

$^{181}\text{Ta}(n,\gamma) E=2 \text{ keV}$ **1971He13**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 130, 21 (2015)	15-Jul-2015

1971He13: E(n)=2 keV, with a peak intensity at 1.95 keV and FWHM=0.7 keV. Measured primary γ -ray energies and intensities.

 ^{182}Ta Levels

E(level)	J^π [†]	E(level)	J^π [†]	E(level)	J^π [†]	E(level)	J^π [†]
0.0	3 ⁻ ,4 ⁻	547.00 15	3 ⁻ ,4 ⁻	897.80 25	(2,5) ⁻	1197.9 3	3 ⁻ ,4 ⁻
15.8 9	2 ⁺ ,5 ⁺	565.56 25	3 ⁻ ,4 ⁻	910.10 25	3 ⁻ ,4 ⁻	1216.3 7	2 ⁻ ,5 ⁻
97.73 10	3 ⁻ ,4 ⁻	571.5 7	3 ⁺ ,4 ⁺	915.8 3	2 ⁻ ,5 ⁻	1229.8 3	3 ⁻ ,4 ⁻
114.17 10	3 ⁻ ,4 ⁻	586.6? 12	2 ⁺ ,5 ⁺	935.8 13	(2 to 5) ⁺	1240.4 4	2 ⁻ ,5 ⁻
150.5 4	3 ⁺ ,4 ⁺	628.50 20	2 ⁻ ,5 ⁻	940.0 3	2 ⁻ ,5 ⁻	1259.4 5	
173.40 20	2 ⁻ ,5 ⁻	649.72 25	3 ⁻ ,4 ⁻	961.15 25	3 ⁻ ,4 ⁻	1270.3 5	
237.37 15	2 ⁻ ,5 ⁻	659.1 4	2 ⁻ ,5 ⁻	986.27 25	3 ⁻ ,4 ⁻	1281.1 4	
249.7 4	3 ⁺ ,4 ⁺	665.8 4	2 ⁻ ,5 ⁻	1003.4 3	2 ⁻ ,5 ⁻	1289.5 7	
270.39 15	2 ⁻ ,5 ⁻	702.03 20	(2,5) ⁻	1029.37 25	3 ⁻ ,4 ⁻	1303.5 4	
292.86 20	2 ⁻ ,5 ⁻	719.59 20	2 ⁻ ,5 ⁻	1050.5 3	3 ⁻ ,4 ⁻	1322.5 4	
331.2 7	2 ⁺ ,5 ⁺	740.27 25	2 ⁻ ,5 ⁻	1057.22 25	3 ⁻ ,4 ⁻	1371.3 5	
360.75 20	3 ⁻ ,4 ⁻	781.91 20	3 ⁻ ,4 ⁻	1082.59 25	3 ⁻ ,4 ⁻	1376.8 5	
401.8 7	2 ⁺ ,5 ⁺	816.91 20	3 ⁻ ,4 ⁻	1100.7 3	2 ⁻ ,5 ⁻	1388.4 4	
423.5? 11	2 ⁺ ,5 ⁺	835.53 25	3 ⁻ ,4 ⁻	1113.5 5	2 ⁻ ,5 ⁻	1393.9 4	
474.4 7	3 ⁺ ,4 ⁺	843.30 25	(3,4) ⁻	1125.1 4	2 ⁻ ,5 ⁻	1416.4 4	
480.02 20	3 ⁻ ,4 ⁻	855.95 25	2 ⁻ ,5 ⁻	1137.2 3	2 ⁻ ,5 ⁻	1446.0 5	
491.8 3	2 ⁻ ,5 ⁻	866.3 4	2 ⁻ ,5 ⁻	1150.3 4	2 ⁻ ,5 ⁻	(S(n)+2 [‡])	3 ⁺ ,4 ⁺ #
506.3 8	2 ⁺ ,5 ⁺	881.9 7	(3,4) ⁺	1169.6 4	2 ⁻ ,5 ⁻		

[†] As assigned by **1971He13** from comparison of I_γ/E_γ^5 values with those expected for different spin and mult combinations: ≈ 1.0 for 3⁻,4⁻; ≈ 0.5 for 2⁻,5⁻; ≈ 0.12 for 3⁺,4⁺ and ≈ 0.06 for 2⁺,5⁺. See Adopted Levels, where many spins are either different or restricted to one value based on other arguments.

[‡] S(n)+E(n), where E(n)=2 keV, S(n)=6062.94 11 (**2012Wa38**).

s-wave capture in 7/2⁺ g.s. of ^{181}Ta .

 $\gamma(^{182}\text{Ta})$

E_γ	I_γ [†]	$E_i(\text{level})$	J_i^π	E_f	J_f^π
4618.9 7	28 6	(S(n)+2)	3 ⁺ ,4 ⁺	1446.0	
4648.5 6	29 4	(S(n)+2)	3 ⁺ ,4 ⁺	1416.4	
4671.0 6	28 6	(S(n)+2)	3 ⁺ ,4 ⁺	1393.9	
4676.5 6	29 6	(S(n)+2)	3 ⁺ ,4 ⁺	1388.4	
4688.1 7	26 5	(S(n)+2)	3 ⁺ ,4 ⁺	1376.8	
4693.6 7	34 7	(S(n)+2)	3 ⁺ ,4 ⁺	1371.3	
4742.4 6	49 7	(S(n)+2)	3 ⁺ ,4 ⁺	1322.5	
4761.4 6	21 3	(S(n)+2)	3 ⁺ ,4 ⁺	1303.5	
4783.8 6	37 6	(S(n)+2)	3 ⁺ ,4 ⁺	1281.1	
4794.6 7	21 4	(S(n)+2)	3 ⁺ ,4 ⁺	1270.3	
4805.5 7	18 4	(S(n)+2)	3 ⁺ ,4 ⁺	1259.4	
4824.5 6	20 3	(S(n)+2)	3 ⁺ ,4 ⁺	1240.4	2 ⁻ ,5 ⁻
4835.1 6	26 5	(S(n)+2)	3 ⁺ ,4 ⁺	1229.8	3 ⁻ ,4 ⁻
4848.6 9	18 5	(S(n)+2)	3 ⁺ ,4 ⁺	1216.3	2 ⁻ ,5 ⁻
4867.0 6	32 5	(S(n)+2)	3 ⁺ ,4 ⁺	1197.9	3 ⁻ ,4 ⁻
4895.3 6	11.4 23	(S(n)+2)	3 ⁺ ,4 ⁺	1169.6	2 ⁻ ,5 ⁻
4914.6 6	19 4	(S(n)+2)	3 ⁺ ,4 ⁺	1150.3	2 ⁻ ,5 ⁻

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$^{181}\text{Ta}(n,\gamma) E=2 \text{ keV}$ **1971He13 (continued)** $\gamma(^{182}\text{Ta})$ (continued)

E_γ	I_γ^\dagger	$E_i(\text{level})$	J_i^π	E_f	J_f^π
4927.7 6	21 3	(S(n)+2)	$3^+,4^+$	1137.2	$2^-,5^-$
4939.8 6	17 3	(S(n)+2)	$3^+,4^+$	1125.1	$2^-,5^-$
4951.4 7	10.1 20	(S(n)+2)	$3^+,4^+$	1113.5	$2^-,5^-$
4964.2 6	18 3	(S(n)+2)	$3^+,4^+$	1100.7	$2^-,5^-$
4982.3 5	42 4	(S(n)+2)	$3^+,4^+$	1082.59	$3^-,4^-$
5007.7 5	44 4	(S(n)+2)	$3^+,4^+$	1057.22	$3^-,4^-$
5014.4 6	36 5	(S(n)+2)	$3^+,4^+$	1050.5	$3^-,4^-$
5035.5 5	34 3	(S(n)+2)	$3^+,4^+$	1029.37	$3^-,4^-$
5061.6 \ddagger 6	24 4	(S(n)+2)	$3^+,4^+$	1003.4	$2^-,5^-$
5078.6 5	34 3	(S(n)+2)	$3^+,4^+$	986.27	$3^-,4^-$
5103.7 5	41 4	(S(n)+2)	$3^+,4^+$	961.15	$3^-,4^-$
5124.9 6	18 3	(S(n)+2)	$3^+,4^+$	940.0	$2^-,5^-$
5129.1 14	3.7 15	(S(n)+2)	$3^+,4^+$	935.8	(2 to 5) $^+$
5149.1 6	26 4	(S(n)+2)	$3^+,4^+$	915.8	$2^-,5^-$
5154.8 5	44 7	(S(n)+2)	$3^+,4^+$	910.10	$3^-,4^-$
5167.0 5	31 3	(S(n)+2)	$3^+,4^+$	897.80	(2,5) $^-$
5183.0 9	8.4 21	(S(n)+2)	$3^+,4^+$	881.9	(3,4) $^+$
5198.6 6	17 4	(S(n)+2)	$3^+,4^+$	866.3	$2^-,5^-$
5209.0 5	25 4	(S(n)+2)	$3^+,4^+$	855.95	$2^-,5^-$
5221.6 5	34 5	(S(n)+2)	$3^+,4^+$	843.30	(3,4) $^-$
5229.4 5	37 6	(S(n)+2)	$3^+,4^+$	835.53	$3^-,4^-$
5248.0 5	50 5	(S(n)+2)	$3^+,4^+$	816.91	$3^-,4^-$
5283.0 5	44 4	(S(n)+2)	$3^+,4^+$	781.91	$3^-,4^-$
5324.6 5	23 3	(S(n)+2)	$3^+,4^+$	740.27	$2^-,5^-$
5345.3 5	32 5	(S(n)+2)	$3^+,4^+$	719.59	$2^-,5^-$
5362.9 5	34 3	(S(n)+2)	$3^+,4^+$	702.03	(2,5) $^-$
5399.1 7	29 4	(S(n)+2)	$3^+,4^+$	665.8	$2^-,5^-$
5405.8 7	30 5	(S(n)+2)	$3^+,4^+$	659.1	$2^-,5^-$
5415.2 5	58 6	(S(n)+2)	$3^+,4^+$	649.72	$3^-,4^-$
5436.4 5	29 3	(S(n)+2)	$3^+,4^+$	628.50	$2^-,5^-$
5478.3 \ddagger 12	1.2 6	(S(n)+2)	$3^+,4^+$	586.6?	$2^+,5^+$
5493.4 9	9.3 23	(S(n)+2)	$3^+,4^+$	571.5	$3^+,4^+$
5499.3 5	47 3	(S(n)+2)	$3^+,4^+$	565.56	$3^-,4^-$
5517.9 5	51 4	(S(n)+2)	$3^+,4^+$	547.00	$3^-,4^-$
5558.6 9	4.0 12	(S(n)+2)	$3^+,4^+$	506.3	$2^+,5^+$
5573.1 7	18 3	(S(n)+2)	$3^+,4^+$	491.8	$2^-,5^-$
5584.9 5	62 4	(S(n)+2)	$3^+,4^+$	480.02	$3^-,4^-$
5590.5 9	9 3	(S(n)+2)	$3^+,4^+$	474.4	$3^+,4^+$
5641.4 \ddagger 12	2.6 10	(S(n)+2)	$3^+,4^+$	423.5?	$2^+,5^+$
5663.1 9	4.9 15	(S(n)+2)	$3^+,4^+$	401.8	$2^+,5^+$
5704.1 5	74 5	(S(n)+2)	$3^+,4^+$	360.75	$3^-,4^-$
5733.7 9	4.7 19	(S(n)+2)	$3^+,4^+$	331.2	$2^+,5^+$
5772.0 5	24.6 25	(S(n)+2)	$3^+,4^+$	292.86	$2^-,5^-$
5794.5 5	28.9 20	(S(n)+2)	$3^+,4^+$	270.39	$2^-,5^-$
5815.2 6	9.0 18	(S(n)+2)	$3^+,4^+$	249.7	$3^+,4^+$
5827.5 5	39 3	(S(n)+2)	$3^+,4^+$	237.37	$2^-,5^-$
5891.5 5	23.7 17	(S(n)+2)	$3^+,4^+$	173.40	$2^-,5^-$
5914.4 6	10.0 20	(S(n)+2)	$3^+,4^+$	150.5	$3^+,4^+$
5950.7 5	89 4	(S(n)+2)	$3^+,4^+$	114.17	$3^-,4^-$
5967.2 5	100	(S(n)+2)	$3^+,4^+$	97.73	$3^-,4^-$
6049.1 10	4.9 15	(S(n)+2)	$3^+,4^+$	15.8	$2^+,5^+$
6064.9 5	101 5	(S(n)+2)	$3^+,4^+$	0.0	$3^-,4^-$

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${}^{181}\text{Ta}(n,\gamma)$ E=2 keV **1971He13** (continued)

$\gamma({}^{182}\text{Ta})$ (continued)

† Relative γ -ray intensities.

‡ Placement of transition in the level scheme is uncertain.

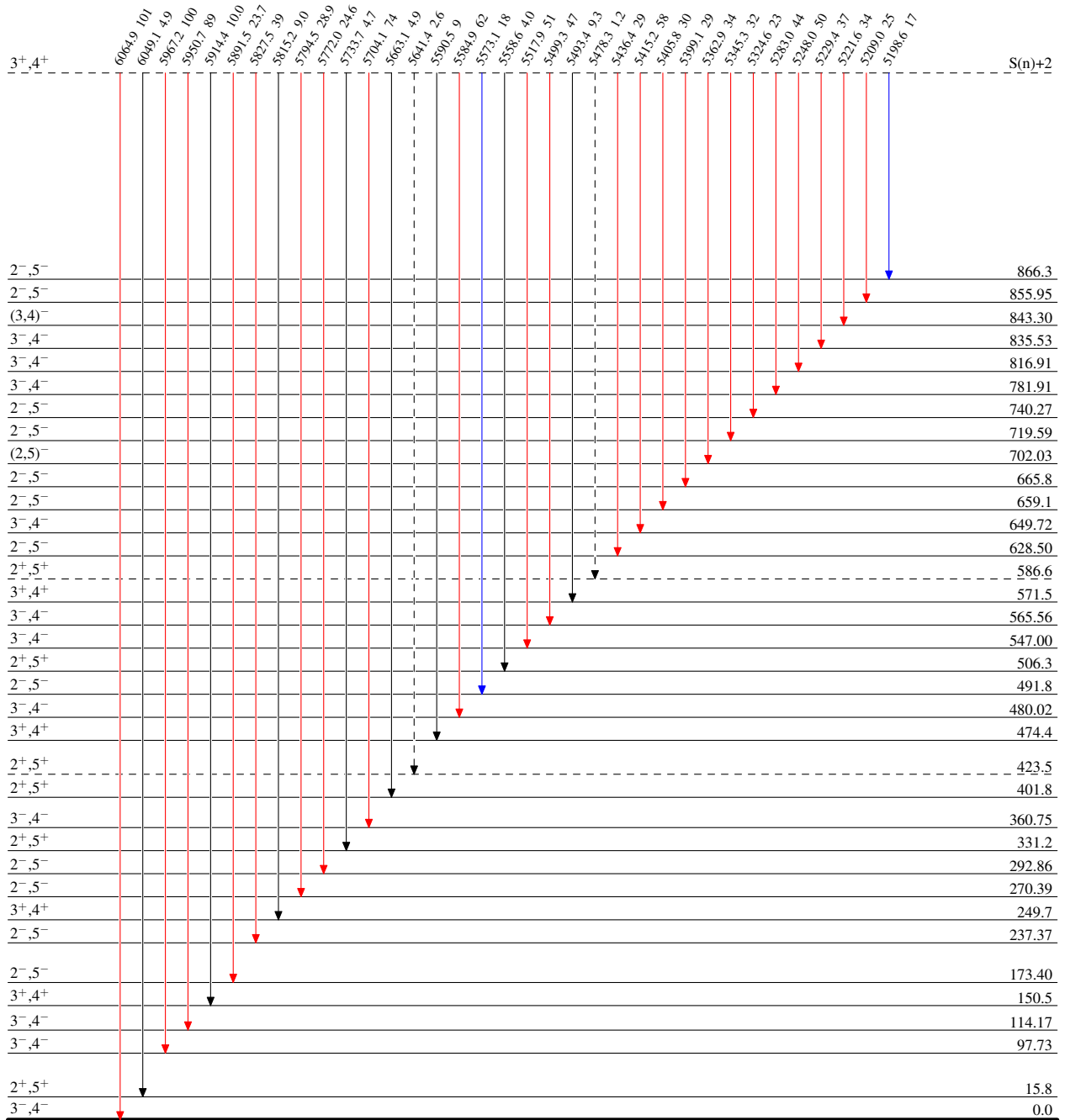
$^{181}\text{Ta}(n,\gamma) E=2 \text{ keV}$ $^{197}\text{He13}$

Legend

Level Scheme

Intensities: Relative I_γ

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - - - γ Decay (Uncertain)



$^{181}\text{Ta}(n,\gamma) E=2\text{ keV}$ $^{1971}\text{He13}$

Legend

Level Scheme (continued)

Intensities: Relative I_γ

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- - - - - γ Decay (Uncertain)

