^{252}Cf SF decay 2004Hw04

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=?

Measured Eγ, Iγ, γγ with the GAMMASPHERE array of 102 Compton- suppressed Ge detectors. The ^{252}Cf source was placed in a plastic ball to absorb β rays and conversion electrons.

Others works reporting gamma rays from fission: 1974Su04,1974ClZX,1981SeZW.

^{95}Sr Levels

E(level)‡	Jπ†	$T_{1/2}$#	E(level)‡	Jπ†
0.0	$1/2^+$	23.90 s *14*	3050.6 *6*	
352.0 *3*	$(3/2^+)$		3420.7& *5*	$(17/2^+)$
556.0@ *4*	$(7/2^+)$	21.9 ns *5*	3695.5@ *6*	$(19/2^+)$
1238.4& *5*	$(9/2^+)$		4094.9& *6*	$(21/2^+)$
1665.5@ *5*	$(11/2^+)$		4525.0@ *7*	$(23/2^+)$
1680.0 *5*	$(9/2^+,11/2^+)$		4879.5& *7*	$(25/2^+)$
2344.1& *5*	$(13/2^+)$		5421.3@ *7*	$(27/2^+)$
2424.2 *5*	$(13/2^+,15/2^+)$		6175.7@ *8*	$(31/2^+)$
2868.9@ *5*	$(15/2^+)$			

† Tentative for states with $J^\pi i\geq 7/2^+$;
‡ From least-squares fit to Eγ′s; Δ(Eγ)=0.3 keV assumed for each γ transition.
# From Adopted Levels.
@ Band(A): $(7/2^+)$ band.
& Band(B): $(9/2^+)$ band.

γ(^{95}Sr)

Eγ	Iγ†	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡
x129.2 *2*	30 *4*					
x191.4 *2*	29 *3*					
204.0 *3*	67 *3*	556.0	$(7/2^+)$	352.0	$(3/2^+)$	E2
352.0 *3*	100 *5*	352.0	$(3/2^+)$	0.0	$1/2^+$	M1
427.1 *3*	30.4 *15*	1665.5	$(11/2^+)$	1238.4	$(9/2^+)$	
441.6 *3*	0.50 *15*	1680.0	$(9/2^+,11/2^+)$	1238.4	$(9/2^+)$	
524.8 *3*	1.20 *18*	2868.9	$(15/2^+)$	2344.1	$(13/2^+)$	
551.8 *3*	0.20 *6*	3420.7	$(17/2^+)$	2868.9	$(15/2^+)$	
664.1 *3*	2.3 *3*	2344.1	$(13/2^+)$	1680.0	$(9/2^+,11/2^+)$	
674.2 *3*	3.2 *5*	4094.9	$(21/2^+)$	3420.7	$(17/2^+)$	
678.6 *3*	7.3 *11*	2344.1	$(13/2^+)$	1665.5	$(11/2^+)$	
682.4 *3*	39.7 *20*	1238.4	$(9/2^+)$	556.0	$(7/2^+)$	(M1+E2)
706.5 *3*	3.4 *5*	3050.6		2344.1	$(13/2^+)$	
744.2 *3*	3.4 *5*	2424.2	$(13/2^+,15/2^+)$	1680.0	$(9/2^+,11/2^+)$	
754.4 *3*	0.30 *9*	6175.7	$(31/2^+)$	5421.3	$(27/2^+)$	
758.7 *3*	5.8 *9*	2424.2	$(13/2^+,15/2^+)$	1665.5	$(11/2^+)$	
784.6 *3*	0.6 *2*	4879.5	$(25/2^+)$	4094.9	$(21/2^+)$	
826.6 *3*	2.9 *4*	3695.5	$(19/2^+)$	2868.9	$(15/2^+)$	
829.5 *3*	1.2 *2*	4525.0	$(23/2^+)$	3695.5	$(19/2^+)$	
896.3 *3*	0.7 *2*	5421.3	$(27/2^+)$	4525.0	$(23/2^+)$	
996.5 *3*	3.6 *5*	3420.7	$(17/2^+)$	2424.2	$(13/2^+,15/2^+)$	

Continued on next page (footnotes at end of table)

^{252}Cf SF decay 2004Hw04 (continued)

$\gamma(^{95}Sr)$ (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π
1076.6 *3*	5.0 *7*	3420.7	$(17/2^+)$	2344.1	$(13/2^+)$
1109.5 *3*	2.7 *4*	1665.5	$(11/2^+)$	556.0	$(7/2^+)$
1124.0	12.8 *6*	1680.0	$(9/2^+,11/2^+)$	556.0	$(7/2^+)$
1203.4 *3*	6.0 *9*	2868.9	$(15/2^+)$	1665.5	$(11/2^+)$

[†] Uncertainties are taken as 30% if the intensity is below 1, 15% if the intensity is below 10 and 5% for the rest , as mentioned in 2004Hw04.
[‡] From adopted gammas.
[x] γ ray not placed in level scheme.

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Level Scheme

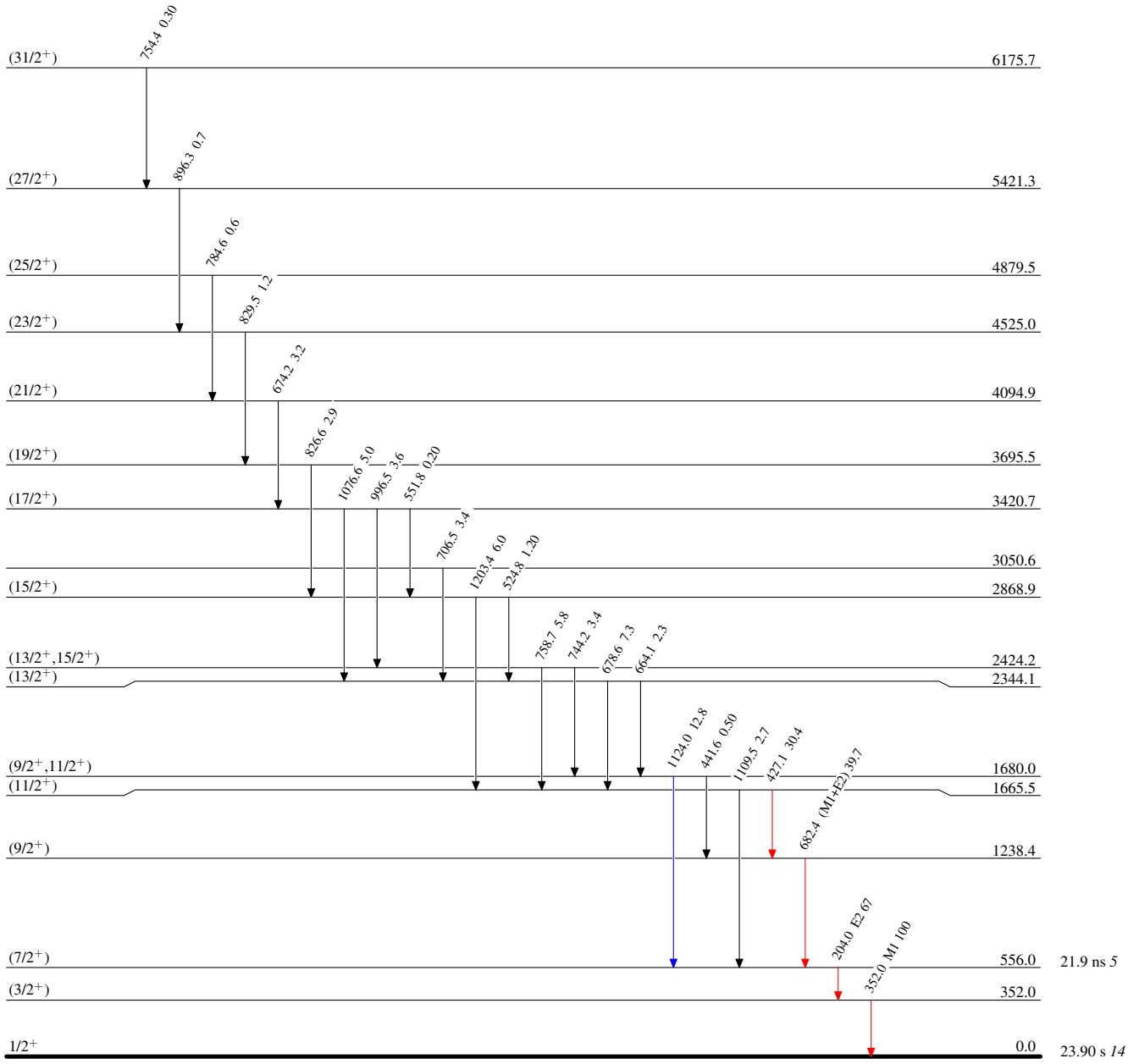
Intensities: Relative I_γ

Legend

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

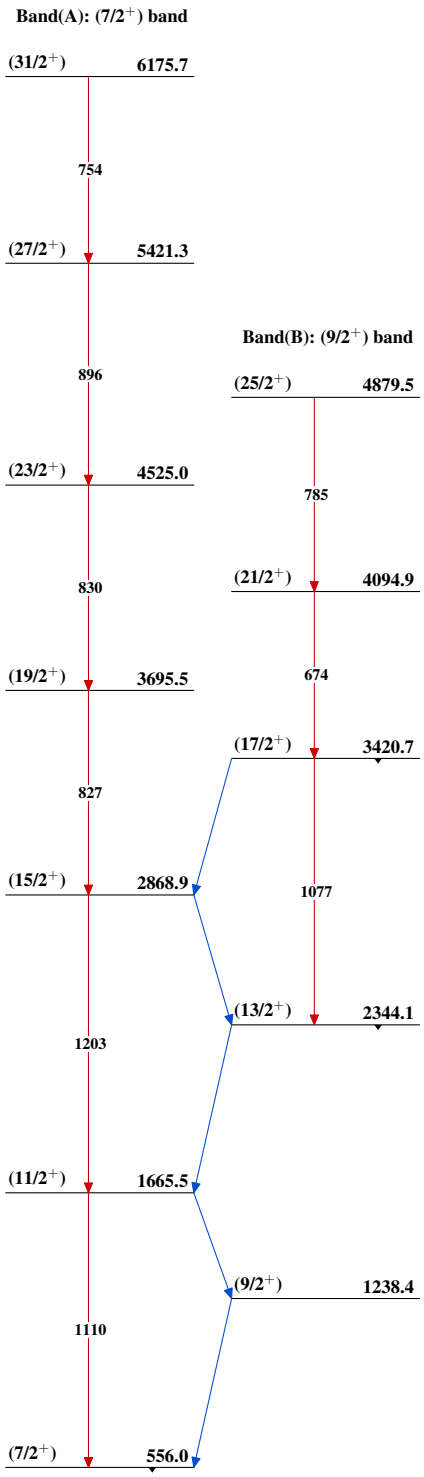
$I_\gamma < 10\% \times I_\gamma^{max}$

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



$^{95}_{38}Sr_{57}$

^{252}Cf SF decay 2004Hw04



$^{95}_{38}Sr_{57}$