^{102}Pd(^{58}Ni,p2nγ) 2005Se11

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 132, 1 (2016)	4-Dec-2015

Additional information 1.

2005Se11: E=270 MeV, measured Eγ, Iγ, $\gamma\gamma$, fragment-γ coin, lifetimes with the Gammasphere array of Compton-suppressed HPGe detectors and the Argonne Fragment Mass Analyzer (FMA). Recoils implanted in a double-sided Si strip detector (DSSD). Reaction products and associated γ rays identified through observation of characteristic α decays of the fragments in the same DSSD pixel as the implantation.

^{157}Ta Levels

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	Comments
0.0	1/2$^+$	10.1 ms *4*	
22[@] *5*	11/2$^-$	4.3 ms *1*	%α≈100 Additional information 2. E(level): From Adopted Levels, Gammas dataset.
864.0[@] *3*	15/2$^-$		
1567.2[@] *5*	19/2$^-$		
1717.8[&] *6*	23/2$^-$	≈5 ns	Level does not follow trend for calculated 23/2$^-$ states associated with $\pi h_{11/2}\otimes(\nu f_{7/2})^2$ configuration. It is most likely the 23/2$^-$ member of the $\pi h_{11/2}\otimes\nu f_{7/2}h_{9/2}$ multiplet. T$_{1/2}$: the interval 1-10 ns is deduced based on the favored E2 multipolarity of the 151γ and intensity arguments of this and lower gamma rays; ≈ 5 ns is adopted by 2005Se11 in fig. 8 (^{157}Ta level scheme).
2360.4[&] *6*	27/2$^-$		J$^\pi$: Assignment based on systematics as angular distribution ratio for 643 transition is ambiguous.
2927.7[a] *7*	(29/2$^+$)		J$^\pi$: Assignment based on systematics as angular distribution ratio for 567 transition is ambiguous.
3065.4[a] *8*	(31/2$^+$)		
3353.9[a] *8*			
3678.1 *9*			
3986.9[a] *9*			

[†] From least-squares fit to Eγ's; ΔE_γ=0.3 keV assumed for each transition.
[‡] Adopted by 2005Se11 (these values can be different from those in Adopted Levels, Gammas dataset).
[#] From Adopted Levels, Gammas dataset, unless noted otherwise.
[@] Band(A): $\pi h_{11/2}\otimes(\nu f_{7/2})^2$.
[&] Band(B): $\pi h_{11/2}\otimes\nu f_{7/2}h_{9/2}$ multiplet.
[a] Band(C): $\pi h_{11/2}\otimes[(\nu f_{7/2})^2\otimes 3^- + \nu f_{7/2}i_{13/2}]$.

γ(^{157}Ta)

I(Kα x ray)(57.2 keV)=76 *7*, I(Kβ x ray)(65.8 keV)=31 *4*.
$R_{ang}=I_\gamma(\approx 180°)/I_\gamma(\approx 90°)$.

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	Comments
137.7	12.1 *16*	3065.4	(31/2$^+$)	2927.7	(29/2$^+$)	(D)	R_{ang}=0.64 *22*. Mult.: likely to be M1 from angular distribution ratio.
150.6	50 *3*	1717.8	23/2$^-$	1567.2	19/2$^-$	Q	R_{ang}=0.85 *13*.

Continued on next page (footnotes at end of table)

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γ(^{157}Ta) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
							Mult.: E2 multipolarity favoured for this transition, based upon single-particle Weiskopff estimates. Assignment further supported by intensity balance arguments.
[x]154.7	11.8 *17*						
[x]181.0	7.9 *13*						
[x]225.3	5.4 *11*						
[x]236.2	6.6 *12*						
[x]240.3	6.2 *12*						
288.5	21.8 *19*	3353.9		3065.4	$(31/2^+)$		
[x]292.6	6.9 *13*						
[x]299.5	13.1 *14*						
324.2	16.7 *16*	3678.1		3353.9			R_{ang}=0.86 *22*.
[x]351.1	9.5 *14*						
[x]358.0	5.8 *12*						
[x]418.2	9.3 *14*						
[x]434.4	5.0 *12*						
[x]443.0	6.9 *14*						
[x]459.0	9.9 *16*						
[x]525.8	6.5 *15*						
567.3	56 *3*	2927.7	$(29/2^+)$	2360.4	$27/2^-$		R_{ang}=0.86 *14*.
[x]628.1	9.5 *19*						
633.0	20.2 *25*	3986.9		3353.9			
642.6	61 *4*	2360.4	$27/2^-$	1717.8	$23/2^-$		R_{ang}=0.85 *14*.
[x]656.9	8.2 *18*						
703.2	84 *4*	1567.2	$19/2^-$	864.0	$15/2^-$	Q	R_{ang}=1.43 *20*. Mult.: Angular distribution ratio consistent with stretched $\Delta J=2$ assignment.
[x]797.3	17.7 *22*						
842.0	100 *4*	864.0	$15/2^-$	22	$11/2^-$	Q	R_{ang}=1.05 *15*. Mult.: Angular distribution ratio consistent with stretched $\Delta J=2$ assignment.
[x]855.0	10.7 *18*						

[x] γ ray not placed in level scheme.

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Level Scheme

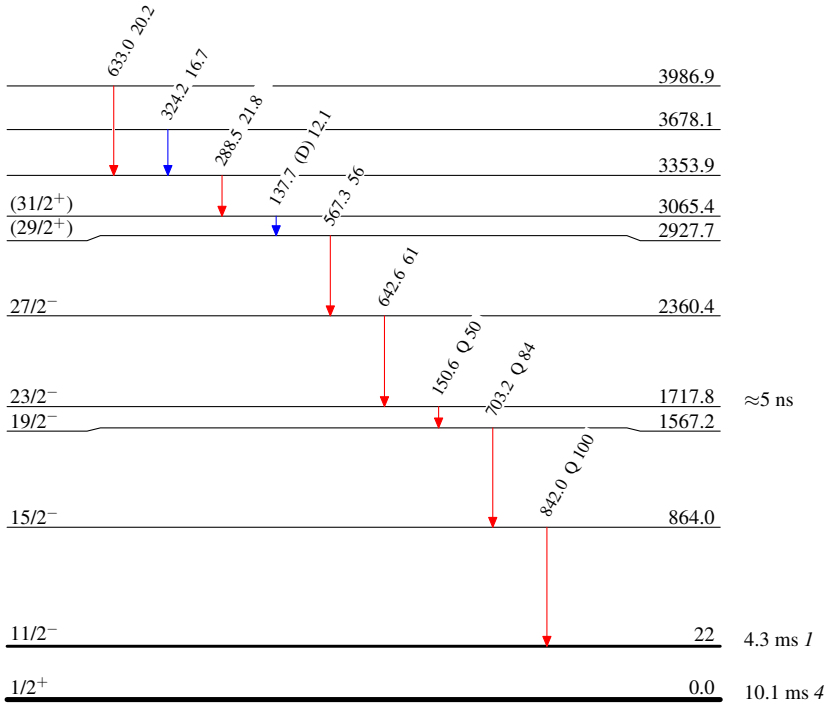
Intensities: Relative I_γ

Legend

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

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

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



$^{157}_{73}Ta_{84}$

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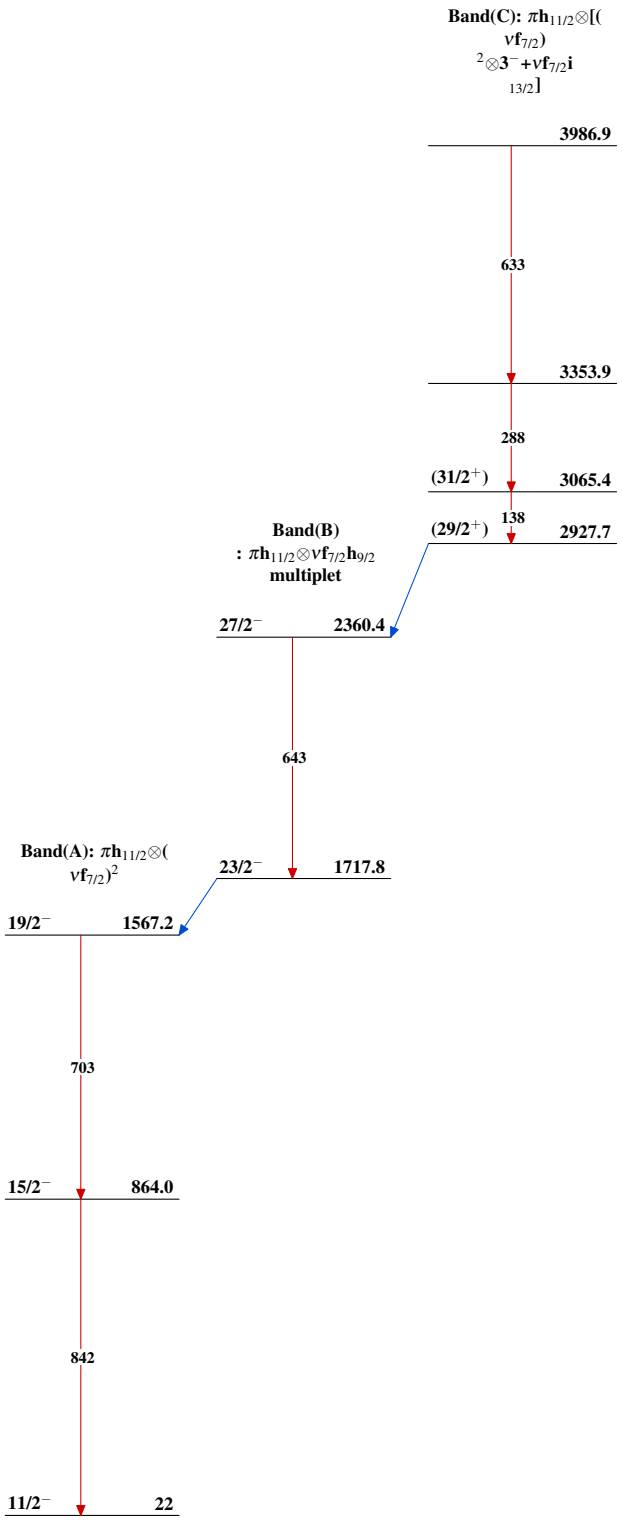

$^{157}_{73}Ta_{84}$