

$^{238}\text{U}(^{12}\text{C},\text{x}\gamma)$ 2005Po03

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	J. Katakura	NDS 112, 495 (2011)	1-Jan-2010

2005Po03: $^{238}\text{U}(^{12}\text{C},\text{x}\gamma)$ E=90 MeV; includes $^{208}\text{Pb}(^{18}\text{O},\text{x}\gamma)$ E=85 MeV. ^{125}Sb isotope is formed as fission fragment after fusion reactions.

$^{238}\text{U}(^{12}\text{C},\text{x}\gamma)$: E=90 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, lifetime with EUROBALL III array.

$^{208}\text{Pb}(^{18}\text{O},\text{x}\gamma)$: E=85 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ with the EUROBALL IV spectrometer.

The isomeric state in the fission fragment ^{125}Sb was identified using a fission fragment detector to trigger the EUROBALL III array and isolate the delayed γ -ray cascades in the $^{238}\text{U}(^{12}\text{C},\text{x}\gamma)$ reaction.

XUNDL data set compiled by J. Roediger and B. Singh (McMaster), February 24, 2005, is consulted.

 ^{125}Sb Levels

$E(\text{level})^{\ddagger}$	$J^{\pi\dagger}$	$T_{1/2}$	Comments
0.0	$7/2^+$		
1089.4 3	$11/2^+$		
1993.2 4	$(15/2)^+$		Configuration= $\pi g_{7/2} \otimes 4^+$.
2192.7 4	$15/2^+$		
2324.2 5	$(19/2)^+$		
2470.1 5	$(23/2)^+$	155 ns 20	$T_{1/2}$: from $331\gamma(t)$ (2005Po03).
2483.4 5			
2487.8 6			
2636.1 6			
2815.0 7			
2916.4 6			
3398.3 7			
3940.8 7			
4479.0 7			
4932.1 8			
5364.1 9			

[†] From Adopted Levels. Based on systematics, the authors propose a different J^{π} sequence for the 2470, 2324, and 2192 levels, beginning with $J^{\pi}(2470)$ assigned as $(19/2)^-$.

[‡] From least-squares fit to $E\gamma$'s (by compilers).

 $\gamma(^{125}\text{Sb})$

E_{γ}	I_{γ}	$E_i(\text{level})$	J^{π}_i	E_f	J^{π}_f
131.5 2	32 6	2324.2	$(19/2)^+$	2192.7	$15/2^+$
145.9 2	65 10	2470.1	$(23/2)^+$	2324.2	$(19/2)^+$
152.7 3	9 3	2636.1		2483.4	
295.1 4	5 1	2487.8		2192.7	$15/2^+$
331.1 4	32 7	2324.2	$(19/2)^+$	1993.2	$(15/2)^+$
331.6 4	4 2	2815.0		2483.4	
432.0 5	2.6 8	5364.1		4932.1	
446.3 3	20 4	2916.4		2470.1	$(23/2)^+$
452.9 5	4 1	4932.1		4479.0	
481.8 3	12 2	3398.3		2916.4	
490.2 3	16 3	2483.4		1993.2	$(15/2)^+$
538.1 4	5.0 15	4479.0		3940.8	
542.5 3	9 3	3940.8		3398.3	
903.8 3	100 10	1993.2	$(15/2)^+$	1089.4	$11/2^+$
991.5 5	1.5 6	4932.1		3940.8	

Continued on next page (footnotes at end of table)

 $^{238}\text{U}(^{12}\text{C},\text{x}\gamma)$ **2005Po03 (continued)**

 $\gamma(^{125}\text{Sb})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
1024.7 5	2.0 7	3940.8		2916.4	
1080.5 5	3 1	4479.0		3398.3	
1089.4 3		1089.4	11/2 ⁺	0.0	7/2 ⁺
1103.2 3	70 8	2192.7	15/2 ⁺	1089.4	11/2 ⁺

