

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	S. -c. Wu	NDS 106,619 (2005)	1-Nov-2005

$Q(\beta^-)=1994\ 15$; $S(n)=6.63\times 10^3\ 3$; $S(p)=7.18\times 10^3\ 5$; $Q(\alpha)=9.8\times 10^2\ 16$ [2012Wa38](#)

Note: Current evaluation has used the following Q record \$ 1994 14 6626 30 7180 40 920 syst [2003Au03](#).

$\Delta Q(\alpha)=300$ ([2003Au03](#)).

 ^{185}Ta LevelsCross Reference (XREF) Flags

- A $^{186}\text{W}(\text{pol } t, \alpha)$
 B $^{185}\text{Hf } \beta^- \text{ decay}$
 C $^{186}\text{W}(^{238}\text{U}, ^{239}\text{Np}\gamma)$

E(level) [†]	J ^π [‡]	T _{1/2}	XREF	Comments
0.0 [#]	(7/2 ⁺)	49.4 min 15	ABC	% β^- =100 T _{1/2} : weighted average of 49.5 min 15 (1955Po26), and 49 min 6 (1993Yu01). Other values: 48 min (1951Bu25 , 1951Mo47); 46 min (1950Du54). J ^π : analogy to ^{181}Ta suggests 7/2 ⁺ , 7/2[404] state.
164.5 [#] 5	(9/2 ⁺)	≤5 ns	AB	E(level): from $^{185}\text{Hf } \beta^- \text{ decay}$ (1993Yu01).
175.0 [@] 10	(9/2 ⁻) ^C		A C	T _{1/2} : From $^{186}\text{W}(^{238}\text{U}, ^{239}\text{Np}\gamma)$ by $\gamma\gamma$ coincidence.
337.4 [@] 13	(11/2 ⁻) ^C		A C	
409 ^{&} 4	(1/2 ⁺) & (3/2 ⁺)		A	Doublet. 1/2 ⁺ , 1/2[411] and 3/2 ⁺ , 1/2[411].
528.6 [@] 13	(13/2 ⁻) ^C		A C	
590 ^{&} 4	(5/2 ⁺) & (7/2 ⁺)	>1 ms	A	Doublet. 5/2 ⁺ , 1/2[411] and 7/2 ⁺ , 1/2[411].
689 4			A	
746.5 [@] 14	(15/2 ⁻) ^C		A C	
811 4	(3/2 ⁺)		A	Possibly 3/2 ⁺ , 3/2[402] state or K-2 γ vibration based on g.s., or combination of both.
890 ^a 4	(7/2 ⁻)		A	
980 ^a 4	(9/2 ⁻)		A	
992.6 [@] 15	(17/2 ⁻) ^C		C	
1018 4			A	
1074 4			A	
1153 ^a 4	(11/2 ⁻)		A	
1223 4			A	
1258.5 [@] 16	(19/2 ⁻) ^C	>1 ms	C	
1258.5+x	(21/2)		C	E(level): <100 keV if transition feeding the 1258 level is M1, <80 keV if this transition is E1. Probable high-K isomer with configuration= $\pi(5/2[402]7/2[404]9/2[514])$ for 21/2 ⁻ . T _{1/2} : From $^{186}\text{W}(^{238}\text{U}, ^{239}\text{Np}\gamma)$ by $\gamma\gamma$ coincidence.
1378 4			A	
1409 4			A	
1475 ^b 4	(5/2 ⁺)		A	
1583 4			A	
1638 4			A	
1744 4			A	
1837 4			A	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) ^{185}Ta Levels (continued)

[†] From least-square fit to $E\gamma$'s.

[‡] Except as noted, J^π and Nilsson orbital assignments are based on measured angular distributions, on analyzing powers, and on the comparison of calculated cross sections with experimental values in $^{186}\text{W}(\text{pol } t, \alpha)$.

Band(A): 7/2(404) rotational band.

@ Band(B): 9/2(514) rotational band. A strong Coriolis mixing with the 7/2[523] and 11/2[505] (unobserved) Nilsson orbitals is expected.

& Band(C): 1/2(411) rotational band.

^a Band(D): 7/2(523) rotational band. A strong Coriolis mixing with the 9/2[514] and 5/2[532] (unobserved) Nilsson orbitals is expected.

^b Band(E): 3/2(411) rotational band.

^c Spin and parity assignments of levels populated in $^{186}\text{W}(^{238}\text{U}, ^{239}\text{Np}\gamma)$ are based on rotational band structure and on the (M1+E2) and stretched (E2) multipolarities of intra-band γ -ray transitions.

 $\gamma(^{185}\text{Ta})$

$E_i(\text{level})$	J^π_i	E_γ [†]	I_γ [†]	E_f	J^π_f	Mult. [†]	Comments
164.5	(9/2 ⁺)	164.5 5	100	0.0	(7/2 ⁺)		E_γ, I_γ : from $^{185}\text{Hf } \beta^-$ decay.
175.0	(9/2 ⁻)	175	100	0.0	(7/2 ⁺)	(E1)	The ordering of the 175 transition and the isomeric transition from the 1258+x level has not been determined in $^{186}\text{W}(^{238}\text{U}, ^{239}\text{Np}\gamma)$ work.
							Mult.: (E1) from $\alpha(\text{exp})=0.12$ 18 (1999Wh03) deduced from intensity balance. E2 assignment, however, is not ruled out.
337.4	(11/2 ⁻)	162	100	175.0	(9/2 ⁻)	(M1+E2)	
528.6	(13/2 ⁻)	191	100	337.4	(11/2 ⁻)	(M1+E2)	
		354	11 10	175.0	(9/2 ⁻)	(E2)	
746.5	(15/2 ⁻)	218	100	528.6	(13/2 ⁻)	(M1+E2)	
		409	33 17	337.4	(11/2 ⁻)	(E2)	
992.6	(17/2 ⁻)	246	100	746.5	(15/2 ⁻)	(M1+E2)	
		464	72 23	528.6	(13/2 ⁻)	(E2)	
1258.5	(19/2 ⁻)	266	100	992.6	(17/2 ⁻)	(M1+E2)	
		512	60 17	746.5	(15/2 ⁻)	(E2)	

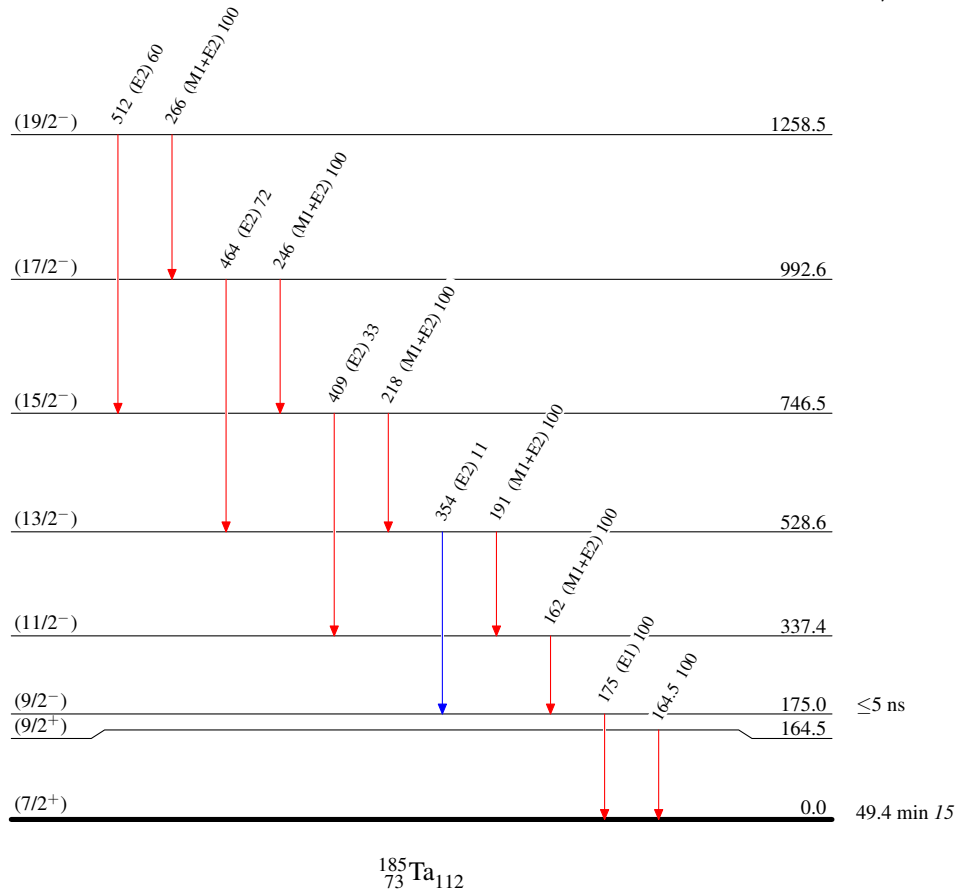
[†] From $^{186}\text{W}(^{238}\text{U}, ^{239}\text{Np}\gamma)$, except as noted.

Adopted Levels, Gammas**Level Scheme**

Intensities: Type not specified

Legend

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



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