^{238}U(^{12}C,Fγ),^{208}Pb(^{18}O,Fγ) 2012As05

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 174, 1 (2021)	15-Apr-2021

2012As05: two experiments: in the first, E=90 MeV ^{12}C beam was produced from the Legnaro XTU tandem and target was 47 mg/cm^2 ^{238}U. In the second, E=85 MeV beam was produced from the Vivitron accelerator of IReS (Strasbourg) and target was 100 mg/cm^2 ^{208}Pb. In both experiments, γ rays were detected with the Euroball array consisting of 71 Compton-suppressed Ge detectors (15 clusters, 26 clovers, 30 tapered single-crystal Ge detectors). Measured Eγ, Iγ, γγ-coin. Deduced levels, J, π, band structures, configurations. Comparisons with shell-model calculations.

^{123}Sn Levels

E(level)[†]	Jπ[‡]	$T_{1/2}$	Comments
0.0[#]	11/2$^-$		
1106.81[#] *20*	15/2$^-$		
1944.8[@] *11*	19/2$^+$		
2152.8[@] *15*	23/2$^+$		
2262.4[#] *3*	19/2$^-$		
2541.5[#] *4*	23/2$^-$		
2711.3[#] *4*	27/2$^-$		
3292.8[@] *15*	(27/2$^+$)		
3754.8? *5*	(31/2$^-$)		
3818.3? *5*	(31/2$^-$)		
4116.4[@] *15*	(31/2$^+$)		
4377.8[@] *16*	(35/2$^+$)	<30 ns	$T_{1/2}$: estimated by 2012As05.
4742.6? *6*	(35/2$^-$)		
4809.9? *6*	(35/2$^-$)		
5477.6? *7*			
5520.4? *7*			
5643.7 *16*			
6230.8 *16*	(39/2$^+$)		
7159.0 *16*			

[†] From a least-squares fit to γ-ray energies.
[‡] Proposed by 2012As05, based on band assignments, known assignments of low-lying states and analogy with neighboring isotopes.
[#] Band(A): Band based on 11/2$^-$.
[@] Band(B): Band based on 19/2$^+$.

γ(^{123}Sn)

Eγ	Iγ	E_i(level)	J_i^π	E_f	J_f^π	Eγ	Iγ	E_i(level)	J_i^π	E_f	J_f^π
169.8 *2*	[‡]	2711.3	27/2$^-$	2541.5	23/2$^-$	987.8[#] *3*		4742.6?	(35/2$^-$)	3754.8?	(31/2$^-$)
208[†]		2152.8	23/2$^+$	1944.8	19/2$^+$	991.6[#] *3*		4809.9?	(35/2$^-$)	3818.3?	(31/2$^-$)
261.4 *3*	43 *9*	4377.8	(35/2$^+$)	4116.4	(31/2$^+$)	1043.5[#] *3*		3754.8?	(31/2$^-$)	2711.3	27/2$^-$
279.1 *2*	[‡]	2541.5	23/2$^-$	2262.4	19/2$^-$	1106.8 *2*	[‡]	1106.81	15/2$^-$	0.0	11/2$^-$
710.5[#] *3*		5520.4?		4809.9?	(35/2$^-$)	1107.0[#] *3*		3818.3?	(31/2$^-$)	2711.3	27/2$^-$
735.0[#] *3*		5477.6?		4742.6?	(35/2$^-$)	1140.0 *3*	100	3292.8	(27/2$^+$)	2152.8	23/2$^+$
823.6 *3*	100	4116.4	(31/2$^+$)	3292.8	(27/2$^+$)	1155.6 *2*	[‡]	2262.4	19/2$^-$	1106.81	15/2$^-$
838[†]		1944.8	19/2$^+$	1106.81	15/2$^-$	1265.8 *4*	12 *4*	5643.7		4377.8	(35/2$^+$)
928.3 *4*	3 *1*	7159.0		6230.8	(39/2$^+$)	1515.3 *5*	6 *2*	7159.0		5643.7	
						1853.0 *5*	5 *2*	6230.8	(39/2$^+$)	4377.8	(35/2$^+$)

Continued on next page (footnotes at end of table)

^{238}U(^{12}C,Fγ),^{208}Pb(^{18}O,Fγ) 2012As05 (continued)

$\gamma(^{123}Sn)$ (continued)

† γ not seen in 2012As05 and Eγ taken from Adopted Gammas.
‡ Intensity could not be determined in the present experiment due to decay from a 34−μs isomer at 2711.
# Placement of transition in the level scheme is uncertain.

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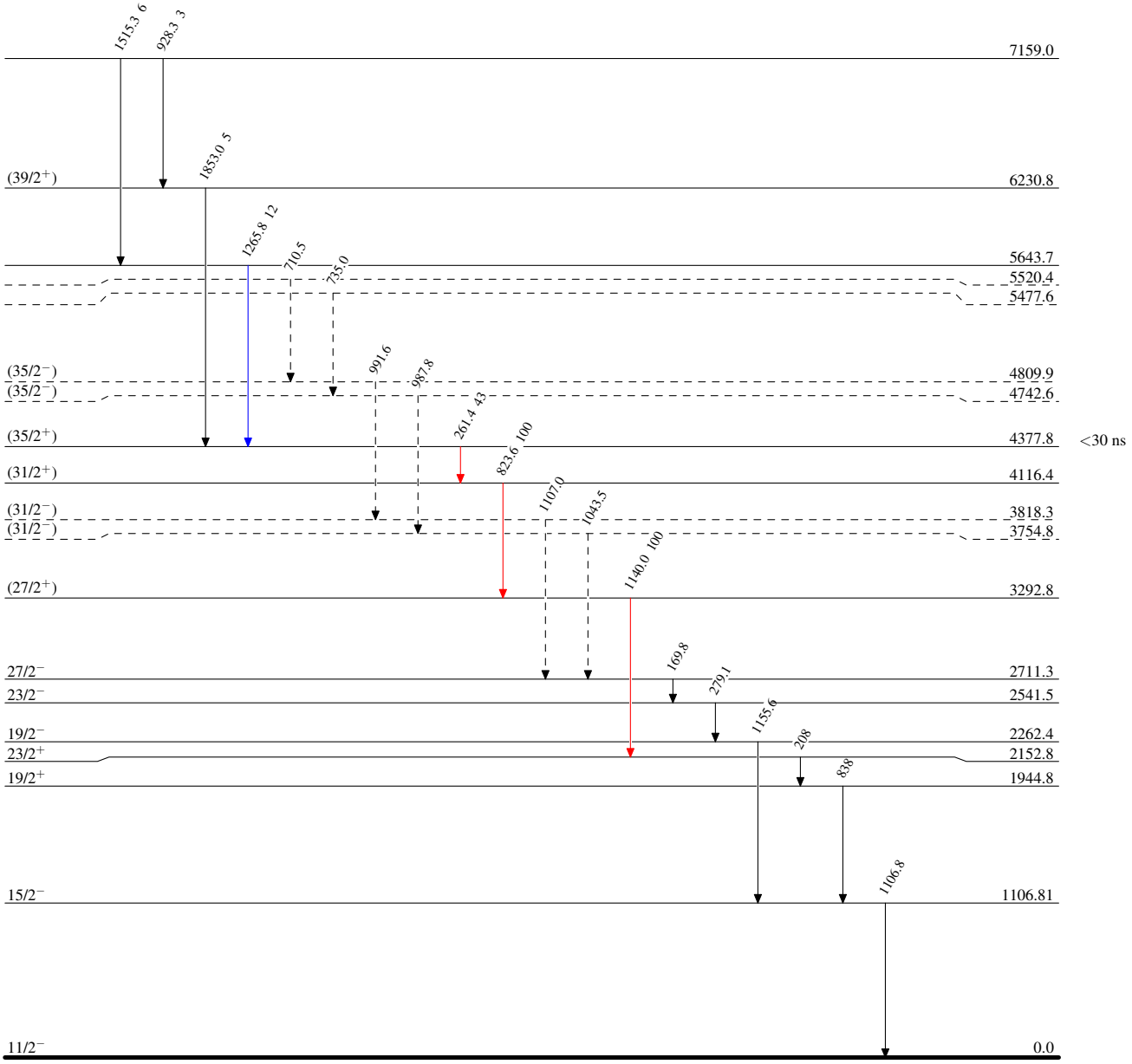
Level Scheme

Intensities: Relative I_γ

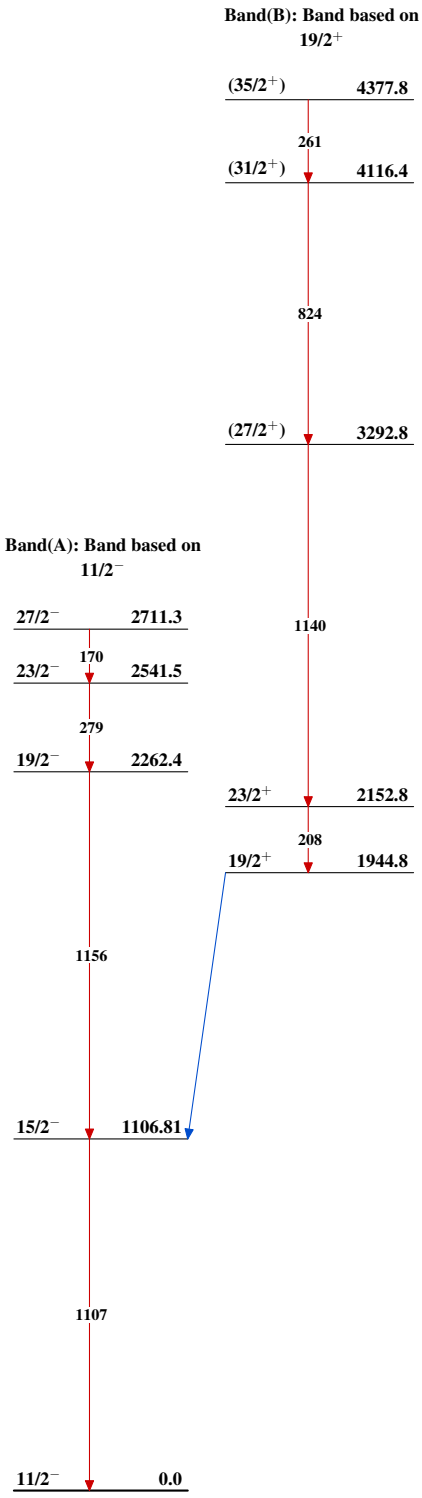
Legend

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



$^{123}_{50}Sn_{73}$

^{238}U(^{12}C,Fγ),^{208}Pb(^{18}O,Fγ) **2012As05**



$^{123}_{50}Sn_{73}$