

$^{177}\text{Hf}(\alpha, 4n\gamma)$ 1976Be47

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 159, 1 (2019)	30-Aug-2019

Produced using the $^{177}\text{Hf}(\alpha, 4n\gamma)$ reaction. E=26– 50 MeV. Target: ^{177}Hf enriched, self-supporting foil. Measured: γ ray excitation functions, prompt and delayed $\gamma\gamma$ coin, $\gamma(t)$, $\gamma(\theta)$. The full results have not been published.

 ^{177}W Levels

E(level) [†]	J ^π [#]	T _{1/2} [#]	Comments
0.0 [@]	1/2 ⁻	132.4 min 20	
79.30 [@] 10	3/2 ⁻		
94.90 [@] 10	5/2 ⁻		
101.20 ^{&} 10	5/2 ⁻	38 ns 8	
135.5 ^a 8	7/2 ⁻		
185.99 ^b 14	7/2 ⁺	13 ns 3	
210.81 ^b 17	9/2 ⁺		Additional information 1. E(level): From Adopted Levels. Level energy fixed in the least-squares fit adjustment.
283.0 ^{‡b} 10	11/2 ⁺		
369.0 ^{‡b} 13	13/2 ⁺		
503.0 ^{‡b} 13	15/2 ⁺		
631.0 ^{‡b} 14	17/2 ⁺		
842.0 ^{‡b} 15	19/2 ⁺		
993.0 ^{‡b} 16	21/2 ⁺		
1288.0 ^{‡b} 16	23/2 ⁺		
1448.0 ^{‡b} 17	25/2 ⁺		
1826.0 ^{‡b} 17	27/2 ⁺		
1988.0 ^{‡b} 18	29/2 ⁺		
2440.0 ^{‡b} 19	31/2 ⁺		
2600.0 ^{‡b} 19	33/2 ⁺		

[†] From a least-squares fit to E γ , unless otherwise stated.

[‡] The level energy is in disagreement with the adopted value.

[#] From Adopted Levels.

[@] Band(A): $\nu 1/2[521]$ rotational band.

[&] Band(B): $\nu 5/2[512]$ rotational band.

^a Band(C): $\nu 7/2[514]$ rotational band.

^b Band(D): $\nu 7/2[633]$ Coriolis-mixed ($i_{13/2}$) rotational band.

 $\gamma(^{177}\text{W})$

E γ [†]	E _i (level)	J _i ^π	E _f	J _f ^π
(6.25 11)	101.20	5/2 ⁻	94.90	5/2 ⁻
(15.49 11)	94.90	5/2 ⁻	79.30	3/2 ⁻
(21.74 11)	101.20	5/2 ⁻	79.30	3/2 ⁻
33.9	135.5	7/2 ⁻	101.20	5/2 ⁻
50	185.99	7/2 ⁺	135.5	7/2 ⁻
79.3 1	79.30	3/2 ⁻	0.0	1/2 ⁻
84.8 1	185.99	7/2 ⁺	101.20	5/2 ⁻

Continued on next page (footnotes at end of table)

$^{177}\text{Hf}(\alpha, 4n\gamma)$ **1976Be47** (continued) $\gamma(^{177}\text{W})$ (continued)

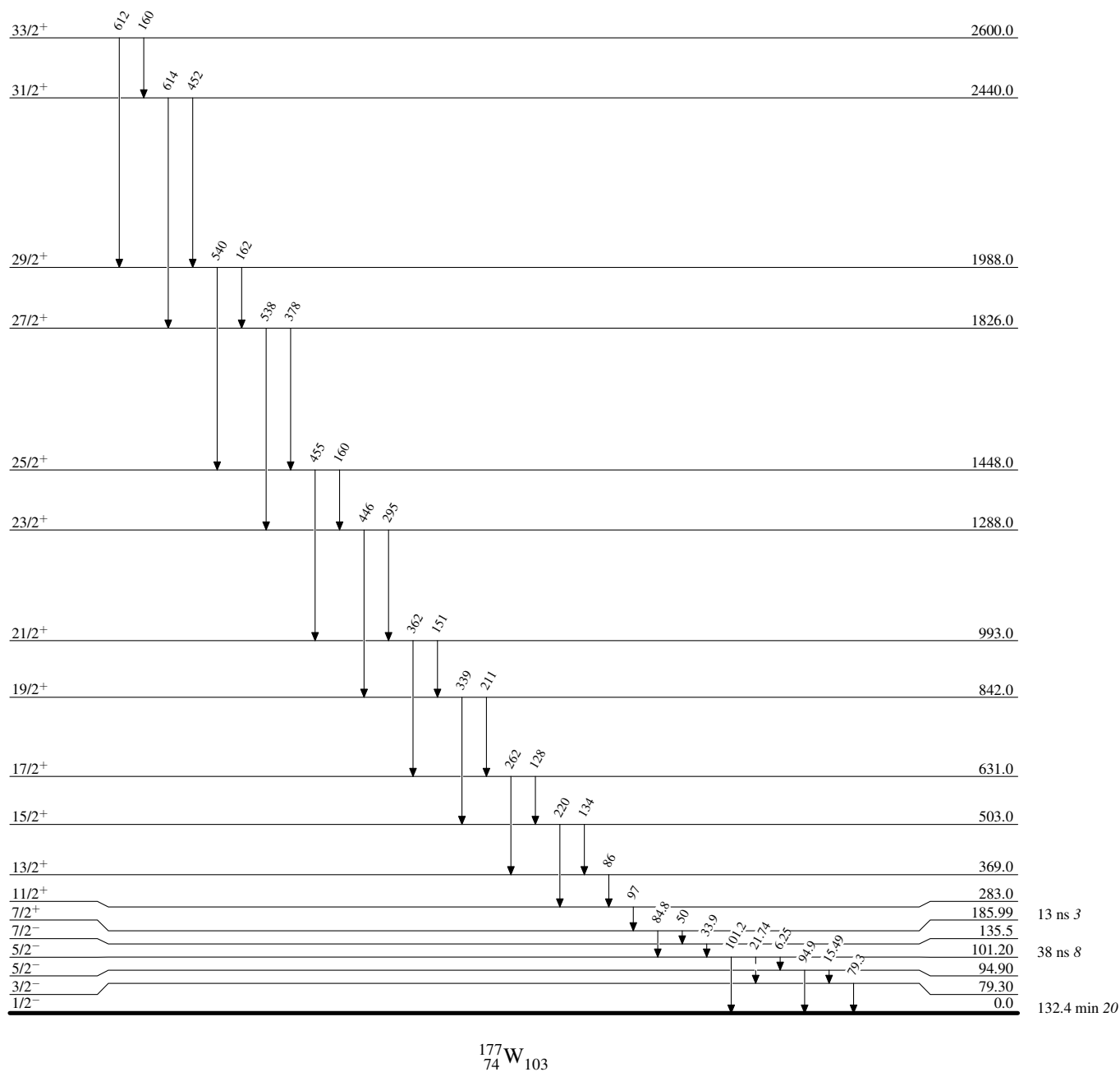
E_γ [†]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
86 [‡] I	369.0	13/2 ⁺	283.0	11/2 ⁺	E_γ : The γ -ray energy is in disagreement with the adopted value.
94.9 I	94.90	5/2 ⁻	0.0	1/2 ⁻	
97 [‡] I	283.0	11/2 ⁺	185.99	7/2 ⁺	
101.2 I	101.20	5/2 ⁻	0.0	1/2 ⁻	
128 [‡] I	631.0	17/2 ⁺	503.0	15/2 ⁺	
134 [‡] I	503.0	15/2 ⁺	369.0	13/2 ⁺	
151 [‡] I	993.0	21/2 ⁺	842.0	19/2 ⁺	
160 [‡] I	1448.0	25/2 ⁺	1288.0	23/2 ⁺	
160 [‡] I	2600.0	33/2 ⁺	2440.0	31/2 ⁺	
162 [‡] I	1988.0	29/2 ⁺	1826.0	27/2 ⁺	
211 [‡] I	842.0	19/2 ⁺	631.0	17/2 ⁺	
220 [‡] I	503.0	15/2 ⁺	283.0	11/2 ⁺	
262 [‡] I	631.0	17/2 ⁺	369.0	13/2 ⁺	
295 [‡] I	1288.0	23/2 ⁺	993.0	21/2 ⁺	
339 [‡] I	842.0	19/2 ⁺	503.0	15/2 ⁺	
362 [‡] I	993.0	21/2 ⁺	631.0	17/2 ⁺	
378 [‡] I	1826.0	27/2 ⁺	1448.0	25/2 ⁺	
446 [‡] I	1288.0	23/2 ⁺	842.0	19/2 ⁺	
452 [‡] I	2440.0	31/2 ⁺	1988.0	29/2 ⁺	
455 [‡] I	1448.0	25/2 ⁺	993.0	21/2 ⁺	
538 [‡] I	1826.0	27/2 ⁺	1288.0	23/2 ⁺	
540 [‡] I	1988.0	29/2 ⁺	1448.0	25/2 ⁺	
612 [‡] I	2600.0	33/2 ⁺	1988.0	29/2 ⁺	
614 [‡] I	2440.0	31/2 ⁺	1826.0	27/2 ⁺	

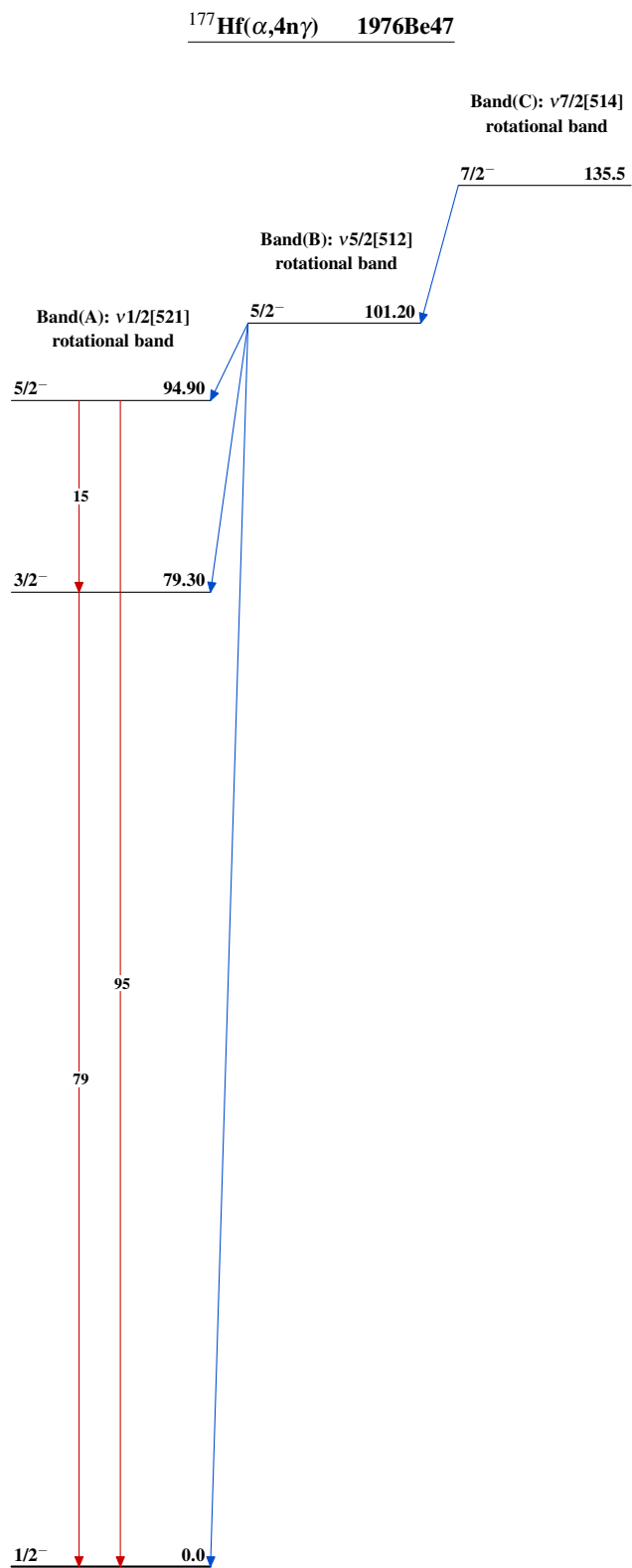
[†] From Adopted Gammas, unless otherwise stated.[‡] Deduced by the evaluator from the level energies reported in [1976Be47](#).

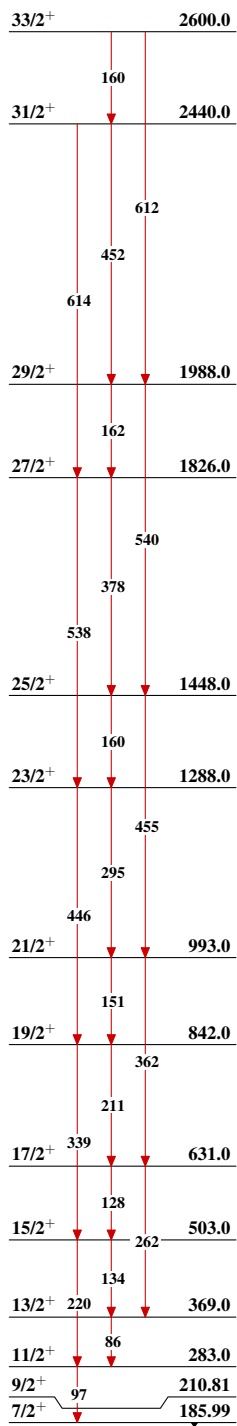
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Legend

Level Scheme

-----► γ Decay (Uncertain)


 $^{177}_{74}\text{W}_{103}$

$^{177}\text{Hf}(\alpha,4n\gamma)$ 1976Be47 (continued)**Band(D): $\nu 7/2[633]$ Coriolis-mixed
($i_{13/2}$) rotational band** $^{177}_{74}\text{W}_{103}$