

$^{238}\text{U}(^{12}\text{C},\text{F}\gamma)$ **2012As05**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	H. Iimura, J. Katakura, S. Ohya		NDS 180, 1 (2022)	1-Oct-2021

Includes $^{208}\text{Pb}(^{18}\text{O},\text{F}\gamma)$ at 85 MeV.

Reaction 1: $^{238}\text{U}(^{12}\text{C},\text{F}\gamma)$ at E=90 MeV, target=47 mg/cm² at Legnaro XTU tandem accelerator.

Reaction 2: $^{208}\text{Pb}(^{18}\text{O},\text{F}\gamma)$ at E=85 MeV, target=100 mg/cm² ^{208}Pb at Vivitron accelerator of IReS.

Gamma rays detected by the Euroball array consisting of 71 Compton-suppressed Ge detectors (15 clusters, 26 clovers, 30 tapered single-crystal Ge detectors). Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ -coin for γ rays in ^{126}Sn and complementary fragments. Deduced levels, J, π , high-spin states, configurations. Isomeric state and half-life measured from delayed coincidences between the fission fragment detector SAPHIR and the Euroball array.

 ^{126}Sn Levels

E(level) [†]	J ^π [‡]	T _{1/2} [#]	Comments
0.0@	0 ⁺		
1141.12@ 5	2 ⁺		
2049.70@ 7	4 ⁺		
2161.49 9	5 ⁻	10.8 ns 7	
2218.96 10	7 ⁻	6.1 μs 7	
2373.2 4			
2488.22 12	(8 ⁺)		
2564.5& 6	(10 ⁺)	7.6 μs 2	
3594.7& 6	(12 ⁺)		
4165.2 ^a 7	(13 ⁻)		
4345.7 ^a 8	(15 ⁻)	160 ns 20	T _{1/2} : from $\gamma(t)$ (2012As05); time distribution of 570 or 1030 transition. ;See 126 ns [0 in Adopted Levels.
4581.2& 7	(14 ⁺)		
5057.9& 8	(16 ⁺)	<30 ns	T _{1/2} : estimated in 2012As05 from non-observation of any delayed component below the 16 ⁺ state.
5495.2 ^a 9	(17 ⁻)		
5835.0& 9	(18 ⁺)		
6256.9 ^a 10	(19 ⁻)		

[†] From $E\gamma$ data.

[‡] From Adopted Levels.

[#] From Adopted Levels, unless otherwise noted.

@ Band(A): Ground-state band.

& Band(B): Band based on (10⁺).

^a Band(C): Band based on (13⁻).

 $\gamma(^{126}\text{Sn})$

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	$\alpha^\#$	Comments
57.47 [†] 5		2218.96	7 ⁻	2161.49	5 ⁻			
76.3 [†] 5		2564.5	(10 ⁺)	2488.22	(8 ⁺)			
111.79 [‡] 5		2161.49	5 ⁻	2049.70	4 ⁺			
180.5 3	36 7	4345.7	(15 ⁻)	4165.2	(13 ⁻)	E2	0.199 3	Mult.: from $\alpha=0.25$) by γ intensity imbalances.
211.7 4	12 4	2373.2		2161.49	5 ⁻			
269.26 [†] 5		2488.22	(8 ⁺)	2218.96	7 ⁻			

Continued on next page (footnotes at end of table)

$^{238}\text{U}(^{12}\text{C},\text{F}\gamma)$ **2012As05** (continued) $\gamma(^{126}\text{Sn})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
476.7 3	28 7	5057.9	(16 ⁺)	4581.2	(14 ⁺)	986.5 3	44 9	4581.2	(14 ⁺)	3594.7	(12 ⁺)
570.5 3	56 11	4165.2	(13 ⁻)	3594.7	(12 ⁺)	1030.2 3	100	3594.7	(12 ⁺)	2564.5	(10 ⁺)
761.7 4	8 3	6256.9	(19 ⁻)	5495.2	(17 ⁻)	1141.11 [‡] 5		1141.12	2 ⁺	0.0	0 ⁺
777.1 4	9 3	5835.0	(18 ⁺)	5057.9	(16 ⁺)	1149.5 5	13 4	5495.2	(17 ⁻)	4345.7	(15 ⁻)
908.58 [‡] 5		2049.70	4 ⁺	1141.12	2 ⁺						

[†] The γ could not be observed in **2012As05**. E_γ is taken from Adopted Gammas.

[‡] E_γ is taken from Adopted Gammas.

[#] Total theoretical internal conversion coefficients, calculated using the BrIcc code (**2008Ki07**) with Frozen orbital approximation based on γ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

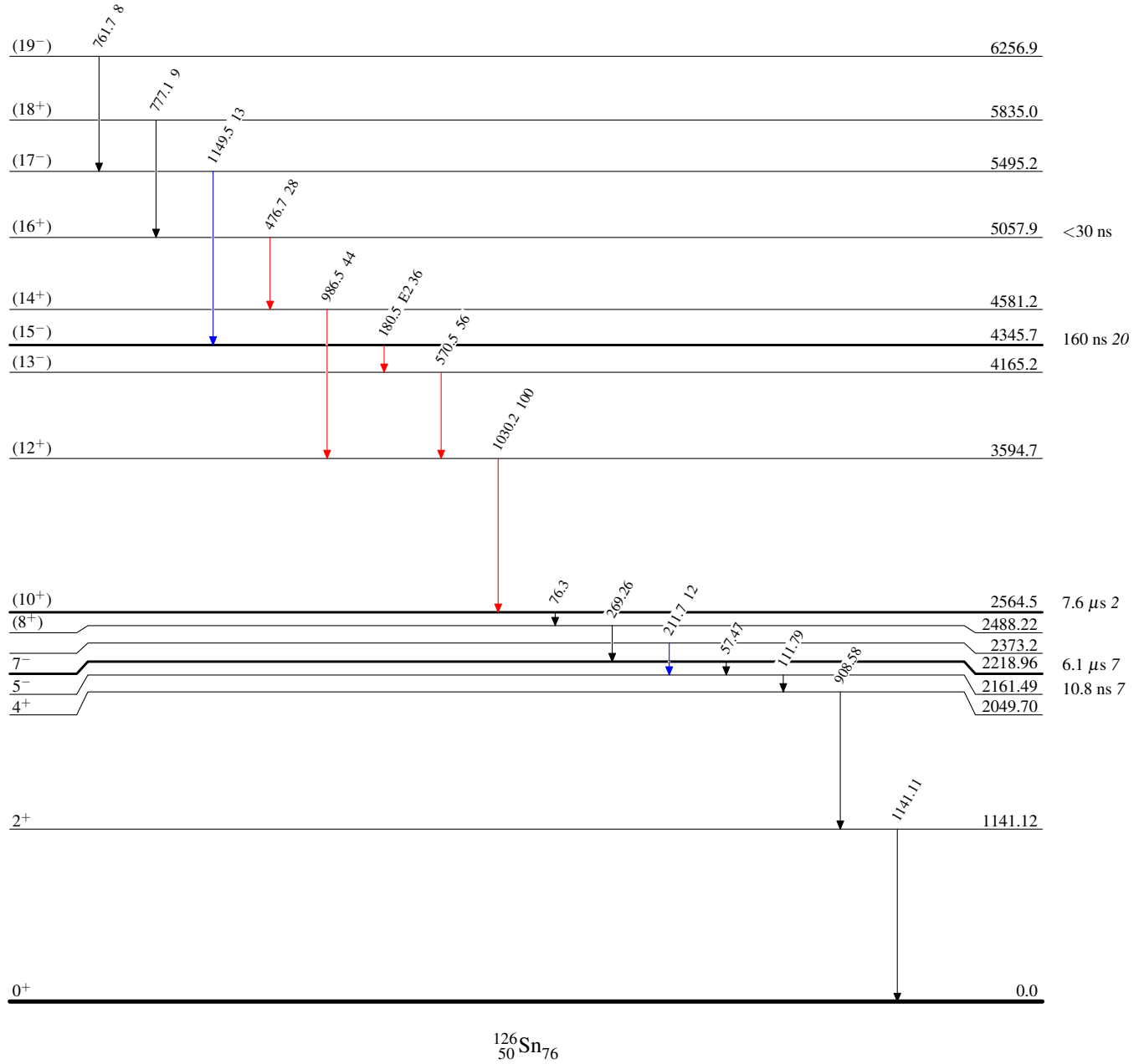
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Level Scheme

Intensities: Relative I_γ

Legend

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



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