^{235}U(n,Fγ):delayed γ **2017Ur03**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, Balraj Singh	NDS 164, 1 (2020)	15-Feb-2020

2017Ur03 : E=thermal neutron beam was produced from PF1B facility at Institut Laue-Langevin (ILL) in Grenoble. Measured Eγ, Iγ, and half-lives of isomers by γ(t) method in beam-ON and beam-OFF modes. For γ detection, EXILL array (eight EXOGAM clovers, six large volume GASP detectors and two ILL Clovers) of HPGe detectors was used.

^{98}Y Levels

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$	Comments
0.0	0$^-$		
119.3 *1*	1$^-$		
170.8 *1*	2$^-$	0.64 μs *2*	T$_{1/2}$: from (170.8γ)(t) (2017Ur03).
375.1 *1*	4$^-$		%IT=100
446.2 *1*	3$^+$		
496.1 *1*	4$^-$	6.95 μs *6*	%IT=100
			T$_{1/2}$: 6.87 μs *2* from (204.3γ)(t) and 6.80 μs *5* from (170.8γ)(t) (2017Ur03); value was increased by 0.10 μs *5* (by 2017Ur03) to correct for beam rate of $\approx$500 ions/s.
596.7 *2*	5$^-$		
603.7 *2*			
658.4 *3*			
726.4 *2*	6$^-$		
884.4 *2*	7$^-$		
972.3 *3*	(8$^+$)	0.45 μs *15*	E(level): 971.3 in Table IV and Fig. 2 of 2017Ur03 seems a misprint.
			T$_{1/2}$: from decay curve for summed gates on 228.6-54.7-313.9 cascade (2017Ur03). Authors note that only the isomers with T$_{1/2}$>0.3 μs can be observed with the experimental arrangement at Lohengrin facility in Grenoble.
			Interpreted by 2017Ur03 as a spherical state with configuration=νg$_{7/2}\otimes\pi$g$_{9/2}$.
1070.6 *2*	8$^-$		
1181.4 *2*	10$^-$	0.72 μs *2*	%IT=100
			T$_{1/2}$: from decay curve for summed intensities of 100.6-, 129.7-, 158.0-, 186.2-, and 110.8-keV γ rays, with fit to an exponent plus background (2017Ur03).

[†] From a least-squares fit to Eγ data.
[‡] From level-scheme Fig. 2 in 2017Ur03.

γ(^{98}Y)

Total conversion coefficients deduced by 2017Ur03 from γ-intensity balance considerations in the present level scheme.

E$_\gamma$[†]	I$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[‡]	δ	α[#]	Comments
49.9 *2*	210 *30*	496.1	4$^-$	446.2	3$^+$	E1		0.811	α(exp)=0.73 *25* (2017Ur03)
									α(exp): from intensity balance at 446-keV level.
									δ(M2/E1)<0.08 from α(total)exp, deduced by evaluators.
51.5 *1*	580 *30*	170.8	2$^-$	119.3	1$^-$	M1+E2	0.20 +9−17	1.6 *4*	α(exp)=1.6 *4* (2017Ur03)
									α(exp): from intensity balance at 171-keV level.
									δ: deduced by evaluators from α(total)exp using the BrIccMixing code.
54.7 *2*	4 *2*	658.4		603.7					
71.3 *2*	10 *4*	446.2	3$^+$	375.1	4$^-$				
100.6 *1*	100 *6*	596.7	5$^-$	496.1	4$^-$				
110.8 *1*	79 *6*	1181.4	10$^-$	1070.6	8$^-$	E2		0.732	α(exp)=0.9 *2* (2017Ur03)

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^{235}U(n,Fγ):delayed γ 2017Ur03 (continued)

γ(^{98}Y) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[#]	Comments
119.3 *1*	1450 *50*	119.3	1$^-$	0.0	0$^-$	M1	0.1115	α(exp): from γ-intensity balance at 1071-keV level. α(exp)=0.06 *4* (2017Ur03) α(exp): average of 0.03 *5* and 0.06 *3* from γ-intensity balance.
121.1 *1*	425×10^1 *14*	496.1	4$^-$	375.1	4$^-$			α(exp)=0.13 *5* (2017Ur03) α(exp): from γ-intensity balance at 375-keV level.
129.7 *1*	95 *8*	726.4	6$^-$	596.7	5$^-$			
158.0 *1*	98 *7*	884.4	7$^-$	726.4	6$^-$			
170.8 *1*	340×10^1 *10*	170.8	2$^-$	0.0	0$^-$	[E2]	0.1507	
186.2 *1*	113 *8*	1070.6	8$^-$	884.4	7$^-$	[M1]		From RUL, δ(E2/M1)<0.23.
204.3 *1*	444×10^1 *14*	375.1	4$^-$	170.8	2$^-$	[E2]	0.0791	
228.6 *1*	8 *3*	603.7		375.1	4$^-$			
230.4 *1*	12 *4*	726.4	6$^-$	496.1	4$^-$			
275.2 *1*	350 *20*	446.2	3$^+$	170.8	2$^-$	[E1]	0.00577	
287.8 *1*	18 *3*	884.4	7$^-$	596.7	5$^-$			
313.9 *1*	7 *3*	972.3	(8$^+$)	658.4				
325.2 *2*	120 *40*	496.1	4$^-$	170.8	2$^-$	[E2]	0.0155	I_γ: corrected for summation effect (2017Ur03).
344.2 *1*	30 *5*	1070.6	8$^-$	726.4	6$^-$			

[†] From Table IV in 2017Ur03. Intensities are from the decays of 496-, 971-, and 1181-keV isomers, and are in arbitrary relative units.

[‡] Assignments are from total conversion coefficients deduced by 2017Ur03 from γ-intensity balances, by assuming multipolarities of some of the higher-energy transitions given under square brackets.

[#] 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.
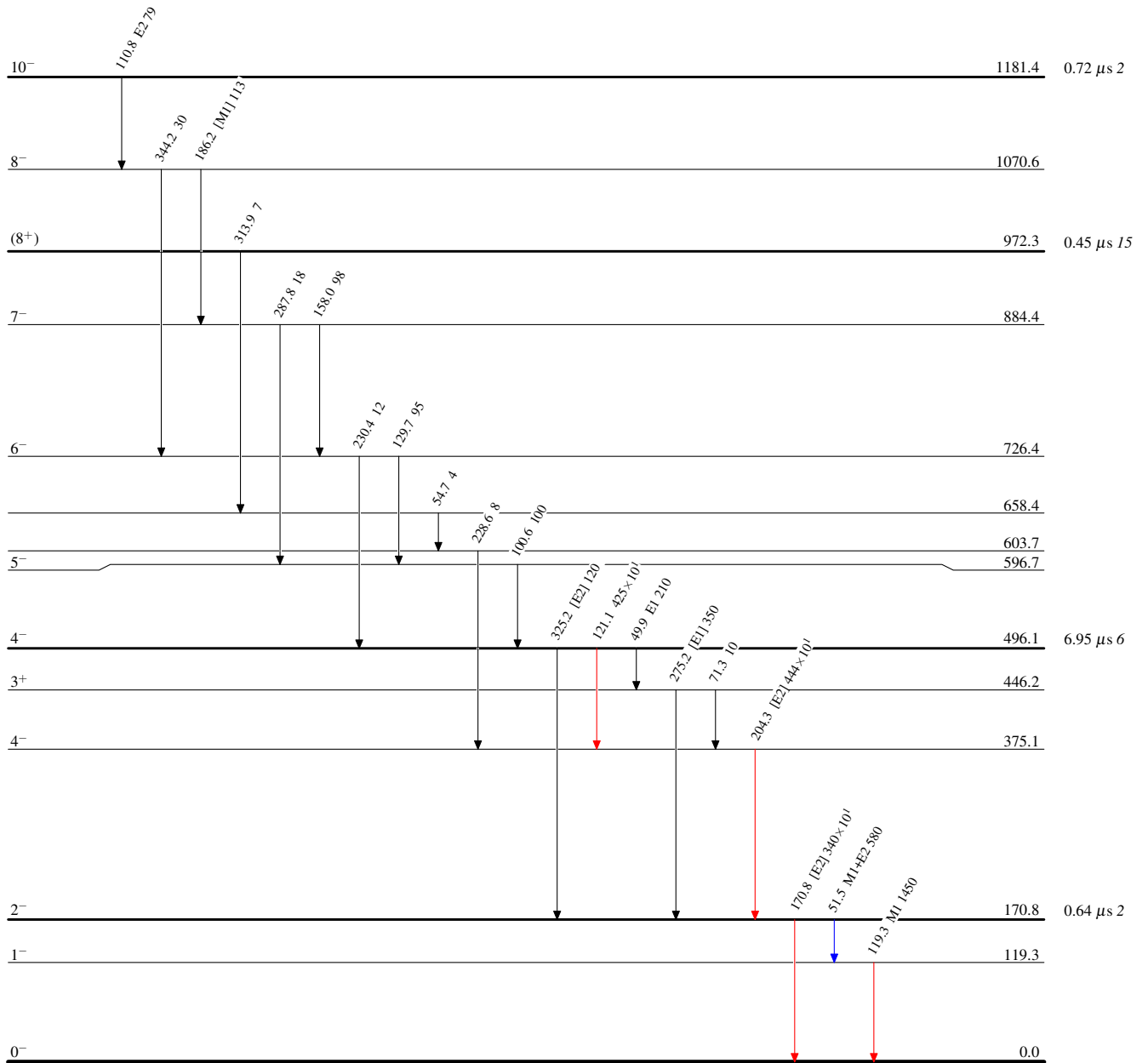
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<u>Level Scheme</u>

Intensities: Relative I$_\gamma$

Legend

I$_\gamma$ <   2%×I$_\gamma^{max}$
I$_\gamma$ < 10%×I$_\gamma^{max}$
I$_\gamma$ > 10%×I$_\gamma^{max}$

$^{98}_{39}$Y$_{59}$