^{248}Cm,^{252}Cf SF decay   2013Cz02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	31-Jan-2016

Parent: ^{248}Cm: E=0; J^π=0$^+$; $T_{1/2}$=3.48×10^5 y 6; %SF decay=?

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

2013Cz02: ^{252}Cf SF decay: measured Eγ, Iγ, $\gamma\gamma\gamma$ coin, $\gamma\gamma(\theta)$ using Gammasphere array at ANL. ^{248}Cm SF decay: measured Eγ, Iγ and $\gamma\gamma$ from ^{248}Cm SF decay using Eurogam2 array at Grenoble. From combined analysis, several γ rays, γ cascades and levels proposed in 2011Li34 have not been confirmed.

2011Li34, 2006Jo01: measured Eγ, Iγ, $\gamma\gamma\gamma$ using Gammasphere using a source of about 60μCi. The levels proposed in this work at 3032.6, 3768.5, 4795.7, and 5809.9 keV (with J^π= (6$^+$), (7$^-$), (8$^+$), and (10$^+$), respectively) and the 706-1027-1014 keV γ cascade above the 3063 level were not confirmed by the more recent study 2013Cz02 using triple coincidences.

^{86}Se Levels

E(level)[†]	J^{π}[‡]	Comments
0.0[#]	0$^+$	
704.2[#] 2	2$^+$	
1567.6[#] 3	4$^+$	
2073.0 4	(4$^+$)	J^π: (4) in 2013Cz02. 2006Jo01 assigned (6$^+$) but (3$^-$) in their later paper 2011Li34 changed to (3$^-$). 2013Cz02 do not support (3$^-$).
2846.0[#] 5	(6$^+$)	
3033	(4,5,6$^+$)	E(level),J^π: level with J^π=(6$^+$) from 2011Li34. This level is included here since a similar level reported by 2013DrZY in ^{238}U(p,F) work.
3062.5 6	(4,5,6$^+$)	J^π: (5,6) in 2013Cz02.
3302.0? 6	(6,7,8$^+$)	J^π: (7) in 2013Cz02.

† From Eγ data.

‡ From Adopted Levels.

Band(A): Yrast sequence.

γ(^{86}Se)

E$_\gamma$	I$_\gamma$	E$_i$(level)	J^{π}_i	E$_f$	J^{π}_f	Mult.[†]	Comments
456.0[‡] 4	2 1	3302.0?	(6,7,8$^+$)	2846.0	(6$^+$)		
505.4 2	12 2	2073.0	(4$^+$)	1567.6	4$^+$		
704.2 2	100 10	704.2	2$^+$	0.0	0$^+$	E2	
863.4 2	55 8	1567.6	4$^+$	704.2	2$^+$	E2	(863γ)(704γ)(θ): A$_2$=+0.097 12, A$_4$=+0.014 16 consistent with stretched quadrupole for both transitions.
989.5 5	4 2	3062.5	(4,5,6$^+$)	2073.0	(4$^+$)		
1278.4 3	5 2	2846.0	(6$^+$)	1567.6	4$^+$		
1465		3033	(4,5,6$^+$)	1567.6	4$^+$		E$_\gamma$: from 2011Li34.
1495.1[‡] 5	2 1	3062.5	(4,5,6$^+$)	1567.6	4$^+$		

† From $\gamma\gamma(\theta)$, mult=Q corresponds to stretched quadrupole; RUL limits to E2, see Adopted Levels, Gammas.

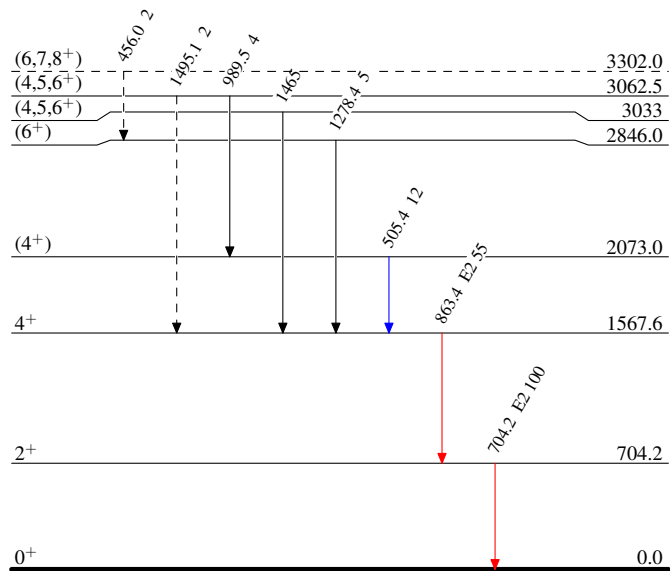‡ Placement of transition in the level scheme is uncertain.

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Legend

Level Scheme

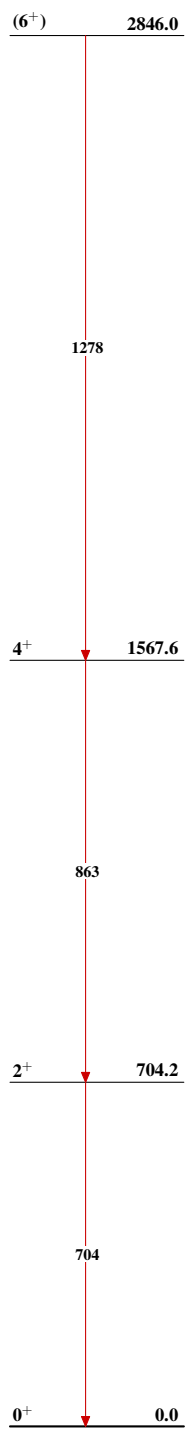Intensities: Relative I$_\gamma$

I$_\gamma$ < 2% × I$_\gamma^{max}$
I$_\gamma$ < 10% × I$_\gamma^{max}$
I$_\gamma$ > 10% × I$_\gamma^{max}$
γ Decay (Uncertain)

456.0 2
1495.1 2
989.5 4
1465
1278.4 5

(6,7,8$^+$)   3302.0
(4,5,6$^+$)   3062.5
(4,5,6$^+$)   3033
(6$^+$)   2846.0

505.4 12
863.4 E2 55

(4$^+$)   2073.0

4$^+$ 1567.6

704.2 E2 100

2$^+$ 704.2

0$^+$ 0.0

$^{86}_{34}Se_{52}$

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Band(A): Yrast sequence

(6$^+$)   2846.0

1278

4$^+$ 1567.6

863

2$^+$ 704.2

704

0$^+$ 0.0

$^{86}_{34}$Se$_{52}$