^{235}U(n,Fγ) 2008Ts03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	A. Negret, A. A. Sonzogni	ENSDF	31-Mar-2011

^{94}Rb produced in the thermal neuron fission of ^{235}U. The levels in ^{94}Rb were also studied from prompt γ-ray spectra in the spontaneous fission (SF) decay of ^{248},^{252}Cf. In the ^{235}U experiment, the thermal neutrons were provided by the high-flux reactor at the Institute Laue-Langevin (ILL), Grenoble. Fission products were implanted in a stopper foil. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma$(t) using 16 HPGe detectors. Fission fragments were identified using the Manchester Fission Fragment Identifier consisting of two time-of-flight detectors and an ionization chamber. It includes SF decay of ^{248}Cm and ^{252}Cf.

^{94}Rb Levels

E(level)[†]	J$^\pi$[#]	T$_{1/2}$[‡]	Comments
0.0	3$^-$		
217.3 *2*	(4$^-$)		
328.3 *2*	(5$^-$)		
528.1 *4*	(5)		
667.6 *3*	(6$^-$)		
696.5 *3*	(6$^-$)		
1288.5 *4*	(7)		
1315.5 *3*	(7$^-$)		
1316.5 *3*	(7$^-$)		
1485.2 *4*	(8$^+$)	18 ns *1*	Configuration=$\pi g_{9/2}\otimes\nu g_{7/2}$.
1660.5 *4*	(8)		E(level): 1750 given in figure 4 of 2008Ts03 seems a misprint. The Eγ=345 seems correct in view of a 345.0 gamma ray shown in figure 3 of 2008Ts03.
2074.9 *5*	(10$^-$)	107 ns *16*	Configuration=$\pi g_{9/2}\otimes\nu h_{11/2}$.
2192.2 *5*	(9)		
2566.9 *5*	(10$^-$)		
2634.0 *5*	(10$^-$)		
2785.8 *6*	(12$^-$)		
2909.2 *10*	(12)		
3335.0 *11*	(12)		
3679.5 *10*	(14)		
3711.7 *6*	(14$^-$)		
3944.4 *7*	(15)		

[†] From least-squares fit to Eγ's assuming ΔEγ=0.3 keV when Eγ stated to nearest tenth of a keV, 1 keV otherwise.
[‡] From $\gamma\gamma$(t) (2008Ts03).
[#] From gamma decay pattern and assuming spin increases with excitation energy.

γ(^{94}Rb)

E$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
(27)	1315.5	(7$^-$)	1288.5	(7)	
111.1	328.3	(5$^-$)	217.3	(4$^-$)	
168.4	696.5	(6$^-$)	528.1	(5)	
168.7	1485.2	(8$^+$)	1316.5	(7$^-$)	
169.8	1485.2	(8$^+$)	1315.5	(7$^-$)	
217.2	217.3	(4$^-$)	0.0	3$^-$	E$_\gamma$: 217.4 with T$_{1/2}$=94 ns *10* in ^{235}U(n,F) and 128 ns *25* (1974Su04).
232.7	3944.4	(15)	3711.7	(14$^-$)	
264.7[†]	3944.4	(15)	3679.5	(14)	
310.8	528.1	(5)	217.3	(4$^-$)	
328.4	328.3	(5$^-$)	0.0	3$^-$	
339.2	667.6	(6$^-$)	328.3	(5$^-$)	

Continued on next page (footnotes at end of table)

^{235}U(n,Fγ) 2008Ts03 (continued)

$\gamma(^{94}$Rb) (continued)

E_γ	E_i(level)	J_i^π	E_f	J_f^π	E_γ	E_i(level)	J_i^π	E_f	J_f^π
345.0	1660.5	(8)	1315.5	(7^-)	770	3679.5	(14)	2909.2	(12)
368.3	696.5	(6^-)	328.3	(5^-)	817.7	1485.2	(8^+)	667.6	(6^-)
450.2	667.6	(6^-)	217.3	(4^-)	834	2909.2	(12)	2074.9	(10^-)
479.3	696.5	(6^-)	217.3	(4^-)	894	3679.5	(14)	2785.8	(12^-)
589.7	2074.9	(10^-)	1485.2	(8^+)	925.9	3711.7	(14^-)	2785.8	(12^-)
619.0	1315.5	(7^-)	696.5	(6^-)	960.2	1288.5	(7)	328.3	(5^-)
647.8	1315.5	(7^-)	667.6	(6^-)	988.2	1316.5	(7^-)	328.3	(5^-)
648.8	1316.5	(7^-)	667.6	(6^-)	1081.7	2566.9	(10^-)	1485.2	(8^+)
707.0	2192.2	(9)	1485.2	(8^+)	1148.8	2634.0	(10^-)	1485.2	(8^+)
710.9	2785.8	(12^-)	2074.9	(10^-)	1260	3335.0	(12)	2074.9	(10^-)

† Placement of transition in the level scheme is uncertain.

Legend

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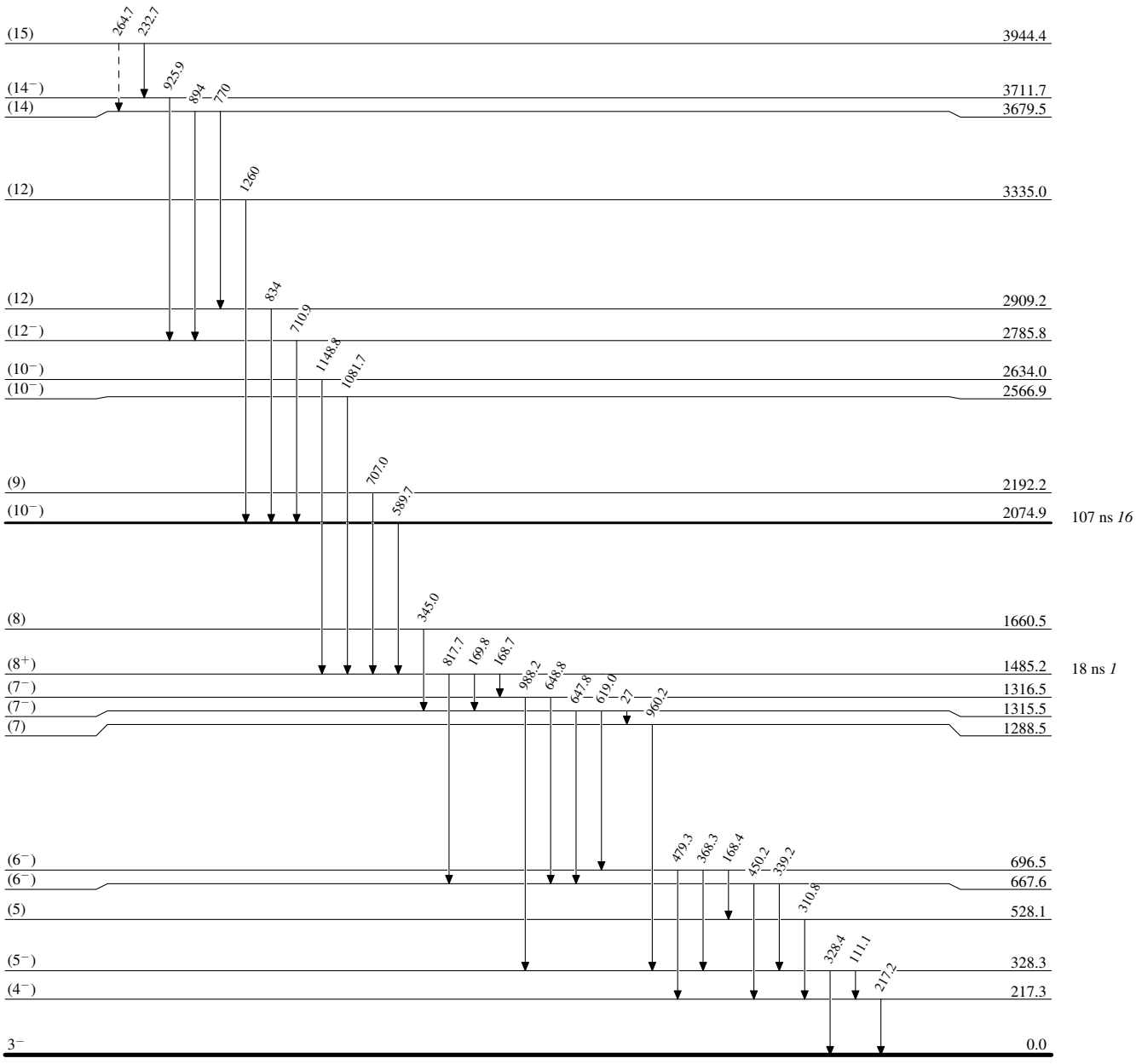
Level Scheme

γ Decay (Uncertain)



$^{94}_{37}Rb_{57}$