

$^{197}\text{Au}(\text{}^3\text{He},3n\gamma)$ **1977Ve02**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Huang Xiaolong, Zhou Chunmei		NDS 104, 283 (2005)	1-Jan-2002

Other: **1985ShZN** (measured $\sigma(E)$).
 E=24,28 MeV; measured γ -singles, $\gamma\gamma$ -coin, $\gamma(\theta)$, excit, $\gamma(t)$ pulsed beam.

^{197}Tl Levels

$I\gamma$ -branching ratios obtained at $E(\text{}^3\text{He})=28$ MeV. For comparison, see $(\alpha,4n\gamma)$, ^{197}Pb decay, and $E(\text{}^3\text{He})=24$ MeV results.

E(level) [†]	J^π [‡]	$T_{1/2}$ [#]	Comments
0.0	1/2 ⁺	2.84 h 4	
385.8 3	3/2 ⁺		
608.6 4	9/2 ⁻	0.54 s 1	
761.3 5	5/2 ⁺		
996.6 5	11/2 ⁻		
1304.4 6	(13/2 ⁻)		Branching: $I\gamma(695\gamma)/I\gamma(308\gamma)=4.4$ (1977Ve02).
1554.9 5	13/2 ⁻		
1720.4 6	(15/2 ⁻)		Branching: $I\gamma(416\gamma)/I\gamma(724\gamma)=1.1$ (1977Ve02).
1954.8 7	11/2 ⁻		J^π : from Adopted Levels. Other: (9/2 ⁻) (1977Ve02).
2041.9 6	(17/2 ⁻)		Branching: $I\gamma(321\gamma)/I\gamma(737\gamma)=0.26$ (1977Ve02).
2115.8 5	15/2 ⁺		

[†] From level scheme and least-squares fit to $E\gamma$'s.
[‡] Based partly on rel $I\gamma$, excit, and $\gamma(\theta)$ A_2 coef.
[#] From Adopted Levels. $T_{1/2}\leq 3$ ns for $E(\text{levels})\geq 760$ keV.

$\gamma(^{197}\text{Tl})$

$\gamma(\theta)$ measured at 4 angles ($\theta=30^\circ-90^\circ$); A_2 coef obtained.

E_γ	I_γ [†]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
222.8 1	370	608.6	9/2 ⁻	385.8	3/2 ⁺	
308.1 5	17	1304.4	(13/2 ⁻)	996.6	11/2 ⁻	
321.5 [‡] 3	2.9	2041.9	(17/2 ⁻)	1720.4	(15/2 ⁻)	$\gamma(\theta)$: $A_2=-0.68$ 26.
375.5 3	6.5	761.3	5/2 ⁺	385.8	3/2 ⁺	$\gamma(\theta)$: $A_2=-0.09$ 17.
385.8 3	960	385.8	3/2 ⁺	0.0	1/2 ⁺	
388.0 [‡] 3	100	996.6	11/2 ⁻	608.6	9/2 ⁻	$\gamma(\theta)$: $A_2=-0.85$ 20.
416.1 3	7.9	1720.4	(15/2 ⁻)	1304.4	(13/2 ⁻)	$\gamma(\theta)$: $A_2=-0.48$ 24.
558.3 [‡] 1	53	1554.9	13/2 ⁻	996.6	11/2 ⁻	$\gamma(\theta)$: $A_2=-0.77$ 4.
560.9 1	31	2115.8	15/2 ⁺	1554.9	13/2 ⁻	$\gamma(\theta)$: $A_2=-0.29$ 5.
696 1	75	1304.4	(13/2 ⁻)	608.6	9/2 ⁻	
723.5 5	7.4	1720.4	(15/2 ⁻)	996.6	11/2 ⁻	
737.5 5	11	2041.9	(17/2 ⁻)	1304.4	(13/2 ⁻)	$\gamma(\theta)$: $A_2=0.20$ 17.
*871.7 5	6.8					$\gamma(\theta)$: $A_2=-0.20$ 31. (872 γ)(386 γ +388 γ)-coin (1977Ve02).
958.2 [‡] 5	4.8	1954.8	11/2 ⁻	996.6	11/2 ⁻	$\gamma(\theta)$: $A_2=-0.54$ 30.

[†] Relative photon intensity normalized to $I\gamma(388\gamma)=100$; values measured at $E(\text{}^3\text{He})=28$ MeV; $\Delta I\gamma=50\%$ to 75% depending on

Continued on next page (footnotes at end of table)

$^{197}\text{Au}(^3\text{He},3n\gamma)$ 1977Ve02 (continued) $\gamma(^{197}\text{Tl})$ (continued)

line strength.

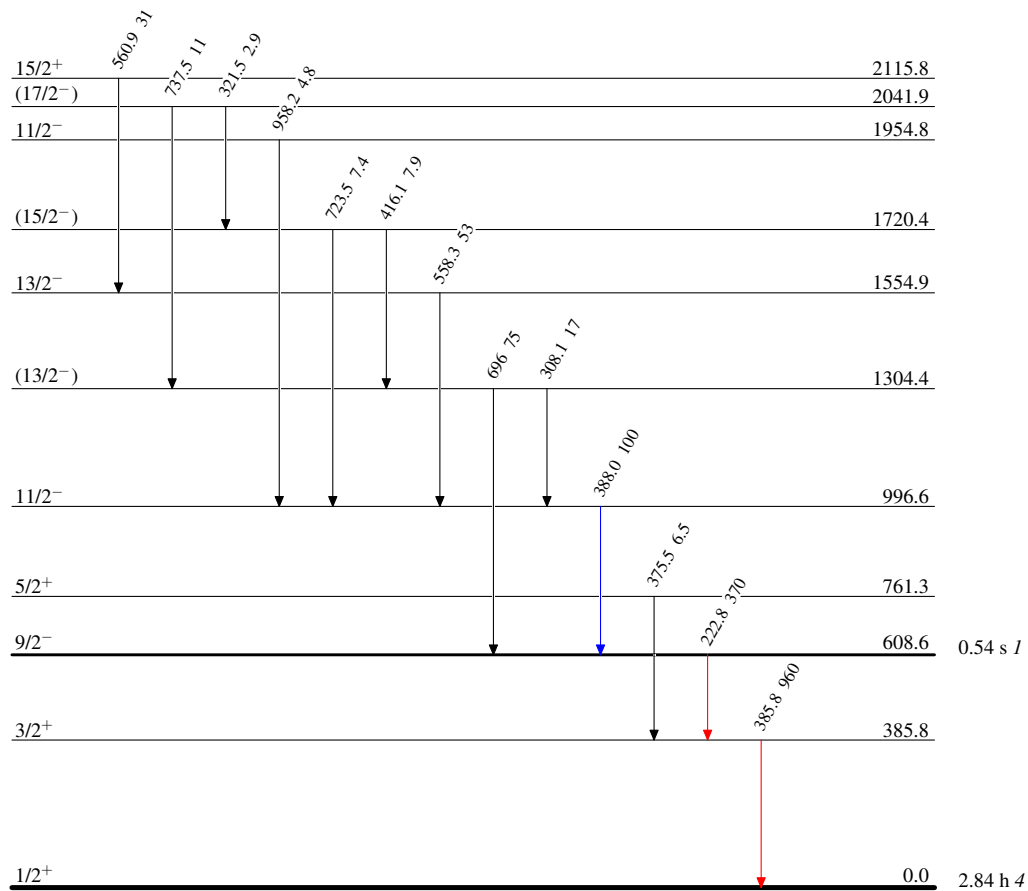
 \ddagger Coef $A_2 = -0.54$ to -0.85 ; M1+E2 transition via $\Delta J = \pm 1$ deduced. x γ ray not placed in level scheme. $^{197}\text{Au}(^3\text{He},3n\gamma)$ 1977Ve02

Level Scheme

Intensities: Relative I_γ

Legend

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

 $^{197}\text{Tl}_{116}$