^{184}W(α,2nγ) 1974Ya03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. C. Batchelder and A. M. Hurst, M. S. Basunia	NDS 183, 1 (2022)	1-Mar-2022

Others: 1973YA05,1978Sh21, 1984Go06.
1974Ya03: E(α)=24 MeV; 94% ^{184}W target; Measured Eγ, Iγ, $\gamma\gamma$ coin, $\gamma(\theta)$.
1973Ya05: Eα=30 MeV; ^{184}W target; measured Eγ, $\gamma(\theta)$.
1978Sh21: Eα=28 MeV; 80-90% ^{184}W target; measured Eγ, Iγ, γ(t), $\gamma(\theta)$, $\gamma\gamma$ coin (prompt and delayed).
1984Go06: Eα=27 MeV; 92% ^{184}W target; measured Eγ, $\gamma(\theta)$, g-factor using DPAD.

^{186}Os Levels

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	Comments
0.0[#]	0^+		
137.21[#] *17*	2^+		
434.23[#] *22*	4^+		
767.50[@] *17*	2^+		
869.0[#] *3*	6^+		
910.50[@] *21*	3^+		
1070.34[@] *24*	4^+		
1208.3 *4*	2^+		
1275.9[@] *3*	5^+		
1352.01[&] *25*	4^+		
1421.1[#] *4*	8^+		
1452.9 *5*	(3^+)		
1461.3 *3*	4^+		
1480.4 *4*	$(3)^-$		
1491.5[@] *3*	6^+		
1559.8[&] *4*	$(5)^+$		
1628.6 *3*	5^-		
1774.6 *5*	(7^-)	10.4 ns *8*	g-factor=−0.032 *20* from DPAD (1984Go06). J$^{\pi}$: possible configuration=((ν $i_{13/2}$)(ν $p_{3/2}$ or $p_{1/2}$ or $f_{5/2}$))7^- (1984Go06) (consistent with g-factor). $T_{1/2}$: from 1984Go06. Other value: 10.5 ns *10* (1978Sh21).
1775.3 *5*	4^+,5^+		
1968.5 *7*	(8^-)		
2069.5[#] *7*	10^+		

[†] From a least-squares fit to γ-ray energies.
[‡] From Adopted Levels.
[#] Band(A): g.s. band (1973Ya05).
[@] Band(B): γ band (1973Ya05).
[&] Band(C): K=4 $\gamma\gamma$ band (1973Ya05).

^{184}W(α,2nγ) 1974Ya03 (continued)

$\gamma(^{186}Os)$

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
137.2# *2*	87.4 *87*	137.21	2^+	0.0	0^+	Q	A_2=+0.18 *2* (1984Go06),
143.2 *4*	3.6 *11*	910.50	3^+	767.50	2^+		
146.0 *4*	9.6 *24*	1774.6	(7^-)	1628.6	5^-	(Q)	Mult.: from A_2=+0.18 *2* (1978Sh21), +0.19 *4* (1984Go06).
x162.3 *4*	1.9 *4*						
x167.2 *4*	1.7 *4*						
x174.1 *4*	0.8 *3*						
x187.5 *4*	0.7 *2*						
193.9 *4*	12.7 *30*	1968.5	(8^-)	1774.6	(7^-)	D	Mult.: from A_2=−0.26 *4* (1978Sh21).
207.8 *4*	1.1 *2*	1559.8	$(5)^+$	1352.01	4^+		
x211.5 *4*	0.8 *3*						
215.6 *4*	0.9 *3*	1491.5	6^+	1275.9	5^+		
252.9 *4*	1.3‡ *3*	1461.3	4^+	1208.3	2^+		
x269.5 *4*	1.0 *3*						
276.7 *4*	19.9 *40*	1628.6	5^-	1352.01	4^+		
296.9# *2*	100	434.23	4^+	137.21	2^+		
303.1 *4*	1.0 *2*	1070.34	4^+	767.50	2^+		
x310.0 *4*	4.6 *9*						
x321.2 *5*	1.1 *3*						
x330.6 *4*	1.2 *3*						
352.5 *5*	3.2 *10*	1628.6	5^-	1275.9	5^+		
x353.2 *5*	3.2 *10*						
x358.3 *4*	0.8 *3*						
x361.6 *4*	2.1 *4*						
365.2 *4*	2.6 *5*	1275.9	5^+	910.50	3^+		
x397.4 *4*	1.8 *4*						
407.1 *4*	1.2 *3*	1275.9	5^+	869.0	6^+		
421.0 *4*	3.2 *6*	1491.5	6^+	1070.34	4^+		
x431.6 *5*	1.5 *2*						
434.9# *2*	46.5 *47*	869.0	6^+	434.23	4^+	Q	A_2=+0.19 *3* (1984Go06),
441.6# *3*	8.2 *17*	1352.01	4^+	910.50	3^+		
x444.9 *4*	0.9 *3*						
x454.4 *4*	1.6 *3*						
x475.4 *5*	3.0 *9*						
476.4# *5*	3.0 *9*	910.50	3^+	434.23	4^+		
489.3 *4*	3.9 *8*	1559.8	$(5)^+$	1070.34	4^+		
x517.8 *4*	2.1 *4*						
x524.1 *4*	1.8 *4*						
552.1 *3*	11.7 *12*	1421.1	8^+	869.0	6^+		
558.1 *4*	5.6 *11*	1628.6	5^-	1070.34	4^+		
x566.3 *4*	1.1 *2*						
570.1 *4*	1.2 *3*	1480.4	$(3)^-$	910.50	3^+		
584.5# *3*	21.8 *22*	1352.01	4^+	767.50	2^+		
622.5 *3*	4.6 *9*	1491.5	6^+	869.0	6^+		
630.4# *3*	17.3 *17*	767.50	2^+	137.21	2^+		
635.6# *3*	15.8 *16*	1070.34	4^+	434.23	4^+		
x642.5 *4*	1.3 *3*						
x647.5 *5*	3.6 *11*						
648.4 *5*		2069.5	10^+	1421.1	8^+		E_γ: from 1973Ya05; unresolved from 650γ from 1560 level.
649.5 *5*	3.6 *11*	1559.8	$(5)^+$	910.50	3^+		
x662.2 *4*	1.3 *3*						
685.4 *4*	1.6 *3*	1452.9	(3^+)	767.50	2^+		
705.0 *4*	1.7 *4*	1775.3	$4^+,5^+$	1070.34	4^+		
712.7@ *4*	5.4@ *11*	1480.4	$(3)^-$	767.50	2^+		

Continued on next page (footnotes at end of table)

^{184}W(α,2nγ) 1974Ya03 (continued)

γ(^{186}Os) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π
759.7 *4*	6.6 *13*	1628.6	5^-	869.0	6^+	[x]881.7 *4*	2.7 *5*				
767.5[#] *2*	19.0 *20*	767.50	2^+	0.0	0^+	[x]903.3 *4*	1.7 *4*				
773.3[#] *2*	26.3 *26*	910.50	3^+	137.21	2^+	933.5[#] *5*	12.2 *24*	1070.34	4^+	137.21	2^+
[x]784.0 *4*	0.9 *3*					1027.1 *4*	1.3 *3*	1461.3	4^+	434.23	4^+
[x]792.1 *4*	1.1 *2*					1057.3 *4*	3.0 *6*	1491.5	6^+	434.23	4^+
[x]836.1 *10*	2.1 *2*					1071.0 *4*	1.1 *3*	1208.3	2^+	137.21	2^+
841.4 *5*	13.1 *26*	1275.9	5^+	434.23	4^+	[x]1121.7 *4*	0.6 *2*				
[x]865.9 *4*	0.7 *2*					1324.2 *4*	1.0 *3*	1461.3	4^+	137.21	2^+

[†] From 1974Ya03. Iγ relative to Iγ(296.6)=100 instead of 1000 as of in 1974Ya03. Iγ scaled down by a factor of 10. Eγ of 1973Ya05 (Eα=30 MeV) is significantly higher in most cases.
[‡] The strength of this γ is greater than expected from adopted branching from the 1461 level.
[#] Present in delayed spectrum for Eα=30 MeV (1973Ya05).
[@] The 713γ is known to be a doublet in ^{186}Ir ε decay (16.64 h), it might be a doublet here also.
[x] γ ray not placed in level scheme.

^{184}W(α,2nγ) 1974Ya03

Level Scheme

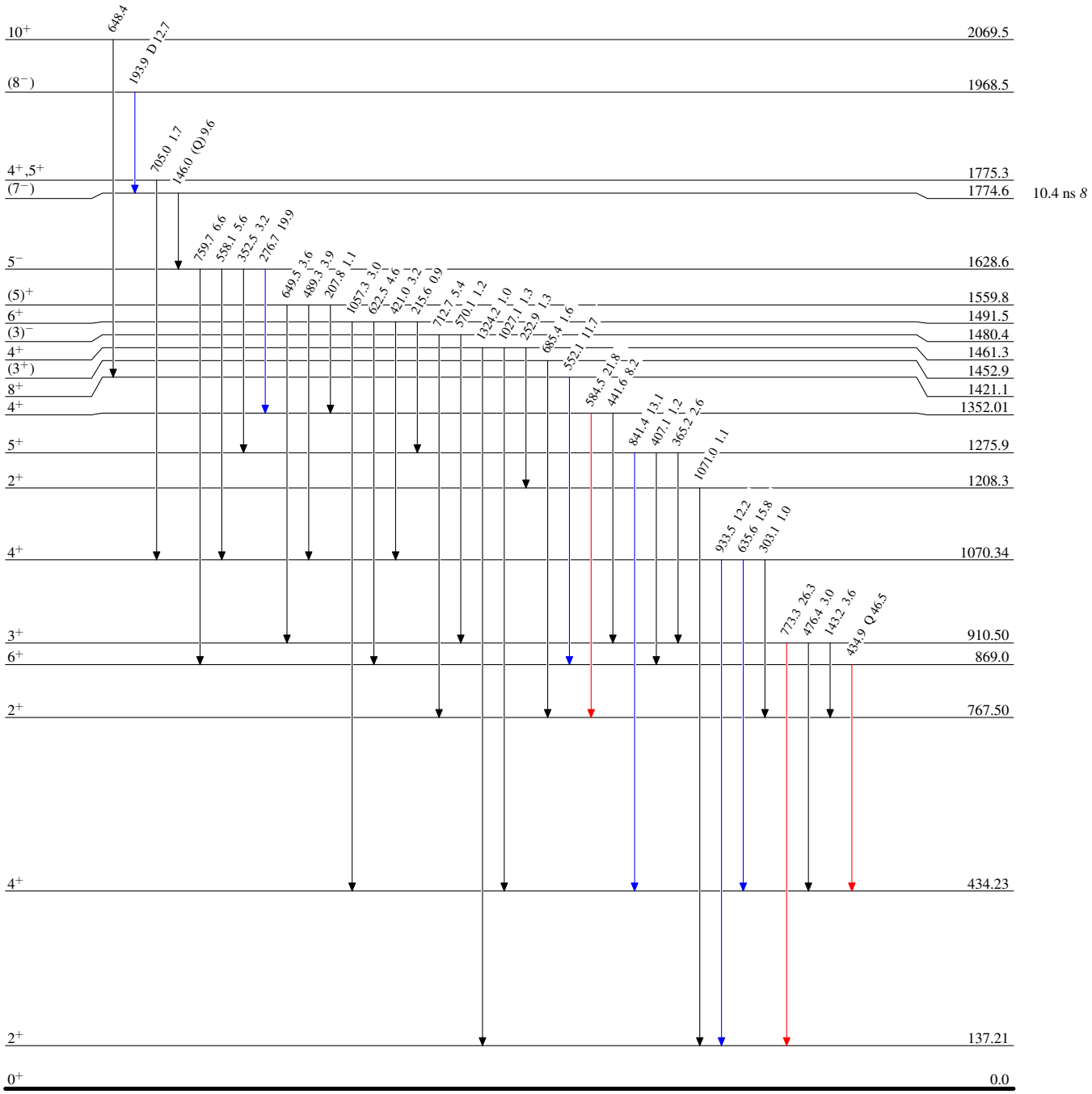
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{186}_{76}Os_{110}$

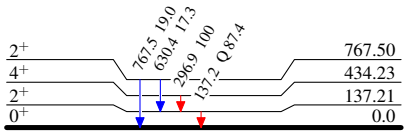
^{184}W(α,2nγ) 1974Ya03

Level Scheme (continued)

Intensities: Relative I_γ

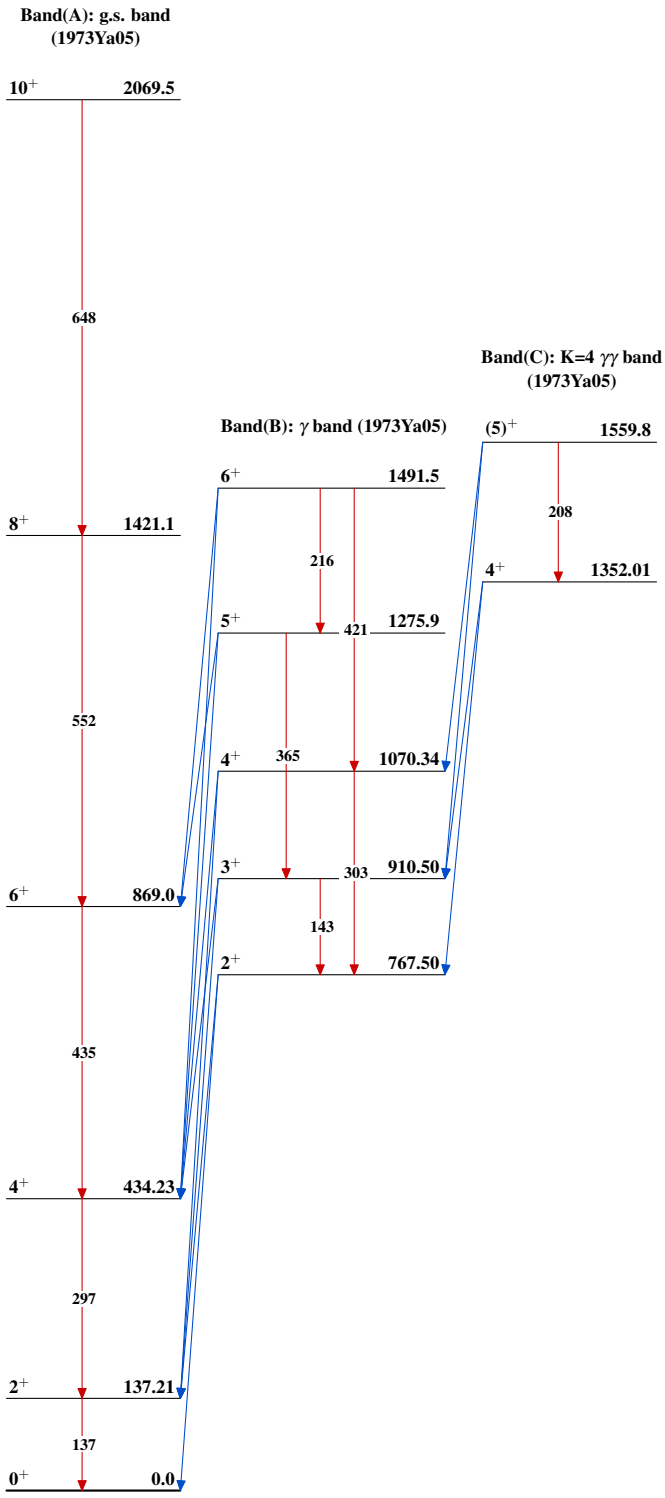
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



$^{186}_{76}Os_{110}$

$^{184}W(\alpha,2n\gamma)$ 1974Ya03



$^{186}_{76}Os_{110}$