

$^{181}\text{Ta}(^{238}\text{U}, ^{238}\text{U}'\gamma)$ **1998Wh02**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	S. -c. Wu	NDS 106, 367 (2005)	31-Aug-2005

1998Wh02: E=1600 MeV, pulsed ^{238}U beam; thick target; Argonne-Notre Dame BGO array of 12 Compton suppressed Ge detectors and a 50 element BGO ball. Measured delayed γ , $\gamma\gamma$ -coin, and lifetimes.

Others: **1998He02**, **1996Ho18**, **1996Di07**.

The level scheme presented is from **1998Wh02**, which is built on the already known 6 keV level.

 ^{181}Ta Levels

E(level) [†]	J^π [‡]	$T_{1/2}$ [#]	Comments
0	7/2 ⁺		
6 [@]	9/2 ⁻		E(level): The energy of the 6-keV level was not determined in this reaction because some gamma rays populate this level, but none of the observed gamma rays populate the ground state. The level energy of 6 keV shown here is just a nominal value.
159 ^{&}	11/2 ⁻		
338 [@]	13/2 ⁻		
543 ^{&}	15/2 ⁻		
774 [@]	17/2 ⁻		
1029 ^{&}	19/2 ⁻		
1308 [@]	21/2 ⁻		
1485	21/2 ⁻	25 μs 2	Configuration: $\pi 9/2[514]\pi 7/2[404]\pi 5/2[402]$, $K^\pi=21/2^-$.
1609 ^{&}	23/2 ⁻		
1778	23/2 ⁻		
1934 [@]	25/2 ⁻		
2099	25/2 ⁻		
2230	29/2 ⁻	210 μs 20	Configuration: $\pi 9/2[514]\nu 11/2[615]\nu 9/2[624]$, $K^\pi=29/2^-$.

[†] From the level diagram in **1998Wh02**.

[‡] From $\gamma\gamma$ -coincidence and expected band structure.

[#] From time spectra of γ -transitions below the 1485 isomer in chopped beam experiment.

[@] Band(A): 9/2[514] band, $\alpha=+1/2$.

[&] Band(a): 9/2[514] band, $\alpha=-1/2$.

 $\gamma(^{181}\text{Ta})$

E_γ [†]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
(6)	6	9/2 ⁻	0	7/2 ⁺	E_γ : From adopted gammas, rounded to the nearest keV.
130	2230	29/2 ⁻	2099	25/2 ⁻	
152	159	11/2 ⁻	6	9/2 ⁻	
177	1485	21/2 ⁻	1308	21/2 ⁻	
179	338	13/2 ⁻	159	11/2 ⁻	
205	543	15/2 ⁻	338	13/2 ⁻	
231	774	17/2 ⁻	543	15/2 ⁻	
255	1029	19/2 ⁻	774	17/2 ⁻	
279	1308	21/2 ⁻	1029	19/2 ⁻	
293	1778	23/2 ⁻	1485	21/2 ⁻	
295	2230	29/2 ⁻	1934	25/2 ⁻	
302	1609	23/2 ⁻	1308	21/2 ⁻	
322	2099	25/2 ⁻	1778	23/2 ⁻	

Continued on next page (footnotes at end of table)

$^{181}\text{Ta}(^{238}\text{U}, ^{238}\text{U}'\gamma)$ **1998Wh02 (continued)** $\gamma(^{181}\text{Ta})$ (continued)

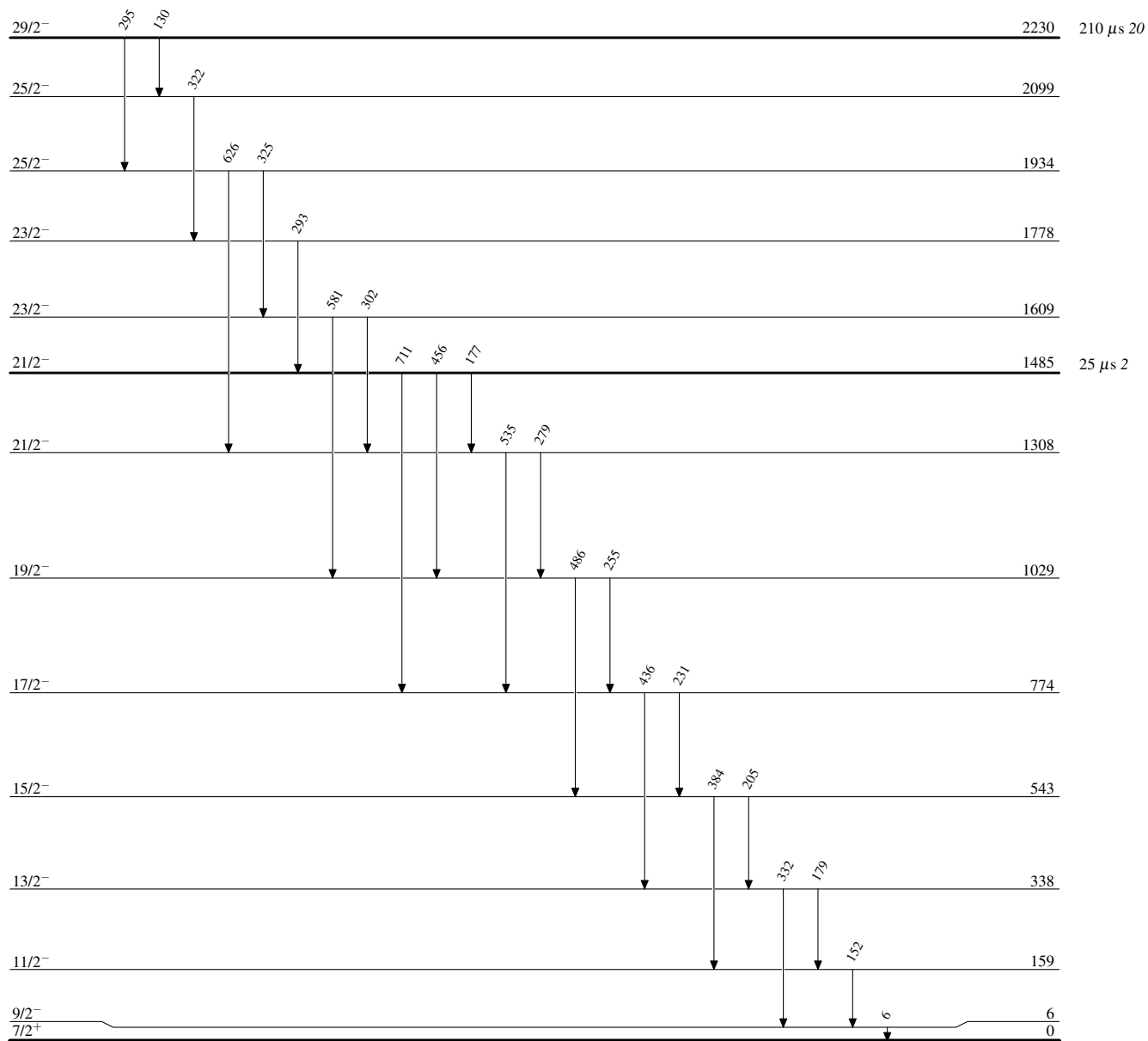
$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π
325	1934	25/2 ⁻	1609	23/2 ⁻	456	1485	21/2 ⁻	1029	19/2 ⁻	626	1934	25/2 ⁻	1308	21/2 ⁻
332	338	13/2 ⁻	6	9/2 ⁻	486	1029	19/2 ⁻	543	15/2 ⁻	711	1485	21/2 ⁻	774	17/2 ⁻
384	543	15/2 ⁻	159	11/2 ⁻	535	1308	21/2 ⁻	774	17/2 ⁻					
436	774	17/2 ⁻	338	13/2 ⁻	581	1609	23/2 ⁻	1029	19/2 ⁻					

[†] From the level scheme of **1998Wh02**, except the 6 keV transition.

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Legend

Level Scheme

 -----► γ Decay (Uncertain)

 $^{181}_{73}\text{Ta}_{108}$

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