968.2(5)													
2981.6(5)													
3004.1(11)													
3017.9(4)													
3026.8(5)													
3035.5(9)													
3069.1(6)	1								9.2(11)	0.38(4)			93He15
3082.4(6)	1								7.9(11)	0.25(3)			93He15
3088(2)	1								7.9(11)	0.23(3)			93He15
3105.0(4)													
3108	⟨12⟩												04Wh02
3112.1(8)													
3124(2)	1								7.4(11)	0.21(3)			93He15
3134.9(6)	1								14.5(7)	0.40(3)			93He15
3168.3(9)													
3184.5(4)													
3192.8(8)													
3200.3(7)													
3215.5(7)													
3220.6(9)													
3226.8(6)													
3244.6(8)													
3250.4(8)													
3262.6(8)													
3264.6(6)													
3290.6(5)													
3307.9(8)													
3314.4(6)													
3316.6(9)	$[14^+]$												04Wh02
3328.9(7)													
3351.6(11)													
3364.7(20)													
3369.9(9)													
3377.5(15)									weak				93He15
3386.1(7)													
3392.2(9)													
3399.9(7)													
3420.8(9)	[1]								5.5(25)	0.3(1)	0.07(5)	0.8(4)	93He15
3428.5(9)													
3442.3(10)													04Wh02
3448.2(7)													
3454.6(7)													
3465.4(7)	1								16.3(26)	0.59(18)	0.25(5)	2.7(5)	93He15

(continued) **$^{184}_{74}$W**

E^* [keV]	J^π	L (t,p)	σ (t,p) μb/sr	L (d,p)	σ (d,p) μb/sr	σ (d,d′) μb/sr	L (p,t)	σ (p,t) μb/sr	$I_{s,0}$ [eVb]	$\Gamma_\circ^{red}$ [meV]	$B(M1)$ [μ_N^2]	$B(E1)$ [$10^{-3}e^2fm^2$]	Ref.
3487.1(16)													
3501.0(7)									weak				93He15
3507.9(10)	⟨1⟩								12.1(23)	0.6(2)	0.16(5)	1.7(6)	93He15
3517.8(7)													
3546.9(6)													
3560(2)									weak				93He15
3617.6(5)													
3634.5(4)	1								40(13)	1.40(45)	0.37(12)	4.0(13)	93He15
3652.0(7)													
3684.5(6)	⟨1⟩								23(12)	0.8(4)	0.2(1)	2.2(12)	93He15
3686.3(6)													
3703.2(7)													
3714.9(6)													04Wh02
3743.9(6)													
3770.6(5)													
3782.3(7)													
3807.0(5)													
3862													04Wh02
3882.8(11)													
3930.2(13)													
3961.9(5)													
3971.9(6)													
4061.6(6)													
4116	16^+												04Wh02
6556(5)													
6760(5)	1^+												
					73Kl06	73Kl06		80Mo11	93He15	93He15	93He15	93He15	Ref.

Additional data on this isotope can be found in [04Wh02, 02GrZW, 02BoZV, 01Kh0A, 00Ya22, 93He15, 93Cl04, 91Wu05, 71Gu17].

Abundance: 30.64(2) %.

* Largest recorded cross section at E_t=20 MeV [73Ca21]; next column – data for E_t=15 MeV [76Ca10].

σ (d,d′) is the mean value of differential cross sections at 90° and 125° [71Gu17] given in [73Kl06].

Data for this isotope are considered in vol. LB I/18C.

Energy levels and branching ratios [89Fi11]. Part 2 **$^{184}_{74}$W**

E^* [keV]	J^π	$T_{1/2}$ or Γ_{cm}	Ref.	Branching ratios in percentage						
				E_f^*:	0.0	111	364	748	903	1005.97
				J_f^π:	0^+	2^+	4^+	6^+	2^+	3^+
0.0	0^+	>3·10^{17} yr	80Mo11							
111.208(4)	2^+	1.251(12) ns	80Mo11		100					

(continued) **$^{184}_{74}$W**

E^* [keV]	J^π	$T_{1/2}$ or Γ_{cm}	Ref.	E_f^*: J_f^π:	0.0 0^+	111 2^+	364 4^+	748 6^+	903 2^+	1005.97 3^+
						Branching ratios in percentage				
364.056(6)	4^+	48(4) ps	80Mo11			100				
748.310(11)	6^+	5.4(3) ps	76Ca10				100			
903.281(7)	2^+	1.71(8) ps	80Mo11		50.2(6)	49.4(6)	0.42(2)			
1002.48(4)	0^+		80Mo11			100				
1005.97(1)	3^+		80Mo11			88.9(12)	11.06(16)			
1121.44(2)	2^+	4.5(5) ps	73Kl06		18.3(9)	48(2)	34(1)			
1130.03(1)	2^-		80Mo11			5.1(3)			86.4(20)	8.5(4)
1133.84(1)	4^+		73Kl06			42(2)	56(2)	<0.5	1.2(2)	0.20(5)
1221.29(1)	3^-	45(5) ps	80Mo11		0.211(15)	5.7(2)	1.67(5)		58.7(7)	28.7(7)
1252.3(10)	8^+	1.15(10) ps						100		
1283.6(3)	$1^-,2^-$									
1284.99(1)	5^-	8.33(18) μs	04Wh02			9.2(4)	61.7(7)	24.9(4)	0.48(6)	<0.006
1294.92(10)	$\langle 5^+ \rangle$		73Kl06				100			
1322.13(2)	$\langle 0 \rangle^+$					<7.5			100	
1345.38(4)	$\langle 4^- \rangle$						13(3)			68(8)
1360.37(19)	$\langle 4^+ \rangle$		73Kl06			<50				
1386.31(2)	2^+	1.08(10) ps	73Kl06		40(1)	49(1)			8.8(7)	1.92(5)
1424.99(2)	$\langle 3 \rangle^+$		73Kl06			32(2)	15(3)			
1431.00(4)	2^+	>5 ps			44(3)	52(3)				4.4(10)
1446.26(1)	6^-		73Kl06							
1477(4)	$\langle 6^+ \rangle$		73Kl06							
1492(5)	$\langle 5^- \rangle$									
1501.54(1)	7^-	2.35(10) ns								
1523.28(8)	$\langle 3^+ \rangle$		73Kl06			100				
1536.86(5)	$\langle 4^+ \rangle$		73Kl06			23(2)	34(10)			
1570.24(25)	$\langle 2^+ \rangle$				28(11)					
1581.45(9)	$\langle 6^- \rangle$		73Kl06							
1613.56(8)	$\langle 1 \rangle^+$		73Kl06			11(6)			43(4)	46(2)
1614.87(6)	1^+					35(9)			65(7)	
1627.69(3)	1^+		73Kl06						99(20)	
1637(6)	$\langle 7^- \rangle$		73Kl06							
1660.97(21)						<12				[68]
1676.45(12)	$\langle 5^+ \rangle$		73Kl06				26(7)			
1683.4(4)						[100]				
1699.02(4)	4^-						0.06(2)			
1713.47(10)	$\langle 0 \rangle^+$								100	
1722(6)			73Kl06							
1746.03(4)	$\langle 5,6 \rangle^-$									
1755(4)	$\langle 4^+ \rangle$		73Kl06							
1775.41(3)	2^+		73Kl06						55(8)	45(14)
1796(6)			73Kl06							
1808.53(9)	2^+		73Kl06		13(2)	17(2)	14(4)			7(1)
1846.6(15)										
1861.3(10)	10^+	370(70) fs	73Ca21							
1876.69(9)	$\langle 2 \rangle^+$				35(7)	37(10)				

(continued) **$^{184}_{74}$W**

E^*	J^π	$T_{1/2}$ or	Ref.	Branching ratios in percentage					
				E_f^*:	0.0	111	364	748	903	1005.97
[keV]		Γ_{cm}		J_f^π:	0^+	2^+	4^+	6^+	2^+	3^+
1894.2(4)	2^+,3		73Kl06			24(7)	11(6)			
1921(7)			73Kl06							
1926	8^+		04Wh02							
1995.4(3)	$\langle 1^- \rangle$		93He15		100					
2012.91(10)	2^+									58(6)
2029.82(6)	5^-–7^-		73Kl06							
2031.3(4)	0^+,2^+					100				
2035.55(19)	1^+,2^+		73Kl06		85(15)				15(3)	
2056.41(18)	1^-		93He15		<89	100				
2060.90(8)						78(12)				
2063.4(3)	0^+,2^+		73Kl06							
2074.0(6)	0^-,2^-									
2084.8(5)	0^-,2^-									
2089.5(5)	1^-									
2097.7(3)	1^+		93He15		55(8)	45(9)				
2104.24(8)	2^+		73Kl06							x
2112.47(19)	2^+									
2126.09(5)	2^+		73Kl06			50(5)				
2168.17(4)	1^+		73Kl06		8(3)	<83			<16	
2182(5)	$\langle 0^+ \rangle$		73Ca21							
2194.7(10)										
2222.04(24)	2^+		73Kl06			82(21)	0.49(10)		x	
2228.29(7)	2^-,3^-									
2246.4(3)	2^+		73Kl06		28(12)	72(30)				
2294.54(8)	2^+		73Kl06			68(10)			32(3)	
2320.5(3)	0^-,2^-									
2328.7(5)	1,2^+		73Kl06		100					
2352.2(2)	$\langle 1^- \rangle$		73Kl06							
2370.1(3)	$\langle 1^+ \rangle$		73Kl06		48(7)	52(13)				
2389.14(12)	4^-–6^-									
2389.3(3)	$\langle 1^+ \rangle$		73Kl06							
2392.3(3)			73Kl06							
2395.6(3)	$\langle 1^+ \rangle$		73Kl06			100				
2401.8(6)										
2404.5(5)	$\langle 0,2 \rangle^+$									
2421.5(7)	$\langle 0^+ \rangle$		73Ca21							
2429.6(11)										
2438.9(6)			73Kl06							
2458.7(5)	1		93He15							
2471	10^+		04Wh02							
2480	8–10^+		04Wh02							
2485.3(12)			73Kl06							
2492.67(10)	4^-–6									
2509.7(5)										
2518.9(3)			73Kl06							

(continued) **$^{184}_{74}$W**

E^*	J^π	$T_{1/2}$ or	Ref.	Branching ratios in percentage						
				E_f^*:	0.0	111	364	748	903	1005.97
[keV]		Γ_{cm}		J_f^π:	0^+	2^+	4^+	6^+	2^+	3^+
2532.4(6)			73Kl06							
2546	1		93He15							
2554.2(4)										
2557	12^+		04Wh02							
2572.8(5)			73Kl06							
2582.0(23)			73Kl06							
2592.5(6)			73Kl06							
2614.2(9)			73Kl06							
2620.8(14)										
2629.8(3)			73Kl06							
2649.7(6)										
2652.1(5)										
2675.5(7)			73Kl06							
2693.4(4)	1		93He15							
2704.5(9)										
2707.4(6)										
2719.6(5)										
2766.3(5)	1		93He15							
2802.0(6)										
2814.9(7)	[1]		93He15							
2845.4(11)										
2849.2(8)										
2853.6(6)										
2855.6(10)										
2871.5(13)										
2892.8(7)	1		93He15							
2902.0(8)										
2919.3(6)										
2937.8(14)										
2948.7(5)										
2950.8(6)	1		93He15							
2968.2(5)										
2981.6(5)										
3004.1(11)										
3017.9(4)										
3026.8(5)										
3035.5(9)										
3069.1(6)	1		93He15							
3082.4(6)	1		93He15							
3088(2)	1		93He15							
3105.0(4)										
3108	$\langle 12 \rangle$		04Wh02							
3112.1(8)										
3124(2)	1		93He15							
3134.9(6)	1		93He15							

(continued) **$^{184}_{74}$W**

E^* [keV]	J^π	$T_{1/2}$ or Γ_{cm}	Ref.	E_f^*: J_f^π:	0.0 0^+	Branching ratios in percentage 111 2^+	364 4^+	748 6^+	903 2^+	1005.97 3^+
3168.3(9)										
3184.5(4)										
3192.8(8)										
3200.3(7)										
3215.5(7)										
3220.6(9)										
3226.8(6)										
3244.6(8)										
3250.4(8)										
3262.6(8)										
3264.6(6)										
3290.6(5)										
3307.9(8)										
3314.4(6)										
3316.6(9)	[14^+]		04Wh02							
3328.9(7)										
3351.6(11)										
3364.7(20)										
3369.9(9)										
3377.5(15)			93He15							
3386.1(7)										
3392.2(9)										
3399.9(7)										
3420.8(9)	[1]		93He15							
3428.5(9)										
3442.3(10)			04Wh02							
3448.2(7)										
3454.6(7)										
3465.4(7)	1		93He15							
3487.1(16)										
3501.0(7)			93He15							
3507.9(10)	⟨1⟩		93He15							
3517.8(7)										
3546.9(6)										
3560(2)			93He15							
3617.6(5)										
3634.5(4)	1		93He15							
3652.0(7)										
3684.5(6)	⟨1⟩		93He15							
3686.3(6)										
3703.2(7)										
3714.9(6)			04Wh02							
3743.9(6)										
3770.6(5)										
3782.3(7)										

(continued) **$^{184}_{74}$W**

E^*	J^π	$T_{1/2}$ or	Ref.	Branching ratios in percentage						
				E_f^*:	0.0	111	364	748	903	1005.97
[keV]		Γ_{cm}		J_f^π:	0^+	2^+	4^+	6^+	2^+	3^+
3807.0(5)										
3862		188(38) ns	04Wh02							
3882.8(11)										
3930.2(13)										
3961.9(5)										
3971.9(6)										
4061.6(6)										
4116	16^+		04Wh02							
6556(5)					x					
6760(5)	1^+				x					
			Ref.							

Energy levels and branching ratios [89Fi11]. Part 3 **$^{184}_{74}$W**

E^*	J^π					Branching ratios in percentage							
		E_f^*:	1121.44	1130.03	1133.84	1221.29	1252.3	1284.99	1294.92	1322.13	1345.38	1386.31
[keV]		J_f^π:	2^+	2^-	4^+	3^-	8^+	5^-	$\langle 5^+\rangle$	$\langle 0\rangle^+$	$\langle 4^-\rangle$	2^+
1221.29(1)	3^-			2.61(9)	2.43(11)							
1283.6(3)	1^-,2^-		100									
1284.99(1)	5^-				0.35(3)	3.31(15)						
1345.38(4)	$\langle 4^-\rangle$			<64	18(5)							
1360.37(19)	$\langle 4^+\rangle$		[100]									
1424.99(2)	$\langle 3\rangle^+$			45(2)		8(2)						
1446.26(1)	6^-							100				
1501.54(1)	7^-							80(2)				
1536.86(5)	$\langle 4^+\rangle$					38(6)					5(2)	
1581.45(9)	$\langle 6^-\rangle$							100				
1627.69(3)	1^+											1.4(3)
1660.97(21)					[32]							
1676.45(12)	$\langle 5^+\rangle$								43(22)		31(7)	
1699.02(4)	4^-							91(18)			0.18(7)	
1746.03(4)	$\langle 5,6\rangle^-$							73(2)				
1808.53(9)	2^+		18(2)	22(4)		8(1)						
1861.3(10)	10^+						100					
1876.69(9)	$\langle 2\rangle^+$			18(4)		10(2)						
1894.2(4)	2^+,3			66(26)								
2012.91(10)	2^+			42(8)								
2104.24(8)	2^+		x							x		
2112.47(19)	2^+			100								
2126.09(5)	2^+		22(2)	28(3)								
2168.17(4)	1^+		24(5)							18(6)		<15
2228.29(7)	2^-,3^-			<71		58(6)					42(8)	

(continued) **$^{184}_{74}$W**

E^*	J^π	Branching ratios in percentage									
	E_f^*:	1121.44	1130.03	1133.84	1221.29	1252.3	1284.99	1294.92	1322.13	1345.38	1386.31
[keV]	J_f^π:	2^+	2^-	4^+	3^-	8^+	5^-	$\langle 5^+\rangle$	$\langle 0\rangle^+$	$\langle 4^-\rangle$	2^+
2389.14(12)	4^-–6^-						6(3)	3(2)		1.0(5)	
2492.67(10)	4^-–6						87(9)				

Energy levels and branching ratios [89Fi11]. Part 4 **$^{184}_{74}$W**

E^*	J^π	Branching ratios in percentage								
	E_f^*:	1424.99	1446.26	1501.54	1536.86	1581.45	1613.56	1775.41	2029.82
[keV]	J_f^π:	$\langle 3\rangle^+$	6^-	7^-	$\langle 4^+\rangle$	$\langle 6^-\rangle$	$\langle 1\rangle^+$	2^+	
1501.54(1)	7^-		19.6(18)						
1536.86(5)	$\langle 4^+\rangle$	x							
1570.24(25)	$\langle 2^+\rangle$	72(33)							
1699.02(4)	4^-	0.55(5)	6.2(18)		2.1(9)				
1746.03(4)	$\langle 5,6\rangle^-$		3.2(4)	24(3)					
2029.82(6)	5^-–7^-			100					
2060.90(8)		22(3)							
2168.17(4)	1^+	50(5)							
2222.04(24)	2^+							17(5)	
2389.14(12)	4^-–6^-		13(3)			63(8)			14(4)
2395.6(3)	$\langle 1^+\rangle$						<14		
2492.67(10)	4^-–6		13(4)						

Energy levels and branching ratios [95Br04]. **$^{185}_{74}$W**

E^*	$2J^\pi$	$2K$	L	σ (d,p)	$S_{\ell j}$	$S_{\ell j}$	σ (d,p)	σ (d,t)	σ (d,t)	$G_{\ell j}$	σ (τ,α)	$T_{1/2}$ or	Ref.
[keV]				μb/sr	(d,p)	(d,p)	μb/sr	μb/sr	μb/sr	(d,t)	μb/sr	Γ_{cm}	
0.0	3^-	3	1	16		0.004	5	<1	41	0.007		75.1(3) d	05Bo47
23.55(2)	1^-	1	1	4.4		0.005	4	2.7	154	0.047			05Bo47
65.85(2)	5^-	3	3	390	0.218	0.303	301	207	5774	6.167			05Bo47
93.30(2)	3^-	1	1	387	0.149	0.165	357	308	7578	2.238			05Bo47
173.70(2)	7^-	3	3	6		0.008	≈11	1.3	33	0.028		<1.5 ns	05Bo47
187.88(2)	5^-	1	3			0.004	≈4	11	230	0.221			05Bo47
197.38(2)	11^+	11	6	4.5					59	0.589		1.67(3) m	05Bo47
243.62(5)	7^-	7	3	324	0.115	0.143	316	154	3743	2.425		19.3(5) ns	05Bo47
301.13(6)*	9^-	3	5	18		0.075	11	11	352	2.34			05Bo47
332.11(6)*	7^-	1	3	126	0.038	0.055	104	99	2009	1.56			05Bo47
381.5(5)*	$\langle 13^+\rangle$		6	39		0.137	30	32	1091	8.45	17		05Bo47
390.4(3)*	9^-	7	5	9				≈3	207	0.55			05Bo47
477.4(15)*	$\langle 11^-\rangle$							≈0.4	3.6				72Ca01

(continued) **$^{185}_{74}$W**

E^* [keV]	$2J^\pi$	$2K$	L	σ (d,p) μb/sr	$S_{\ell j}$ (d,p)	$S_{\ell j}$ (d,p)	σ (d,p) μb/sr	σ (d,t) μb/sr	σ (d,t) μb/sr	$G_{\ell j}$ (d,t)	σ (τ,α) μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
491.2(4)*	9^-		5	5.4				≈0.8	19	0.132			05Bo47
567.3(3)*	11^-		5	3.7			≈5	1.4	62	0.256			05Bo47
594.5(4)*	15^+			0.7					7.5				05Bo47
661.65(6)*	7^+	7											
663.26(3)*	3^-	3	1	70	0.022	0.026	54	11	267	0.057			05Bo47
703.6(3)*	11^-		5	4.5			5	4	183	0.58			05Bo47
713.1(3)*	9^+		4	9			3	15	266	0.30			05Bo47
729.69(5)*	3^-	3	1	102	0.040	0.042	95	45	766	0.16			05Bo47
732.43(8)*	5^-	3					incl	incl					05Bo47
767.88(4)*	1^-	1	1	3					77	0.012			05Bo47
774(1)	$1,3,5^+$												
786.3(3)*	9^-	9	5	57	0.148	0.156	25	10	206	1.46			05Bo47
797.14(9)*	5^-	3	3	34	3.3	0.033	31	1.3	30	0.016			05Bo47
822.71(4)*	3^-	3											05Bo47
823.83(10)*	5^+	5	2						22	0.006			05Bo47
827.24(14)*	3^-	1	1	7									05Bo47
832.5(3)*	$\langle 7^- \rangle$		$\langle 3 \rangle$				10	1.3	55	0.023			05Bo47
842.0(9)	[5]												
848.5(3)*	$\langle 11^+ \rangle$								21	0.548			05Bo47
883.37(14)*	5^-	5	3	2				14	266	0.219			05Bo47
888.84(9)*	5^-	3					<3						
894.83(8)*	5^-	1							54				05Bo47
901.10(14)*	7^-	3	3	4.4			<2	9	79	0.049			05Bo47
917.49(15)*	1^+	1		3.5				5	37	0.009			05Bo47
954.6(5)*	$\langle 9^- \rangle$								7				05Bo47
967.82(6)*	3^-	3											05Bo47
976.3(3)*	$\langle 9^+ \rangle$								130				05Bo47
979.3(2)	$1–5^+$												05Wu07
983.45(23)*	7^-	$\langle 1 \rangle$	3	43	0.011	0.014	32	206	3647	2.20			05Bo47
1005.69(6)*	1^-	1	1	61	0.045	0.055	62	386	4575	0.89			05Bo47
1010.7(3)*	13^+		6	7			incl	incl	1570	10.7	26		05Bo47
1026.2(5)*	$\langle 9^- \rangle$		3					≈19	59	≤0.3			05Bo47
1035.74(9)*	1^-	1	1	15		0.014	20	80	691	0.153			05Bo47
1041.81(10)*	3^-	3		6			incl	incl					05Bo47
1057.8(3)*	7^-		3	16		0.010	15	80	1245	0.75			05Bo47
1067.80(12)*	3^-	1	1	5				17	176	0.031			05Bo47
1077.3(2)	$3^-,5^+$							incl					05Wu07
1086.8(2)	$3^-,5^+$												05Wu07
1101.68(21)*	3^-	1	1	30		0.014		43	567	0.127			05Bo47
1113.33(14)*	$\langle 5^- \rangle$	$\langle 5 \rangle$	3	118		0.096	≈37	40	618	0.336			05Bo47
1113.9(3)*			5					incl	338	2.5			05Bo47
1119.03(19)*	$\langle 5^- \rangle$	$\langle 5 \rangle$	3	14			81		148	$\langle 0.08 \rangle$			05Bo47
1144.6(4)*			3,4						95				05Bo47
1145.78(18)*	$1^-,3^-$		1	62			65						05Bo47
1148.6(3)*	3^+		2				incl	28	598	0.28			05Bo47

(continued) **$^{185}_{74}$W**

E^* [keV]	$2J^\pi$	$2K$	L	σ (d,p) μb/sr	$S_{\ell j}$ (d,p)	$S_{\ell j}$ (d,p)	σ (d,p) μb/sr	σ (d,t) μb/sr	σ (d,t) μb/sr	$G_{\ell j}$ (d,t)	σ (τ,α) μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
1148.92(10)*	5^-	1					incl						05Bo47
1152.5(6)*	$\langle 5^-\rangle$		$\langle 3\rangle$	7				incl	87	0.049			05Bo47
1181.37(4)*	1^-	1	1	219	0.179	0.217	229	<3	21	0.002			05Bo47
1190.61(12)*	5^+	5	2				incl		80	0.016			05Bo47
1213.5(3)*	9^-		$\langle 5\rangle$					19	556	3.64			05Bo47
1218.94(3)*	3^-	3	1	272	0.084	0.105	251	≈11	225	0.022			05Bo47
1239.6(3)*	$\langle 3^-\rangle$		$\langle 1\rangle$						27	0.003			05Bo47
1266.8(3)*	5^-		3						74	0.058			05Bo47
1277.3(3)*	11^-		5	64			22		156	0.581			05Bo47
1286.52(4)*	3^-	1	1	165	0.049	0.063	154	21	230	0.045			05Bo47
1312.6(3)*	5^-		3	57	0.032	0.054		17	177	0.119			05Bo47
1319.8(3)	$\langle 5^-\rangle$			11			57						05Bo47
1330.1(3)*	9^+		4	13				≈25	278	0.329			05Bo47
1339.9(3)*	7^-		3	20			17		102	0.079			05Bo47
1352.6(3)	3^-		1						70	0.014			05Bo47
1365.72(12)*	3^-							≈11	30				05Bo47
1370.0(2)	$1–5^+$												05Wu07
1376.5(3)*	7^-		3	3				15	166	0.098			05Bo47
1396.0(3)*	7^-		3					37	649	0.298			05Bo47
1405.0(3)				5									05Bo47
1410.8(3)*								4	53				05Bo47
1424.9(3)*	5^+	5	2	75	0.022	0.021	49	9	83	0.016			05Bo47
1441.27(10)*	1^-	1	1	38		0.133		48	605	0.091			05Bo47
1442.98(18)*	3^-	1		incl		incl	32	incl	incl	incl			05Bo47
1446.9(6)*	$\langle 7^-\rangle$			6				incl	77				05Bo47
1475.5(3)*	$\langle 7^-\rangle$		3						36	0.015			05Bo47
1479.2(4)*			$\langle 5\rangle$						13	0.004			05Bo47
1496.41(11)*	3^-	3	1			0.008	15	54	649	0.115			05Bo47
1503.5(5)			3,1										72Ca01
1535.41(4)*	3^-	3											05Bo47
1536.6(3)*	5^+		2	564	0.078	0.155	391	22	218	0.041			05Bo47
1545.7(3)*	$\langle 1^+\rangle$		0,3						193	0.024			05Bo47
1555.2(3)*	13^+		6					51	669	4.12	13		05Bo47
1556.5(7)	$\langle 7^-\rangle$		$\langle 3\rangle$	386	0.088	0.139	183						05Bo47
1562.30(16)*	1	3											05Bo47
1572.77(9)*	3^-	3							35				05Bo47
1577.0(2)	$1–5^+$												05Wu07
1596.0(5)*							13		27				05Bo47
1613.2(3)*	3^-	3	1						31	0.007			05Bo47
1622.0(3)*	9^+		4	4		0.045	22	9	204	0.157			05Bo47
1636.4(3)*			3,4					incl	81				05Bo47
1644.10(11)*	1^-,3^-		$\langle 1\rangle$					<8	32				05Bo47
1650.3(2)	$1–5^+$												05Wu07
1658.24(17)*	1^-	1	1	1		0.026	26	44	550	0.106			05Bo47
1667.2(4)	$\langle 9^+\rangle$			$\langle 58\rangle$**				incl	121				72Ca01

(continued) **$^{185}_{74}$W**

E^* [keV]	$2J^\pi$	$2K$	L	σ (d,p) μb/sr	$S_{\ell j}$ (d,p)	$S_{\ell j}$ (d,p)	σ (d,p) μb/sr	σ (d,t) μb/sr	σ (d,t) μb/sr	$G_{\ell j}$ (d,t)	σ (τ,α) μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
1670.3(7)*	⟨1,2⟩												05Bo47
1674.16(7)*	$3^{\langle+\rangle}$			⟨39⟩**			58	≈9	115				05Bo47
1683.9(2)	⟨1,3⟩							incl					05Wu07
1686.8(2)	$\langle 3^-,5^+\rangle$												05Wu07
1689.6(2)	$1–5^+$						27						05Wu07
1692.1(3)*			4	⟨58⟩**		0.046		19	182	0.178			05Bo47
1716.8(2)	$1–5^+$						≈18						05Wu07
1718.69(6)*	3^-		1			0.007			106	0.009			05Bo47
1720.0(4)*			⟨3⟩					25	308				05Bo47
1728.9(2)	$1–5^+$												05Wu07
1735.1(2)	$1–5^+$												05Wu07
1739.5(7)			1	⟨24⟩**									05Bo47
1741.9(4)*	5^+		2						23	0.015			05Bo47
1746.9(2)	$\langle 3^-,5^+\rangle$						32						05Wu07
1753.6(2)	$1–5^+$												05Wu07
1760.50(24)*			2,3						102				05Bo47
1765.35(24)*			⟨5⟩						70				05Bo47
1774.59(22)*	1,3												05Bo47
1791.5(6)				23									05Bo47
1793.1(4)*	$\langle 5^+\rangle$		⟨2⟩						44	0.013			05Bo47
1795.3(2)	⟨1,3⟩												05Wu07
1797.40(7)*	3^-		1				22		51				05Bo47
1817.1(4)			⟨2⟩	20					36				05Bo47
1824.7(5)			1	48			≈25						05Bo47
1838.1(4)	13^+		6					≈64	796	5.29	20		73Kl07
1838.97(10)*	3^-	3	1	73		0.02	≈22	incl	49	0.005			05Bo47
1842.54(20)*	1,3												05Bo47
1846(1)	$\langle 13^+\rangle$												05Wu07
1847.9(6)				26									05Bo47
1851.61(22)*	3^-		1					≈52	296	0.048			05Bo47
1854.1(6)				15									05Bo47
1865.51(17)*	1^+	1	0	6				incl	89	0.021			05Bo47
1867.41(11)*	$3^{\langle+\rangle}$												05Bo47
1874.4(9)				18				≈11	55				05Bo47
1883.14(16)*	3^-		1	39		0.008	21	incl	56	0.005			05Bo47
1888.2(2)	$1–5^+$												05Wu07
1895.8(8)				13									05Bo47
1900.6(3)*	$\langle 3^-\rangle$		1	12			12	38	280	0.024			05Bo47
1906.7(2)	$1–5^+$												05Wu07
1921.91(12)*	3^-		1						197	0.021			05Bo47
1926.01(19)*	3^+	1	2	22					249	0.041			05Bo47
1931.3(3)*	1,3												05Bo47
1934.4(3)*	$3^{\langle-\rangle}$												05Bo47
1937.9(3)	7^-		3	17				30	395	0.199			05Bo47
1949.3(2)	$1–5^+$												05Wu07

(continued) **$^{185}_{74}$W**

E^* [keV]	$2J^\pi$	$2K$	L	σ (d,p) μb/sr	$S_{\ell j}$ (d,p)	$S_{\ell j}$ (d,p)	σ (d,p) μb/sr	σ (d,t) μb/sr	σ (d,t) μb/sr	$G_{\ell j}$ (d,t)	σ (τ,α) μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
1952.9(4)*	$\langle 3^- \rangle$		1	56									05Bo47
1956.54(7)*	1^-	1	1	27			≈26	≈53	98	0.016			05Bo47
1972.2(6)				70			incl		126				05Bo47
1977.03(22)*	$\langle 1^- \rangle$		1	39				28	325	0.033			05Bo47
1980.1(4)*	1,3												05Bo47
1985.8(5)*									60				05Bo47
1989.5(4)				46									05Bo47
1998.0(3)*			[2]	62					98				05Bo47
2003.5(2)	$1–5^+$												05Wu07
2007.0(2)	$1–5^+$												05Wu07
2009(1)***			2	8					57				05Bo47
2024.2(3)*	3^-		1	56		0.017	≈38	≈20	288	0.032			05Bo47
2039.4(3)*	5^+		2						114	0.017			05Bo47
2041.0(5)				24									05Bo47
2046.4(6)*									40				05Bo47
2062.1(2)	$1–5^+$												05Wu07
2067.14(5)*	1^-	1	1	16					107	0.013			05Bo47
2071.3(9)				13									05Bo47
2076.4(5)*									22				05Bo47
2085.4(8)				44									05Bo47
2093.5(4)*	$\langle 7^- \rangle$		$\langle 3 \rangle$						85	0.033			05Bo47
2096.2(11)				4									05Bo47
2104.5(4)*	$\langle 3^- \rangle$		1						40	0.003			05Bo47
2108.9(11)				26									05Bo47
2117.0(2)	$1–5^+$												05Wu07
2124.8(13)				17									05Bo47
2131.9(4)*	1^+		0						174	0.017			05Bo47
2135.1(2)	$1–5^+$												05Wu07
2138.2(2)	$1–5^+$												05Wu07
2144.4(4)*	1^-		1						90	0.006			05Bo47
2150.4(1)	3^-,5^+												05Wu07
2153.8(2)	$\langle 1,3 \rangle$												05Wu07
2156.5(5)*	$\langle 3^- \rangle$		1						59	0.007			05Bo47
2161.0(2)	$1–5^+$												05Wu07
2164.3(5)*	$\langle 3^+ \rangle$		$\langle 2 \rangle$						91	0.025			05Bo47
2175.6(6)*									38				05Bo47
2186.5(2)	$1–5^+$												05Wu07
2190.6(9)*	$\langle 1^+ \rangle$		$\langle 0 \rangle$						103	0.008			05Bo47
2195.6(4)*	$\langle 3^+ \rangle$		$\langle 2 \rangle$						109	0.032			05Bo47
2206.3(2)	$1–5^+$												05Wu07
2213.0(4)*	3^-		1						153	0.012			05Bo47
2218.5(4)*	$\langle 1^+ \rangle$		$\langle 0 \rangle$						137	0.010			05Bo47
2228.4(4)*	1^-		1						173	0.013			05Bo47
2233.2(2)	$1–5^+$												05Wu07
2236.8(1)	$1–5^+$												05Wu07

(continued) **$^{185}_{74}$W**

E^* [keV]	$2J^\pi$	$2K$	L	σ (d,p) μb/sr	$S_{\ell j}$ (d,p)	$S_{\ell j}$ (d,p)	σ (d,p) μb/sr	σ (d,t) μb/sr	σ (d,t) μb/sr	$G_{\ell j}$ (d,t)	σ (τ,α) μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
2240.7(7)*			⟨2⟩						66				05Bo47
2249.1(4)*	⟨3$^-$⟩		1						158	0.012			05Bo47
2252.8(2)	⟨1,3⟩												05Wu07
2254.8(1)	⟨3$^-$⟩												05Wu07
2263.6(5)*	⟨7$^-$⟩		3						94	0.035			05Bo47
2268.1(1)	⟨1,3⟩												05Wu07
2275.2(1)	1–5$^+$												05Wu07
2277.2(2)	1–5$^+$												05Wu07
2284.4(1)	⟨1$^-$,3⟩												05Wu07
2288.4(2)	1–5$^+$												05Wu07
2292.5(2)	⟨1,3⟩												05Wu07
2294.3(6)*			⟨1⟩						79				05Bo47
2306.8(5)*			5,6						98				05Bo47
2312.1(1)	⟨1$^-$,3⟩												05Wu07
2315.1(1)	1–5$^+$												05Wu07
2323.9(5)*			1+X						164				05Bo47
2327.3(2)	1–5$^+$												05Wu07
2334.8(2)	1–5$^+$												05Wu07
2341.0(6)*	⟨3$^-$⟩		1						200	0.009			05Bo47
2350.0(2)	⟨1,3⟩												05Wu07
2353.6(7)*			⟨1⟩						87				05Bo47
2363.3(2)	1–5$^+$												05Wu07
2367.7(2)	⟨1$^-$,3⟩												05Wu07
2370.9(5)*	3$^-$		1						142	0.007			05Bo47
2375.9(2)	3$^-$,5$^+$												05Wu07
2379.7(2)	1–5$^+$												05Wu07
2384.5(4)*	1$^+$		0						415	0.036			05Bo47
2391.0(1)	1–5$^+$												05Wu07
2401.1(1)	⟨1$^-$,3⟩												05Wu07
2407.4(1)	⟨3$^-$⟩												05Wu07
2413.9(5)*	⟨1$^-$⟩		1						118	0.007			05Bo47
2418.1(2)	3$^-$,5$^+$												05Wu07
2422.4(2)	1–5$^+$												05Wu07
2425.0(1)	⟨1$^-$,3⟩												05Wu07
2431.9(4)*	3$^-$		1						332	0.019			05Bo47
2439.9(2)	⟨1,3⟩												05Wu07
2442.2(1)	⟨1$^-$,3⟩												05Wu07
2444.0(4)*	1$^+$		0						337	0.027			05Bo47
2450.6(2)	⟨1,3⟩												05Wu07
2454.1(5)*	⟨1$^-$⟩		1						110	0.007			05Bo47
2459.3(2)	1–5$^+$												05Wu07
2460.8(1)	⟨1,3⟩												05Wu07
2464.7(5)*			⟨0,2⟩						126				05Bo47
2466.3(2)	⟨1.3⟩												05Wu07
2470.6(1)	1–5$^+$												05Wu07

(continued) **$^{185}_{74}$W**

E^* [keV]	$2J^\pi$	$2K$	L	σ (d,p) μb/sr	$S_{\ell j}$ (d,p)	$S_{\ell j}$ (d,p)	σ (d,p) μb/sr	σ (d,t) μb/sr	σ (d,t) μb/sr	$G_{\ell j}$ (d,t)	σ (τ,α) μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
2475.1(1)	⟨1$^-$,3⟩												05Wu07
2480.7(4)*	3$^-$		1						359	0.022			05Bo47
2483.4(2)	1–5$^+$												05Wu07
2485.3(1)	⟨1$^-$,3⟩												05Wu07
2495.0(7)*									86				05Bo47
2499.8(1)	1–5$^+$												05Wu07
2502.9(2)	⟨1$^-$,3⟩												05Wu07
2507.5(5)*			⟨0+2⟩						101				05Bo47
2513.4(1)	⟨1$^-$,3⟩												05Wu07
2517.4(5)*	3		1						188	0.016			05Bo47
			+2						incl	0.012			05Bo47
2520.6(1)	⟨1$^-$,3⟩												05Wu07
2531.9(8)*	1$^+$		0						84	0.006			05Bo47
2541.6(6)*	1$^+$		0						135	0.012			05Bo47
2548.1(2)	⟨1,3⟩												05Wu07
2551.9(2)	1–5$^+$												05Wu07
2553.9(5)*	3$^-$		1						299	0.018			05Bo47
2560.0(1)	⟨1$^-$,3⟩												05Wu07
2563.7(6)*	⟨1$^-$⟩		1						152	0.009			05Bo47
2567.7(2)	1–5$^+$												05Wu07
2575.4(9)*			⟨1⟩						53				05Bo47
2577.5(2)	1–5$^+$												05Wu07
2581.9(6)*	⟨5$^+$⟩		2						172	0.031			05Bo47
2590.1(1)	⟨1$^-$,3⟩												05Wu07
2594.7(8)*	1$^+$		0						72	0.005			05Bo47
2600.7(2)	1–5$^+$												05Wu07
2604.6(1)	⟨1$^-$,3⟩												05Wu07
2609.8(1)	⟨1$^-$,3⟩												05Wu07
2612.8(2)	⟨1,3⟩												05Wu07
2615.8(2)	1–5$^+$												05Wu07
2620.0(2)	1–5$^+$												05Wu07
2623.5(2)	⟨1,3⟩												05Wu07
2625.1(7)*	1$^-$		1						247	0.015			05Bo47
2628.8(2)	⟨1$^-$,3⟩												05Wu07
2632.2(1)	⟨1$^-$,3⟩												05Wu07
2637.3(6)*	3$^-$		1						798	0.048			05Bo47
2641.6(2)	1–5$^+$												05Wu07
2645.4(1)	1–5$^+$												05Wu07
2649.2(6)*	⟨3$^-$⟩		1						433	0.025			05Bo47
2651.7(1)	1–5$^+$												05Wu07
2653.2(2)	⟨1,3⟩												05Wu07
2654.3(2)	1–5$^+$												05Wu07
2654.7(2)	1–5$^+$												05Wu07
2657.7(2)	1–5$^+$												05Wu07
2663.2(1)	⟨1$^-$,3⟩												05Wu07

(continued) **$^{185}_{74}$W**

E^* [keV]	$2J^\pi$	$2K$	L	σ (d,p) μb/sr	$S_{\ell j}$ (d,p)	$S_{\ell j}$ (d,p)	σ (d,p) μb/sr	σ (d,t) μb/sr	σ (d,t) μb/sr	$G_{\ell j}$ (d,t)	σ (τ,α) μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
2667.5(1)	⟨1,3⟩												05Wu07
2670.4(7)*	⟨3$^-$⟩		1						153	0.009			05Bo47
2675.1(2)	⟨1,3⟩												05Wu07
2679.6(2)	⟨1,3⟩												05Wu07
2682.4(1)	⟨1,3⟩												05Wu07
2683.8(6)*	3$^-$		1						223	0.013			05Bo47
2695.3(1)	1–5$^+$												05Wu07
2697.4(2)	3$^-$,5$^+$												05Wu07
2703.2(2)	1–5$^+$												05Wu07
2706.6(7)*	3$^-$		1						224	0.013			05Bo47
2709.9(1)	⟨1$^-$,3⟩												05Wu07
2712.8(1)	⟨3$^-$⟩												05Wu07
2717.4(7)*	3$^-$		1						183	0.010			05Bo47
2718.2(2)	1–5$^+$												05Wu07
2722.6(1)	1–5$^+$												05Wu07
2725.6(2)	1–5$^+$												05Wu07
2727.8(1)	⟨1,3⟩												05Wu07
2730.6(2)	1–5$^+$												05Wu07
2732.7(8)*	3$^-$		1						264	0.015			05Bo47
2737.4(1)	⟨1$^-$,3⟩												05Wu07
2640.4(2)	1–5$^+$												05Wu07
2744.0(9)*									78				05Bo47
2651.8(1)	1–5$^+$												05Wu07
2756.3(6)*	⟨5$^+$⟩		2						233	0.038			05Bo47
2760.4(2)	⟨1,3⟩												05Wu07
2765.1(1)	⟨3$^-$⟩												05Wu07
2770.3(2)	1–5$^+$												05Wu07
2774.9(7)*			1						223				05Bo47
2778.0(2)	1–5$^+$												05Wu07
2782.6(2)	1–5$^+$												05Wu07
2785.0(1)	⟨1,3⟩												05Wu07
2788.1(8)*			3,4						113	0.002			05Bo47
2790.2(2)	1–5$^+$												05Wu07
2794.4(1)	⟨3$^-$⟩												05Wu07
2796.6(1)	1–5$^+$												05Wu07
2800.3(8)*	3$^-$		1						152	0.009			05Bo47
2804.1(1)	⟨1$^-$,3⟩												05Wu07
2812.4(2)	⟨1$^-$,3⟩												05Wu07
2816.9(7)*									140				05Bo47
2821.4(2)	⟨1,3⟩												05Wu07
2836.8(9)*	1$^-$		1						281	0.017			05Bo47
2838.0(2)	1–5$^+$												05Wu07
2839.8(2)	1–5$^+$												05Wu07
2854.9(9)*	1$^-$		1						236	0.015			05Bo47
2866.6(2)	1–5$^+$												05Wu07

(continued) **$^{185}_{74}$W**

E^* [keV]	$2J^\pi$	$2K$	L	σ (d,p) μb/sr	$S_{\ell j}$ (d,p)	$S_{\ell j}$ (d,p)	σ (d,p) μb/sr	σ (d,t) μb/sr	σ (d,t) μb/sr	$G_{\ell j}$ (d,t)	σ (τ,α) μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
2868.9(1)	1–5$^+$												05Wu07
2872.1(1)	⟨1$^-$,3⟩												05Wu07
2874.8(2)	1–5$^+$												05Wu07
2881.2(1)	⟨1$^-$,3⟩												05Wu07
2882.0(2)	1–5$^+$												05Wu07
2892.2(2)	1–5$^+$												05Wu07
2902.1(1)	⟨1,3⟩												05Wu07
2910.1(1)	⟨1$^-$,3⟩												05Wu07
2913.2(2)	⟨1$^-$,3⟩												05Wu07
2914.2(2)	1–5$^+$												05Wu07
2921.7(1)	⟨1$^-$,3⟩												05Wu07
2928.4(1)	⟨1$^-$,3⟩												05Wu07
2933.8(2)	1–5$^+$												05Wu07
2943.8(2)	1–5$^+$												05Wu07
2944.7(2)	1–5$^+$												05Wu07
2950.1(2)	1–5$^+$												05Wu07
2956.1(2)	1–5$^+$												05Wu07
2964.4(2)	1–5$^+$												05Wu07
2966.9(2)	1–5$^+$												05Wu07
2977.4(2)	1–5$^+$												05Wu07
2985.5(1)	1–5$^+$												05Wu07
2990.7(1)	⟨1$^-$,3⟩												05Wu07
3004.8(1)	⟨1$^-$–3⟩												05Wu07
3010.3(2)	1–5$^+$												05Wu07
3033.2(2)	1–5$^+$												05Wu07
3037.2(1)	⟨1$^-$–3⟩												05Wu07
3047.6(2)	1–5$^+$												05Wu07
3053.0(1)	1–5$^+$												05Wu07
3064.1(2)	1–5$^+$												05Wu07
3069.0(2)	1–5$^+$												05Wu07
3087.7(2)	⟨1–3⟩												05Wu07
3091.9(2)	1–5$^+$												05Wu07
3094.8(2)	1–5$^+$												05Wu07
3099.8(2)	1–5$^+$												05Wu07
3106.3(2)	1–5$^+$												05Wu07
3124.4(2)	1–5$^+$												05Wu07
3200.4(2)	1–5$^+$												05Wu07
3241.6(2)	1–5$^+$												05Wu07
3249.5(2)	1–5$^+$												05Wu07
3263.0(2)	1–5$^+$												05Wu07

(continued) **$^{185}_{74}$W**

E^* [keV]	$2J^\pi$	$2K$	L	σ (d,p) μb/sr	$S_{\ell j}$ (d,p)	$S_{\ell j}$ (d,p)	σ (d,p) μb/sr	σ (d,t) μb/sr	σ (d,t) μb/sr	$G_{\ell j}$ (d,t)	σ (τ,α) μb/sr	$T_{1/2}$ or $\Gamma_{\rm cm}$	Ref.
3276.9(2)	1–5$^+$												05Wu07
				05Bo47	05Bo47	05Bo47	72Ca01	72Ca01	05Bo47	05Bo47	73Kl07		Ref.

Additional data on this isotope can be found in [04Su11, 02Bo0B, 01Bo25, 87Br05, 72Ca01, 65Er03].

* Values E^* from (d,t) and the (n,γ) measurements in [05Bo47].

** Values are obscured by peaks from light contaminants in the target [05Bo47].

*** Doublet [05Bo47]

σ (d,p) and σ (d,t) were measured at 30° in [05Bo47] and at 90° in [72Ca01] (Q-reduced cross section).

The spectroscopic strengths $S_{\ell j}$ for the (d,p) reaction (for two energies, 18-21 MeV and 12 MeV) and $G_{\ell j}$ for the (d,t) reaction were obtained in [05Bo47] by a fit of experimental data using relations $d\sigma/d\Omega_{\rm exp}$=$G_{\ell j}d\sigma/d\Omega_{DWBA}$ and $d\sigma/d\Omega_{\rm exp}$=$S_{\ell j}d\sigma/d\Omega_{DWBA}$, $G_{\ell j}$=$S_{\ell j}$(2j+1) (j is the momentum of the transferred neutron).

Data for this isotope are considered in vol. LB I/18C.

Energy levels and branching ratios [95Br04]. Part 2 **$^{185}_{74}$W**

E^*	$2J^\pi$	Branching ratios in percentage										
		$E^*_{\rm f}$:	0.0	23.6	65.9	93.3	173.7	187.9	243.7	391.0	663.6	822.8
[keV]		$2J^\pi_{\rm f}$:	3$^-$	$\langle 1\rangle^-$	5$^-$	$\langle 3\rangle^-$	7$^-$	$\langle 5^-\rangle$	$\langle 7\rangle^-$	$\langle 9^-\rangle$	3$^-$	1$^-$,3$^-$
23.55(2)	1$^-$		100									
65.85(2)	5$^-$		99(5)	1.3(4)								
93.30(2)	3$^-$		$\langle 100\rangle$	x								
173.70(2)	7$^-$		89(3)		11(1)							
187.88(2)	5$^-$		51(2)	36(2)	6.3(5)	6.5(5)						
197.38(2)	11$^+$				100		0.018(6)	x				
243.62(5)	7$^-$		11.9(9)		81(1)	0.4(1)	6.3(8)					
390.4(3)*	9$^-$								100			
663.26(3)*	3$^-$		44	36		20						
729.69(5)*	3$^-$					100						
767.88(4)*	1$^-$		18	35		22		24				
786.3(3)*	9$^-$								50(16)	50(16)		
822.71(4)*	3$^-$		50		35				15			
1005.69(6)*	1$^-$		22			78						
1041.81(10)*	3$^-$		42(14)		42(14)	16(5)						
1181.37(4)*	1$^-$		62	20				5.3			13	
1218.94(3)*	3$^-$			23	8	34		23	12			
1286.52(4)*	3$^-$						50	50				
1441.27(10)*	1$^-$					100						
1503.5(5)						37	43				20	
1535.41(4)*	3$^-$							100				

Energy levels and branching ratios [03Ba44]. **$^{186}_{74}$W**

E^* [keV]	J^π	L (t,p)	σ (t,p) μb/sr	σ (d,d′) μb/sr	Ratio (d,d′)	L	β_L (d,d′)	$I_{s,0}$ [eVb]	$B(M1)$ [μ_N^2]	$B(E1)$ [$10^{-3}e^2fm^2$]	$T_{1/2}$ or Γ_{cm}	Ref.
0.0	0^+	0	296	81500	4.4						Stable	77Ga01
122.63(2)	2^+		65	3440	1.5	2	0.16				1.036(10) ns	71Gu17
396.55(2)	4^+		12	100	0.6	4	–0.091				36.4(25) ps	71Gu17
737.96(2)	2^+		48	226	1.2						4.78(16) ps	77Ga01
809.25(3)	6^+		1.5	<2	<0.4						4.0(3) ps	77Ga01
862.28(2)	3^+											
883.59(3)	$\langle 0^+ \rangle$		<1.5									77Ga01
952.74(2)	$\langle 2 \rangle^-$										0.193(15) ns	
1006.73(2)	4^+			6.0	1.8							71Gu17
1014.97(10)	$\langle 2^+–4^+ \rangle$											
1030.23(2)	2^+			7	0.5							71Gu17
1045.39(2)	3^-		10	58	1.2							77Ga01
1150(2)	$\langle 0^+ \rangle$		<1.5	<2	<1							71Gu17
1171.63(4)	$\langle 4^- \rangle$											
1197.30(3)	$5^{\langle + \rangle}$											
1279.19(23)	$\langle 1–3 \rangle$			12	1.1							71Gu17
1285.42(2)	2^+			incl							4.0(4) ps	
1298.93(3)	4^+			4	0.5							71Gu17
1322.13(3)	$\langle 5^- \rangle$			3	1							71Gu17
1322.40(19)	$\langle 2^+ \rangle$											
1349.2(10)	8^+										1.10(8) ps	
1398.08(4)	$6^{\langle + \rangle}$											
1453.45(2)												
1458.38(4)	≤ 4											
1463.41(15)	$2^+,3^+$										<0.1 ns	
1463.77(3)	$2^-–4^-$											
1517.2(6)	$\langle 7^- \rangle$			2	0.4						18(1) μs	71Gu17
1521.30(3)	$\langle 4^+ \rangle$			incl								
1532.32(3)	$2^+,3^+$											
1563.37(3)	1											
1607.5(4)	$\langle 2^+,3 \rangle$		28	24	0.7							77Ga01
1607.52(5)	$2^+–4^+$		incl									
1628.27(5)	$\langle 5^- \rangle$			<2	<0.7							71Gu17
1628.39(18)	$2^+–4^+$											
1642.46(5)	$\langle 4 \rangle$		6.4	8.3	0.6							77Ga01
1661.38(17)	$2^-,3^-$										4.92(10) ns	
1678(5)				4.2	1.1							71Gu17
1709.74(3)	3											
1722(4)			10	36	0.8							77Ga01
1737.5(10)	$\langle 8^- \rangle$											
1829.4(4)	$2^+–4^+$											
1908(4)	$\langle 8^+ \rangle$											
1993(4)			19	4.4	0.6							77Ga01
2002.4(14)	10^+		incl	3.3	0.9						0.50(+15-5) ps	71Gu17
2059(4)			11	7.3	0.5							77Ga01

(continued) **$^{186}_{74}$W**

E^* [keV]	J^π	L (t,p)	σ (t,p) μb/sr	σ (d,d′) μb/sr	Ratio (d,d′)	$I_{s,0}$ [eVb]	$\Gamma_\circ^{red}$ [meV]	$B(M1)$ [μ_N^2]	$B(E1)$ [$10^{-3}e^2fm^2$]	$T_{1/2}$ or Γ_{cm}	Ref.
2116(5)			2.8								77Ga01
2117.8(10)	⟨9⁻⟩										
2166.5(7)											
2270.5(5)	⟨2⁺,3⟩		4.5	2	<0.5						77Ga01
2285.8(15)	⟨10⁻⟩										
2339(4)			3.7	6	1						77Ga01
2378(9)				6	1.5						71Gu17
2516(7)	⟨10⁺⟩										
2522.8(17)	⟨11⁻⟩										
2557(1)	1					8.8(8)	0.41(5)	0.11(1)	1.17(13)		93He15
2588(10)				3	0.5						71Gu17
2672.8(20)	⟨11⁺⟩										
2750.9(18)	⟨12⁺⟩									0.202(+60-21) ps	
2837.8(17)	⟨12⁻⟩										
2864(1)	1					5.2(8)	0.32(6)	0.08(2)	0.91(17)		93He15
3036(1)	1					6.7(10)	0.32(7)	0.08(2)	0.91(19)		93He15
3056(1)	⟨1⟩					3.9(8)	0.32(9)	0.08(2)	0.91(24)		93He15
3068(1)	⟨1⟩					2.6(8)	0.16(7)	0.04(2)	0.46(18)		93He15
3143.8(20)	⟨13⁺⟩										
3172(1)	1					15.2(19)	0.65(9)	0.17(2)	1.87(26)		93He15
3193(8)	⟨12⁺⟩										
3318(1)	1					12.3(29)	0.73(19)	0.19(5)	2.08(55)		93He15
3362.8(21)	⟨14⁺⟩										
3364(1)	1					14.5(44)	1.00(32)	0.26(8)	2.9(9)		93He15
3379(1)	1					35(11)	1.32(42)	0.34(11)	3.8(12)		93He15
3394(1)	1					11.6(46)	0.46(19)	0.12(5)	1.31(55)		93He15
3428(1)	1					11.3(63)	0.29(16)	0.07(4)	0.82(55)		93He15
3477(1)	1					39(39)	1.5(15)	0.4(4)	4.6(46)		93He15
3533.8(22)	⟨14⁺⟩										
3542.8(21)	⟨16⁺⟩									>3 ms	
3562.4(20)	⟨14⁺⟩									0.185(20) ps	
6417	1⁻									7.5(9) meV	
				71Gu17	71Gu17	93He15	93He15	93He15	93He15		Ref.

Additional data on this isotope can be found in [00Ya22, 93He15].
Abundance: 28.43(19) %.
Data for this isotope are considered in vol. LB I/18C.

Energy levels and branching ratios [03Ba44]. Part 2

$^{186}_{74}$W

E^*	J^π					Branching ratios in percentage						
		E_f^*:	0.0	123	397	738	809	862	884	953	1006.73	1014.97
[keV]		J_f^π:	0^+	2^+	4^+	2^+	6^+	3^+	$\langle 0^+\rangle$	$\langle 2\rangle^-$	4^+	
122.63(2)	2^+		100									
396.55(2)	4^+			100								
737.96(2)	2^+		51	48(2)	≈0.5							
809.25(3)	6^+				100							
862.28(2)	3^+			91.7(21)	8.3(6)							
883.59(3)	$\langle 0^+\rangle$			100								
952.74(2)	$\langle 2\rangle^-$			3.1(3)		93(6)		4.1(17)				
1006.73(2)	4^+			39(3)	53.1(14)	7.6(5)						
1014.97(10)	$\langle 2^+$–$4^+\rangle$			30(4)	20(10)	50(10)						
1030.23(2)	2^+		35(3)	41(4)	25(3)	<5						
1045.39(2)	3^-		x	7.6(17)		64(3)		20(3)		9.2(17)		
1171.63(4)	$\langle 4^-\rangle$							61(2)		25(2)	9.6(7)	
1197.30(3)	$5^{\langle +\rangle}$				77(8)		5.2(5)	17.5(13)				
1279.19(23)	$\langle 1$–$3\rangle$					≈25				75(25)		
1285.42(2)	2^+		42(4)	39(4)		17(1)			2.4(3)			
1298.93(3)	4^+			66(7)	34(3)						<29	
1322.13(3)	$\langle 5^-\rangle$										33(3)	
1322.40(19)	$\langle 2^+\rangle$		≈10	≈8				≈8	26(5)		48(8)	
1349.2(10)	8^+						100					
1398.08(4)	$6^{\langle +\rangle}$				23(2)		27(5)				50(4)	
1453.45(2)				23(3)		54(5)		17(2)				
1458.38(4)	≤4			89(10)		10.6(14)						
1463.41(15)	2^+,3^+					1.9(5)		0.9(5)		69(5)	3.9(5)	0.9(5)
1517.2(6)	$\langle 7^-\rangle$						x					
1521.30(3)	$\langle 4^+\rangle$				11.1(11)	62(8)		27(2)				
1532.32(3)	2^+,3^+			34(3)						50(5)		
1563.37(3)	1		41(4)	59(5)								
1607.5(4)	$\langle 2^+$,$3\rangle$			≈10	≈10	≈10		≈10		60(20)		
1607.52(5)	2^+–4^+			<57	88(8)							
1628.27(5)	$\langle 5^-\rangle$										20(2)	
1628.39(18)	2^+–4^+			x	≈10						x	
1642.46(5)	$\langle 4\rangle$			10(2)	44(4)			46(6)				
1661.38(17)	2^-,3^-							4.4(5)		1.8(5)		≈0.3
1709.74(3)	3			53(5)	47(4)							
1829.4(4)	2^+–4^+					≈50					≈25	≈25
2166.5(7)						≈26				≈21		
2270.5(5)	$\langle 2^+$,$3\rangle$							≈21		≈11		
2557(1)	1		73	27(7)								
2864(1)	1		50	50(11)								
3036(1)	1		61	39(15)								
3056(1)	$\langle 1\rangle$		35	65(16)								
3068(1)	$\langle 1\rangle$		45	55(23)								
3172(1)	1		64	36(6)								
3318(1)	1		44	56(11)								
3364(1)	1		38	62(11)								

(continued) **$^{186}_{74}$W**

E^*	J^π	Branching ratios in percentage									
	E_f^*:	0.0	123	397	738	809	862	884	953	1006.73	1014.97
[keV]	J_f^π:	0^+	2^+	4^+	2^+	6^+	3^+	$\langle 0^+ \rangle$	$\langle 2 \rangle^-$	4^+	
3379(1)	1	68	32(5)								
3394(1)	1	65	35(15)								
3428(1)	1	x									
3477(1)	1	x									
6417	1^-	32	65(12)		3(2)						

Energy levels and branching ratios [03Ba44]. Part 3 **$^{186}_{74}$W**

E^*	J^π	Branching ratios in percentage									
	E_f^*:	1030.23	1045.40	1171.63	1279.19	1322.13	1322.40	1349.2	1398.08	1463.41	1517.2
[keV]	J_f^π:	2^+	3^-	$\langle 4^- \rangle$	$\langle 1,2,3 \rangle$	$\langle 5^- \rangle$	$\langle 2^+ \rangle$	8^+	$6^{\langle + \rangle}$	$\langle 2^+,3^+ \rangle$	$\langle 7^- \rangle$
1171.63(4)	$\langle 4^- \rangle$		5.0(7)								
1322.13(3)	$\langle 5^- \rangle$		67(4)	x							
1453.45(2)		6.2(6)									
1463.41(15)	$2^+,3^+$		23(2)		0.9(5)						
1463.77(3)	2^-–4^-		100	<35							
1517.2(6)	$\langle 7^- \rangle$					x			x		
1532.32(3)	$2^+,3^+$		16(1)								
1607.52(5)	2^+–4^+		11.8(19)								
1628.27(5)	$\langle 5^- \rangle$		35(3)	46(4)							
1628.39(18)	2^+–4^+	≈17	73(10)								
1661.38(17)	$2^-,3^-$				0.9(5)		0.9(5)			92	
1737.5(10)	$\langle 8^- \rangle$										x
1908(4)	$\langle 8^+ \rangle$							x	x		
2002.4(14)	10^+							100			
2117.8(10)	$\langle 9^- \rangle$										x
2166.5(7)										≈53	
2270.5(5)	$\langle 2^+,3 \rangle$	≈9					≈11				

Energy levels and branching ratios [03Ba44]. Part 4 **$^{186}_{74}$W**

E^*	J^π	Branching ratios in percentage								
	E_f^*:	1628.39	1737.5	1829.4	1908	2002.4	2117.8	2285.8	2516	2522.8
[keV]	J_f^π:		$\langle 8^- \rangle$		$\langle 8^+ \rangle$	10^+	$\langle 9^- \rangle$	$\langle 10^- \rangle$	$\langle 10^+ \rangle$	$\langle 11^- \rangle$
2117.8(10)	$\langle 9^- \rangle$		x							
2270.5(5)	$\langle 2^+,3 \rangle$	≈15		34(6)						
2285.8(15)	$\langle 10^- \rangle$						x			
2516(7)	$\langle 10^+ \rangle$				100					
2522.8(17)	$\langle 11^- \rangle$							x		

(continued) **$^{186}_{74}$W**

E^*	J^π	Branching ratios in percentage								
	E_f^*:	1628.39	1737.5	1829.4	1908	2002.4	2117.8	2285.8	2516	2522.8
[keV]	J_f^π:		$\langle 8^- \rangle$		$\langle 8^+ \rangle$	10^+	$\langle 9^- \rangle$	$\langle 10^- \rangle$	$\langle 10^+ \rangle$	$\langle 11^- \rangle$
2672.8(20)	$\langle 11^+ \rangle$							x		
2750.9(18)	$\langle 12^+ \rangle$					100				
2837.8(17)	$\langle 12^- \rangle$							x		x
3193(8)	$\langle 12^+ \rangle$								100	

Energy levels and branching ratios [03Ba44]. Part 5 **$^{186}_{74}$W**

E^*	J^π	Branching ratios in percentage				
	E_f^*:	2672.8	2750.9	2837.8	3143.8	3362.8
[keV]	J_f^π:	$\langle 11^+ \rangle$	$\langle 12^+ \rangle$	$\langle 12^- \rangle$	$\langle 13^+ \rangle$	$\langle 14^+ \rangle$
2837.8(17)	$\langle 12^- \rangle$	x				
3143.8(20)	$\langle 13^+ \rangle$			x		
3362.8(21)	$\langle 14^+ \rangle$				x	
3533.8(22)	$\langle 14^+ \rangle$				x	
3542.8(21)	$\langle 16^+ \rangle$				x	x
3562.4(20)	$\langle 14^+ \rangle$		100			

Energy levels and branching ratios [97Bo14, 91Fi02]. **$^{187}_{74}$W**

E^*	$2J^\pi$	I_{dp}	Nils.Conf.	L	σ (d,p)	Ref.	Branching ratios in percentage					
							E_f^*:	0.0	77.4	146	201	205
[keV]		rel.u.	$2J, 2K[Nn_z\Lambda]$	(d,p)	μb/sr		$2J_f^\pi$:	3^-	5^-	1^-	$\langle 7 \rangle^-$	3^-
0.0	3^-	18(5)	3,3–[512]	1	37	72Ca01						
77.27(2)	5^-	100(3)	5,3–[512]	3	213	72Ca01		100				
145.82(2)	1^-	1.0(3)	1,1–[510]	1	272	72Ca01		100				
201.42(1)	7^-		7,3–[512]	3	21	72Ca01		90(9)	9.6(20)			
204.81(1)	3^-	83(4)	3,1–[510]			97Bo14		36(5)	21(4)	43(11)		
303.32(5)	5^-	11(2)	5,1–[510]			97Bo14		35(6)	48(8)	12(2)	4.8(8)	0.7(2)
330.81(4)	9^-	12(2)	9,3–[512]		≈5	72Ca01						
350.40(2)	7^-	109(6)	7,7–[503]	3	211	72Ca01			93(8)		6.5(10)	
364.3(1)	9^-	39(3)	9,9–[505]		≈34	72Ca01						
432.28(2)	7^-	36(5)	7,1–[510]	3	71	72Ca01			61(10)		5(4)	24(4)
493.4(1)	$\langle 9^- \rangle$					91Fi02						
522.04(8)*	$\langle 9^- \rangle$	2.0(7)	9,7–[503]			97Bo14						
551.3(1)						91Fi02			100			
575*	$\langle 11^- \rangle$	2.0(7)	11,9–[505]			97Bo14						
599.35(12)	9^-	38(5)	9,1–[510]		23	72Ca01						
640.44(3)	5^-	39(5)	5,5–[503]	3	90	72Ca01		19(3)		16(3)		
727.27(3)*	5	3.0(7)			≈4	72Ca01						

(continued) **$^{187}_{74}$W**

E^* [keV]	$2J^\pi$	I_{dp} rel.u.	Nils.Conf. $2J, 2K[Nn_z\Lambda]$	L (d,p)	σ (d,p) μb/sr	Ref.	Branching ratios in percentage				
							E_f^*:	0.0	77.4	146	201	205
							$2J_f^\pi$:	3^-	5^-	1^-	$\langle 7\rangle^-$	3^-
752.5(9)*	$\langle 7^-\rangle$	2.9(9)	7,5–[503]			97Bo14						
762.04(2)	1^-		1,1–[510]0+							41(10)		59(8)
782.22(3)	1^-	82(13)	1,1–[501]	1	260	72Ca01		38(5)				62(7)
799.7(8)*	$\langle 11^-\rangle$	8(2)	11,1–[510]			97Bo14						
803.33(2)	3^-		3,1–[510]0+					15(3)	10(2)	45(7)		
816.19(2)	3^-	121(17)	3,3–[501]	1	336	72Ca01		40(5)	16(2)	19(3)		23(4)
840.18(2)	1^-		1,1–[512]2+					55(7)	16(2)	18(3)		6.9(11)
852.31(3)	3^-	36(9)	3,1–[501]	1	102	72Ca01						
860.72(3)	3^-		3,3–[510]2+									
863.3(3)	3^-	17(6)	3,1–[501]			97Bo14						
866.47(2)	3^-		3,3–[512]0+		≈50	72Ca01		41(7)	43(7)			15(3)
891.4(1)	$\langle 5^-\rangle$			3	33	72Ca01						
891.7(4)		12(2)			incl	97Bo14						
891.91(3)	3^-		3,1–[512]0+					39(6)	19(3)	25(5)		
900.3(1)*						92Be17						
909.00(3)	3							62(10)	38(6)			
916.47(22)	5	2.5(8)				97Bo14						
960.42(3)	$5^-\langle 7^-\rangle$	17(3)	5,1–[512]2+	3	21	72Ca01						
975.0(1)	5^-			3	44	72Ca01						
979.47(8)	3^-	29(3)		1	incl	97Bo14						
989.14(4)	3,$\langle 5\rangle$											
1001.3(16)*	$\langle 5^-,7^-\rangle$	7(3)	7,3–[501]		≈7	72Ca01						
1018.49(6)	1^-,3^-	6(2)				97Bo14		36(6)	14(3)	50(8)		
1034.2(13)	5^-,7^-	11(3)	7,1–[501]		5	72Ca01						
1070.1(9)	5^-,7^-	34(10)		3	40	72Ca01						
1082.27(3)	1^-,3^-							36(5)	6(2)	6(1)	28(4)	24(4)
1085.8(6)	5^-,7^-	13(3)	7,1–[512]2+	3	15	72Ca01						
1093.87(13)	1,3											
1113.4(12)	$\langle 5^-,7^-\rangle$	7(4)			10	72Ca01						
1135.09(3)	3^-			1	14	72Ca01		22(4)	23(4)	32(8)	11(5)	8(2)
1137.5(8)		13(6)			incl	97Bo14						
1138.24(6)	≥5				incl							
1151.4(1)*		8(2)				97Bo14						
1158.2(1)*						92Be17						
1191.6(7)		9(3)			11	72Ca01						
1216.96(12)	3^-	2(1)				97Bo14			18(4)	28(4)		18(3)
1226.0(18)*		6(3)				97Bo14						
1234.5(15)	5^-,7^-	38(3)		3	37	72Ca01			14(7)	30(5)		32(7)
1250.8(10)*		8(2)				97Bo14						
1269.1(1)	$\langle 3\rangle$	11(2)			14	72Ca01						
1280.9(2)*						92Be17						
1308.19(16)	1^-,3^-										35(6)	38(10)
1312.48(4)	1^-,3^-	82(4)	1,1–[501]	1	170	72Ca01						
1315.7(1)*						92Be17						
1330.14(5)	1^-,3											

(continued) **$^{187}_{74}$W**

E^* [keV]	$2J^\pi$	I_{dp} rel.u.	Nils.Conf. $2J, 2K[Nn_z\Lambda]$	L (d,p)	σ (d,p) μb/sr	Ref.	Branching ratios in percentage E_f^*: 0.0	77.4	146	201	205
							$2J_f^\pi$: 3^-	5^-	1^-	$\langle 7\rangle^-$	3^-
1346.4(2)*						92Be17					
1347.56(6)	3^-	42(3)	3,3–[501]	1	118	72Ca01		25(6)			
1359.3(1)	5^-,7^-	95(4)		3	84	72Ca01					
1370.1(9)*		8(3)				97Bo14					
1384.05(4)	1^-,3^-	56(4)	3,1–[501]	1	127	72Ca01					
1393(2)	5										
1414.85(18)	5^-,7^-	38(3)	5,3–[501]	3,1	57	72Ca01					
1424.8(1)	5^-,7^-	143(6)	5,5–[503]		166	72Ca01					
1431.9(12)*		9(3)			incl	97Bo14					
1440.4(1)*						92Be17					
1450.56(13)	1,3	5(2)				97Bo14					
1477.2(5)*	5^-,7^-	18(3)		3,1	30	72Ca01					
1487.1(2)	1,3			1	8	72Ca01					
1501.23(8)	1^-,3^-	16(4)				97Bo14					
1505.7(4)*						92Be17					
1510.7(6)*		23(4)				97Bo14					
1522.4(6)*		35(5)				97Bo14					
1532.34(7)	$\langle 1^-\rangle$,3^-	97(7)		1	217	72Ca01					
1541.4(4)*		25(5)				97Bo14					
1545.94(7)	1^-,3^-										
1550.6(4)*						92Be17					
1564.56(11)	1^-,3	17(5)		1,3	35	72Ca01					
1581.6(8)	1,3,5^+										
1589.3(9)	1^-,3^-	70(7)		1	107	72Ca01					
1596.1(5)*											
1600.7(12)	$\langle 1^-\rangle$,3^-	21(6)		$\langle 1\rangle$	51	72Ca01					
1612.31(4)*	1^-,3^-										
1619.08(20)	1^-,3^-										
1643.55(15)	1^-,3^-				11	72Ca01					
1653.1(2)*											
1663.15(13)	1^-,3^-			1	≈7	72Ca01					
1691.80(14)		31(7)			9	72Ca01					
1702.9(18)*		20(5)				97Bo14					
1705.64(14)	1^-,3^-										
1718.5(3)*	$\langle 3^+\rangle$	35(6)			73	72Ca01					
1728.6(12)	1^-,3^-	13(4)				97Bo14					
1749.4(8)	$\langle 5^-$,$7^-\rangle$	20(3)			30	72Ca01					
1756(1)	1,3,5^+										
1759.4(3)*						92Be17					
1770.70(6)	1,3				≈13	72Ca01					
1785.6(12)*		7(2)				97Bo14					
1810.1(4)*		16(2)				97Bo14					
1825.19(10)	1^-,3^-	19(3)		1	35	72Ca01					
1845.16(10)	1^-,3^-	8(2)		1	12	72Ca01					
1875.5(27)*		6(2)				97Bo14					

(continued) **$^{187}_{74}$W**

E^* [keV]	$2J^\pi$	I_{dp} rel.u.	Nils.Conf. $2J, 2K[Nn_z\Lambda]$	L (d,p)	σ (d,p) μb/sr	Ref.	Branching ratios in percentage E_f^*: 0.0	77.4	146	201	205
							$2J_f^\pi$: 3^-	5^-	1^-	$\langle 7\rangle^-$	3^-
1890.52(21)	1^-,3^-										
1905.30(11)	1^-,3^-	19(3)			≈51	72Ca01					
1918.9(5)	1^-,3^-	23(3)			≈29	72Ca01					
1931.36(13)	1^-,3^-										
1936.30(9)	1^-,3^-										
1944.6(7)*		11(2)			≈34	72Ca01					
1955.80(8)	1^-,3^-										
1973.4(1)*						92Be17					
1975.6(3)*						92Be17					
1979.93(15)	1^-,3^-										
1996.82(5)	1^-,3^-	5(2)				97Bo14					
2014(1)	1,3,5^+				≈34	72Ca01					
2023.1(3)	1^-,3^-	18(3)				97Bo14					
2043.98(13)	1^-,3^-	9(2)				97Bo14					
2055.1(2)*						92Be17					
2069.9(3)*						92Be17					
2083.8(3)*						92Be17					
2090.15(15)	1^-,3^-										
2106.1(11)*		6(2)				97Bo14					
2116.97(15)*	1^-,3^-										
2124.11(11)*	1^-,3^-										
2133.6(12)*		6(2)				97Bo14					
2150.90(11)	1^-,3^-	10(3)				97Bo14					
2169.02(10)*	1^-,3^-										
2190.9(9)*		10(3)				97Bo14					
2197.3(8)	1,3										
2208.3(4)*						92Be17					
2227.9(5)*	1,3										
2228.6(4)*						92Be17					
2232.3(7)*	1,3										
2241.30(7)	1^-,3^-	18(3)				97Bo14					
2254.4(8)*		13(3)				97Bo14					
2259.87(11)	1^-,3^-										
2265.9(6)*		27(4)				97Bo14					
2275.13(12)	1^-,3^-	9(2)				97Bo14					
2300.6(5)*						92Be17					
2312.6(15)	1,3,5^+										
2318.3(8)	1,3,5^+										
2322.4(6)*						92Be17					
2344.5(3)*						92Be17					
2351.8(10)	1,3,5^+										
2367.6(8)	1,3,5^+										
2398.7(1)*						92Be17					
2411.0(1)*						92Be17					
2415.7(1)*						92Be17					

(continued) **$^{187}_{74}$W**

E^*	$2J^\pi$	I_{dp}	Nils.Conf.	L	σ (d,p)	Ref.	Branching ratios in percentage				
							E_f^*: 0.0	77.4	146	201	205
[keV]		rel.u.	$2J, 2K[Nn_z\Lambda]$	(d,p)	μb/sr		$2J_f^\pi$: 3^-	5^-	1^-	$\langle 7\rangle^-$	3^-
2434.3(3)*						92Be17					
2471.4(8)											
2473.4(8)*						92Be17					
2513.7(3)*						92Be17					
2530.0(2)*						92Be17					
2561.3(20)*						92Be17					
2616.8(4)	$1,3,5^+$										
2618.3(5)*						92Be17					
2634.5(3)	$1,3,5^+$										
2636.3(1)*						92Be17					
2787.5(4)*						92Be17					
2700.4(3)*						92Be17					
2706.9(9)	$1,3,5^+$										
2721.2(3)*						92Be17					
2727.7(6)	$1,3,5^+$										
2730.7(4)*						92Be17					
2739.0(6)	$1,3,5^+$										
2757.8(6)	$1,3,5^+$										
2762.5(20)*						92Be17					
2777.2(8)*						92Be17					
2787.7(11)*						92Be17					
2805.5(1)*						92Be17					
2876.1(2)*						92Be17					
2882.3(4)	$1,3,5^+$										
2909.3(2)*						92Be17					
2914.0(30)*						92Be17					
2953.6(1)*						92Be17					
2985.4(5)	$1,3,5^+$										
3044.1(1)*						92Be17					
3099.4(5)	$1,3,5^+$										
3118.0(2)*						92Be17					
3120.8(2)*						92Be17					
3174.7(2)*						92Be17					
3176.2(3)*						92Be17					
3186.67(11)*						92Be17					
3214.4(9)*						92Be17					
3220.40(3)*						92Be17					
3307.14(17)*						92Be17					
3310.9(5)*	3^-					92Be17					
3329.02(33)*						92Be17					

(continued) **$^{187}_{74}$W**

E^*	$2J^\pi$	I_{dp}	Nils.Conf.	L	σ (d,p)	Ref.	Branching ratios in percentage					
							E_f^*:	0.0	77.4	146	201	205
[keV]		rel.u.	$2J, 2K[Nn_z\Lambda]$	(d,p)	μb/sr		$2J_f^\pi$:	3^-	5^-	1^-	$\langle 7\rangle^-$	3^-
3377.0(12)*						92Be17						
		97Bo14			72Ca01	Ref.						

Additional data on this isotope can be found in [05Sh26, 04Su11, 97Bo14, 92Be17, 91Bo51, 89BoYT, 87Br05].
$T_{1/2}$=23.72(6) h for the ground state and 5(1) ns for the 350.54 keV state are given in [91Fi02].
* New level, not given in [91Fi02].
Proposed in [97Bo14] Nilsson configuration with additional vibrational parameters 0^+,2^+ is given in the fourth column, see discussion in [97Bo14].

Energy levels and branching ratios [97Bo14, 91Fi02]. Part 2 **$^{187}_{74}$W**

E^*	$2J^\pi$		Branching ratios in percentage							
		E_f^*:	303.2	350.5	551.3	782.16	803.40	816.09	840.21	891.69
[keV]		$2J_f^\pi$:	5^-	$\langle 7\rangle^-$		1^-	3^-	3^-	1^-	$\langle 3\rangle^-$
432.28(2)	7^-		10(3)							
493.4(1)	$\langle 9^-\rangle$			100						
640.44(3)	5^-			65(10)						
803.33(2)	3^-		30(4)							
816.19(2)	3^-				2.2(8)					
840.18(2)	1^-			4.0(7)						
891.91(3)	3^-		9(2)	9(2)						
975.0(1)	5^-				84(13)		16(3)			
979.47(8)	3^-		13(2)	39(8)		37(7)				11(7)
1135.09(3)	3^-								4.2(7)	
1216.96(12)	3^-		12(2)						23(3)	
1234.5(15)	5^-,7^-								25(3)	
1308.19(16)	1^-,3^-								27(10)	
1330.14(5)	1^-,3					[100]				
1347.56(6)	3^-							75(11)		
1384.05(4)	1^-,3^-			100						

Energy levels [02Si10]. **$^{188}_{74}$W**

E^*	J^π	L	σ (t,p)	$T_{1/2}$ or	Ref.
[keV]			μb/sr	Γ_{cm}	
0	0^+	0	173	69.78(5) d	77Ga01
143(2)	$\langle 2^+\rangle$		81		77Ga01
442(2)	$\langle 4^+\rangle$		20		77Ga01

(continued) $^{188}_{74}W$

E^* [keV]	J^π	L	σ (t,p) μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
630(2)			49		77Ga01
780(2)			34		77Ga01
886(10)	$\langle 0^+ \rangle$	$\langle 0 \rangle$	6		77Ga01
1073(5)			14		77Ga01
1233(5)			22		77Ga01
1437(5)			19		77Ga01
1473(10)			10		77Ga01
1544(5)			28		77Ga01
1721(5)			5		77Ga01
1816(10)			9		77Ga01
1897(5)			11		77Ga01
1915(5)			25		77Ga01
1960(10)	$\langle 0^+ \rangle$	$\langle 0 \rangle$	17		77Ga01
1994(10)			3		77Ga01
2028(5)			14		77Ga01
2104(5)			19		77Ga01
2175(5)			17		77Ga01
2264(5)			12		77Ga01
2314(5)			29		77Ga01
2394(5)			15		77Ga01
2427(10)			30		77Ga01