^{252}Cf SF decay 2009Ur02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, G. Mukherjee, A. A. Sonzogni	NDS 111, 2555 (2010)	30-Jun-2009

Parent: ^{252}Cf: E=0.0; $J^{\pi}=0^{+}$; $T_{1/2}$=2.645 y *8*; %SF decay=?

2009Ur02: ^{252}Cf SF decay; measured prompt and delayed γ rays, Eγ, Iγ, $\gamma\gamma$, $T_{1/2}$; EUROGAM 2 array; GAMMASPHERE array at ANL.

^{95}Y Levels

E(level)[†]	J^{π}	$T_{1/2}$	Comments
0.0	$1/2^{-}$		
826.8 *2*	$5/2^{-}$		
1087.5 *3*	$9/2^{+}$	51.2 μs *9*	$T_{1/2}$: from γ(t) in ^{235}U(n,Fγ) study.
1827.7 *4*	$(11/2^{+})$		
2173.3 *4*	$13/2^{+}$		
3142.4 *5*	$17/2^{-}$	14.7 ns *5*	$T_{1/2}$: 969γ(t) (2009Ur02); the authors also quote 14.9 ns *5* in "summary" section as half-life determined in ^{248}Cm SF decay, but in the text half-life from this SF decay is listed as 16 ns *3*.
3314.2 *6*	$(19/2^{+})$		
3775.7 *7*	$(21/2^{+})$		
4075.9 *7*	$(21/2^{-})$		
4272.7 *7*	$(23/2^{-})$		
4339.8 *7*	$(23/2^{+})$		
4901.6 *7*	$(25/2^{+})$		
4921.0 *7*	$(23/2^{-})$		
5022.1 *7*	$(27/2^{-})$	65 ns *4*	$T_{1/2}$: from γ(t) for 1145.3-461.5-171.8 γ cascade and 682.3+1246.3 summed γ; weighted average of 71 ns *6* and 62 ns *4*, respectively (2009Ur02).
5810.1 *8*	$(29/2,31/2^{-})$		

[†] From least-squares fit to Eγ's, assuming 0.3 keV uncertainty for each γ.

$\gamma(^{95}Y)$

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}
101.2	1.3 *2*	5022.1	$(27/2^{-})$	4921.0	$(23/2^{-})$	682.3	2.3 *3*	5022.1	$(27/2^{-})$	4339.8	$(23/2^{+})$
120.6	0.6 *1*	5022.1	$(27/2^{-})$	4901.6	$(25/2^{+})$	740.2		1827.7	$(11/2^{+})$	1087.5	$9/2^{+}$
171.8	25 *2*	3314.2	$(19/2^{+})$	3142.4	$17/2^{-}$	761.7	2.3 *3*	4075.9	$(21/2^{-})$	3314.2	$(19/2^{+})$
196.8	2.9 *4*	4272.7	$(23/2^{-})$	4075.9	$(21/2^{-})$	788.0	2.6 *4*	5810.1	$(29/2,31/2^{-})$	5022.1	$(27/2^{-})$
260.7		1087.5	$9/2^{+}$	826.8	$5/2^{-}$	826.8		826.8	$5/2^{-}$	0.0	$1/2^{-}$
345.6		2173.3	$13/2^{+}$	1827.7	$(11/2^{+})$	969.1	50 *3*	3142.4	$17/2^{-}$	2173.3	$13/2^{+}$
461.5	13 *1*	3775.7	$(21/2^{+})$	3314.2	$(19/2^{+})$	1085.8		2173.3	$13/2^{+}$	1087.5	$9/2^{+}$
497.0	2.3 *3*	4272.7	$(23/2^{-})$	3775.7	$(21/2^{+})$	1145.3	3.1 *3*	4921.0	$(23/2^{-})$	3775.7	$(21/2^{+})$
561.8	2 *1*	4901.6	$(25/2^{+})$	4339.8	$(23/2^{+})$	1246.3	1.3 *2*	5022.1	$(27/2^{-})$	3775.7	$(21/2^{+})$
564.1	5 *1*	4339.8	$(23/2^{+})$	3775.7	$(21/2^{+})$						

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Level Scheme

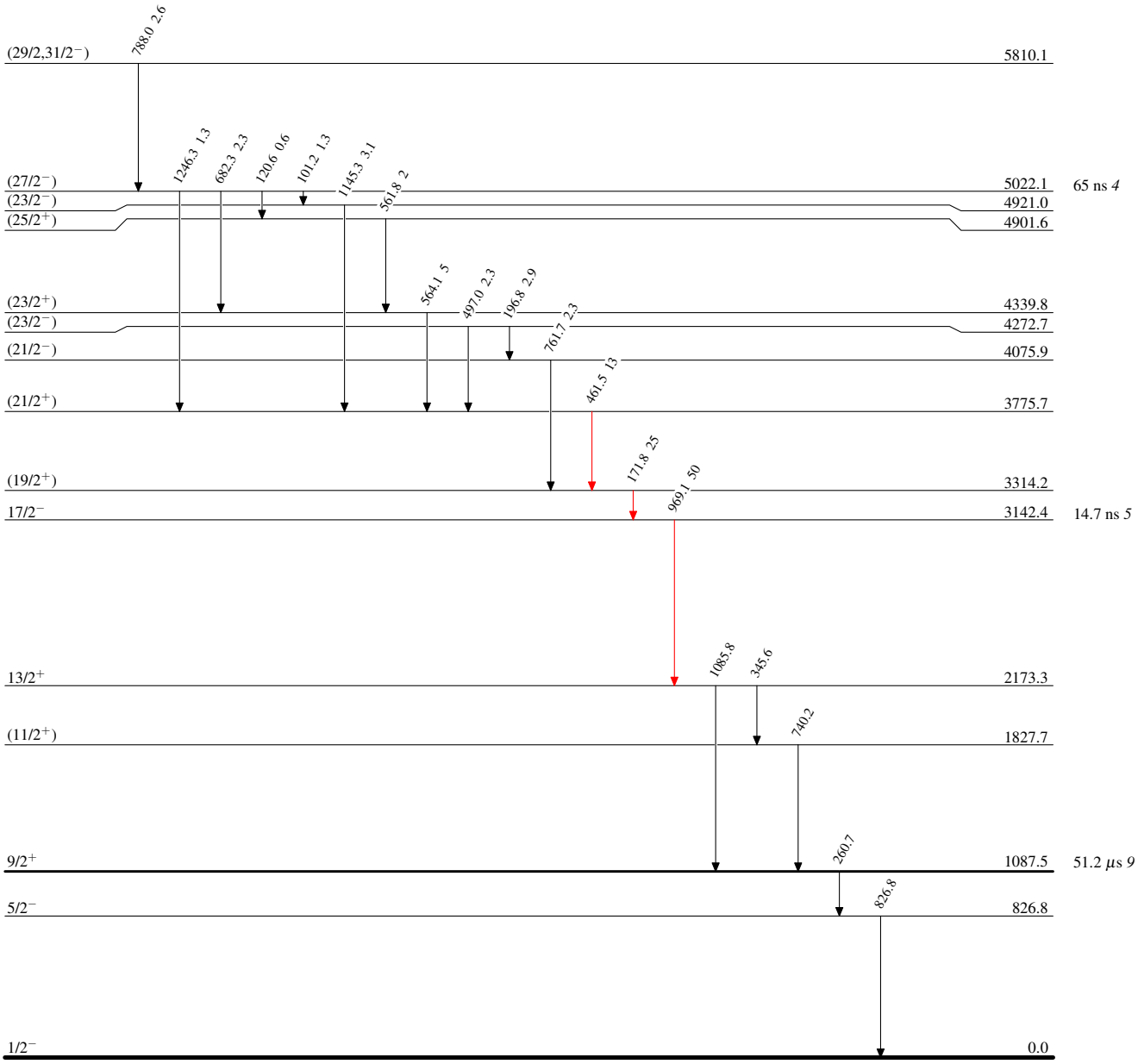
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{95}_{39}Y_{56}$