

²⁵²Cf SF decay 2003Hw01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 112, 1163 (2011)	15-Dec-2010

Parent: ²⁵²Cf: E=0; J^π=0⁺; T_{1/2}=2.645 y 8; %SF decay=3.09

²⁵²Cf-%SF decay: Total branch for SF decay.

2003Hw01: GAMMASPHERE array consisting of 102 Compton-suppressed Ge detectors; ⁶²μCi ²⁵²Cf source sandwiched between Fe foils and mounted in plastic ball (to absorb ce and β) At center of GAMMASPHERE; measured E_γ, I_γ, γγγ coin (time window≈1 μs), (complementary fission fragment)-γ coin.

⁹³Sr Levels

E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]
0 [#]	5/2 ⁺	2954.3 4	(9/2,11/2,13/2)	3880.9 [#] 6	(21/2 ⁺)
986.1 [#] 3	(9/2 ⁺)	3100.2 [@] 4	(15/2 ⁻)	4037.9 5	
1238.3 ^{&} 3	(7/2 ⁺)	3283.2 [#] 5	(17/2 ⁺)	4156.4 5	
1779.8 [@] 3	(11/2 ⁻)	3307.7 ^{&} 5	(15/2 ⁺)	4470.8 6	
2072.2 ^{&} 4	(11/2 ⁺)	3481.5 5		4596.8 ^{&} 6	(19/2 ⁺)
2168.6 [#] 4	(13/2 ⁺)	3772.0 5		4797.0 [#] 7	(25/2 ⁺)
2530.4 5		3869.9 5		5333.9 6	

[†] From least-squares fit to E_γ, assigning 0.3 keV uncertainty to all E_γ data.

[‡] From Adopted Levels.

[#] Band(A): 5/2⁺ band. Possible (stretched) coupling of (ν d_{5/2})⁻¹ to ⁹⁴Sr core.

[@] Band(B): (11/2⁻) band. Possible coupling of (ν d_{5/2})⁻¹ to octupole state in ⁹⁴Sr core.

[&] Band(C): (7/2⁺) band. Possible (stretched-1) coupling of (ν d_{5/2})⁻¹ to ⁹⁴Sr core.

γ(⁹³Sr)

E _γ [†]	I _γ [‡]	E _i (level)	J _i ^π	E _f	J _f ^π
292.4	20	2072.2	(11/2 ⁺)	1779.8	(11/2 ⁻)
388.8	4.0	2168.6	(13/2 ⁺)	1779.8	(11/2 ⁻)
597.7	12	3880.9	(21/2 ⁺)	3283.2	(17/2 ⁺)
750.6	1.6	2530.4		1779.8	(11/2 ⁻)
793.7	44	1779.8	(11/2 ⁻)	986.1	(9/2 ⁺)
833.9	11	2072.2	(11/2 ⁺)	1238.3	(7/2 ⁺)
863.1	0.8	5333.9		4470.8	
882.1	2.7	2954.3	(9/2,11/2,13/2)	2072.2	(11/2 ⁺)
916.1	5.9	4797.0	(25/2 ⁺)	3880.9	(21/2 ⁺)
931.6	4.4	3100.2	(15/2 ⁻)	2168.6	(13/2 ⁺)
986.1	81	986.1	(9/2 ⁺)	0	5/2 ⁺
989.3	1.4	4470.8		3481.5	
1114.6	15	3283.2	(17/2 ⁺)	2168.6	(13/2 ⁺)
1174.5	0.8	2954.3	(9/2,11/2,13/2)	1779.8	(11/2 ⁻)
1182.5	25	2168.6	(13/2 ⁺)	986.1	(9/2 ⁺)
1235.5	10	3307.7	(15/2 ⁺)	2072.2	(11/2 ⁺)
1238.3	36	1238.3	(7/2 ⁺)	0	5/2 ⁺
1289.1	0.7	4596.8	(19/2 ⁺)	3307.7	(15/2 ⁺)
1320.4	4.1	3100.2	(15/2 ⁻)	1779.8	(11/2 ⁻)
1409.3	3.9	3481.5		2072.2	(11/2 ⁺)
1992.2	0.5	3772.0		1779.8	(11/2 ⁻)
2090.1	1.1	3869.9		1779.8	(11/2 ⁻)

Continued on next page (footnotes at end of table)

 ${}^{252}\text{Cf}$ SF decay **2003Hw01** (continued) $\gamma({}^{93}\text{Sr})$ (continued)

<u>E_γ[†]</u>	<u>I_γ[‡]</u>	<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>
2258.1	1.6	4037.9		1779.8	(11/2 ⁻)
2376.6	0.5	4156.4		1779.8	(11/2 ⁻)

[†] Authors do not state uncertainties.

[‡] Uncertainties are 5% for strong lines and 30% for weak ones.

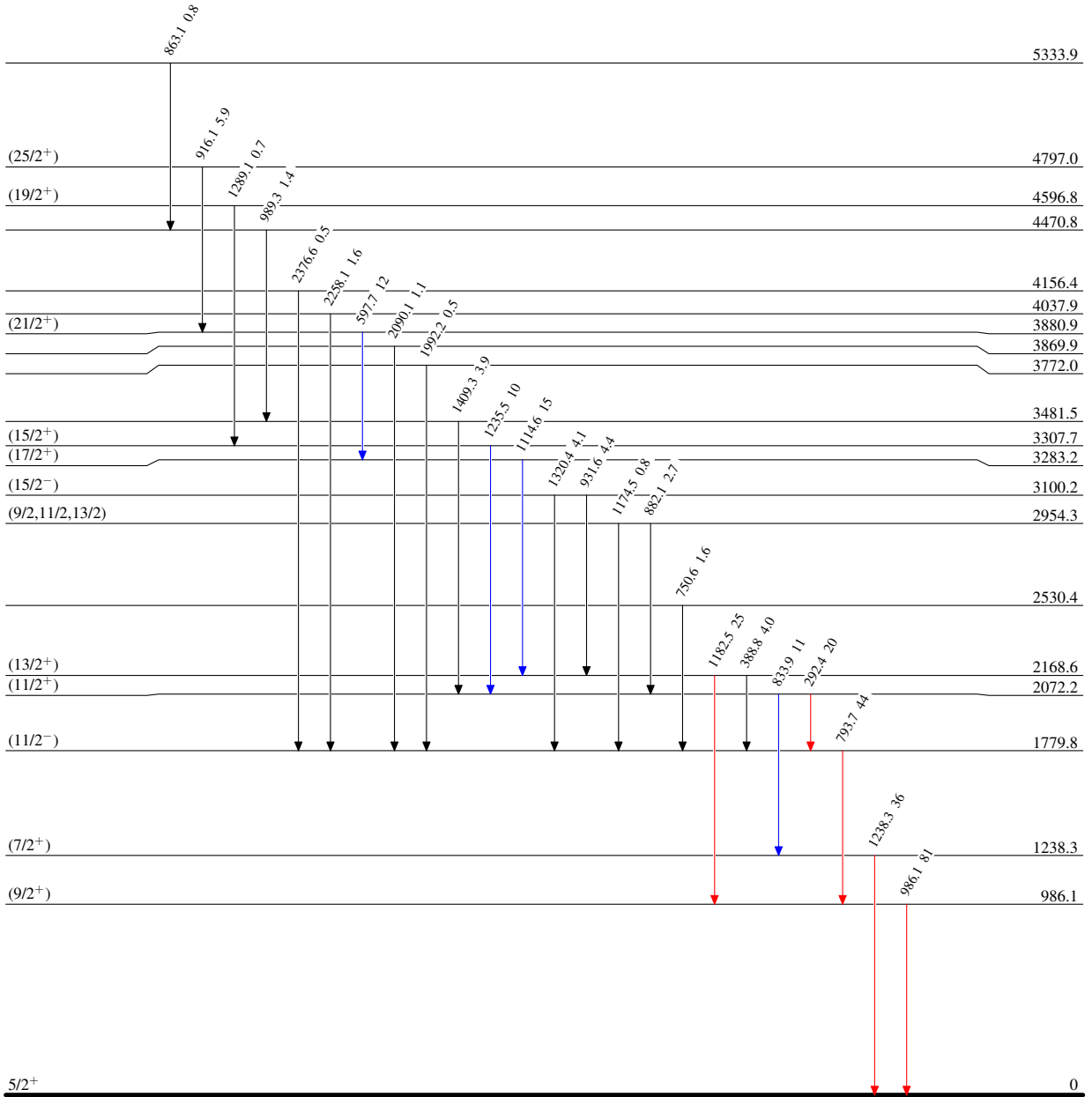
^{252}Cf SF decay 2003Hw01

Level Scheme

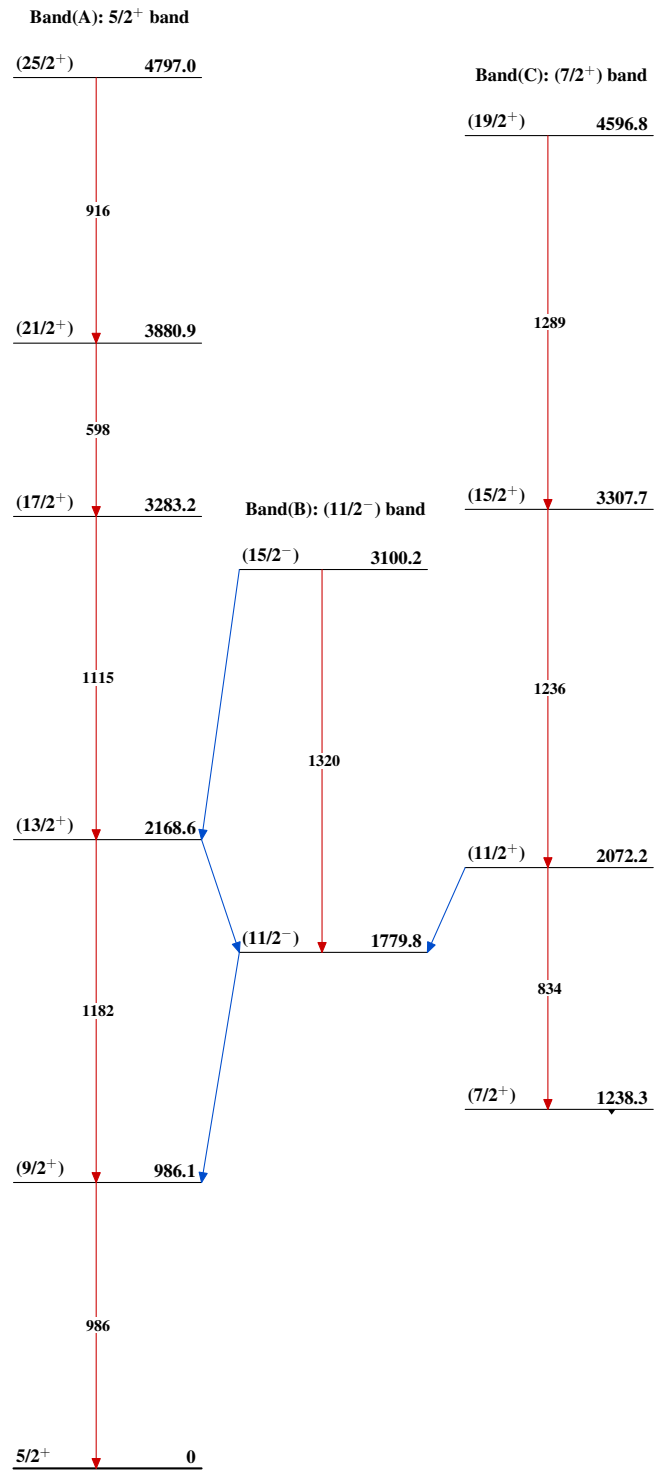
Intensities: Relative I_γ

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$



$^{93}_{38}\text{Sr}_{55}$

^{252}Cf SF decay 2003Hw01 $^{93}_{38}\text{Sr}_{55}$