

**$^{248}\text{Cm}$  SF decay 2001Ko78**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli		NDS 108,2173 (2007)	1-Oct-2006

Parent:  $^{248}\text{Cm}$ : E=0.0;  $J^\pi=0^+$ ;  $T_{1/2}=3.40 \times 10^5$  y 4; %SF decay=?

Measured  $\gamma$ ,  $\gamma\gamma$ ,  $\gamma\gamma\gamma$ ,  $\gamma\gamma(\theta)$ ,  $\gamma(\text{lin pol})$  using Eurogam-2 array.

Other:  $^{252}\text{Cf}$  SF decay (1974CIZX,1970Jo20). Observed 117.7 $\gamma$ , 154.7 $\gamma$ .

$^{137}\text{I}$  Levels

E(level) <sup>†</sup>	$J^\pi$	E(level) <sup>†</sup>	$J^\pi$	E(level) <sup>†</sup>	$J^\pi$	E(level) <sup>†</sup>	$J^\pi$
0.0 <sup>‡</sup>	7/2 <sup>+</sup>	954.39 <sup>#</sup> 10	13/2 <sup>+</sup>	2037.70 <sup>#</sup> 13	21/2 <sup>+</sup>	3166.98 <sup>#</sup> 17	29/2 <sup>+</sup>
243.3	5/2 <sup>+</sup>	1108.74 <sup>‡</sup> 11	15/2 <sup>+</sup>	2222.99 <sup>‡</sup> 14	23/2 <sup>+</sup>	3651.45 <sup>‡</sup> 17	(31/2 <sup>+</sup> )
554.20 <sup>#</sup> 9	9/2 <sup>+</sup>	1312.82 <sup>#</sup> 12	17/2 <sup>+</sup>	2742.66 <sup>#</sup> 15	25/2 <sup>+</sup>	3852.82 <sup>#</sup> 19	(33/2 <sup>+</sup> )
620.51 <sup>‡</sup> 9	11/2 <sup>+</sup>	1608.64 <sup>‡</sup> 13	19/2 <sup>+</sup>	3084.87 <sup>‡</sup> 16	27/2 <sup>+</sup>		

<sup>†</sup> From least-squares fit to E $\gamma$ 's.

<sup>‡</sup> Band(A):  $\Delta J=2$  cascade band based on 7/2<sup>+</sup> g.s..

<sup>#</sup> Band(a):  $\Delta J=2$  cascade band based on 9/2<sup>+</sup> 554.2 level.

$\gamma(^{137}\text{I})$

E $\gamma$	I $\gamma$	E <sub>i</sub> (level)	$J^\pi_i$	E <sub>f</sub>	$J^\pi_f$	Mult.	$\delta$	Comments
154.4 I		1108.74	15/2 <sup>+</sup>	954.39	13/2 <sup>+</sup>			
185.3 I	3.6 I	2222.99	23/2 <sup>+</sup>	2037.70	21/2 <sup>+</sup>			(185.3 $\gamma$ )(724.9 $\gamma$ )( $\theta$ ): A <sub>2</sub> =-0.05 3, A <sub>4</sub> =+0.04 4.
201.4 I	0.9 I	3852.82	(33/2 <sup>+</sup> )	3651.45	(31/2 <sup>+</sup> )			
204.1 I		1312.82	17/2 <sup>+</sup>	1108.74	15/2 <sup>+</sup>			
243.3		243.3	5/2 <sup>+</sup>	0.0	7/2 <sup>+</sup>			E $\gamma$ : From $\beta^-$ decay.
295.8 I	9.4 I	1608.64	19/2 <sup>+</sup>	1312.82	17/2 <sup>+</sup>			
333.9 I	17 I	954.39	13/2 <sup>+</sup>	620.51	11/2 <sup>+</sup>	M1+E2	+0.08 3	pol=-0.3 I.
342.3 I	0.15 3	3084.87	27/2 <sup>+</sup>	2742.66	25/2 <sup>+</sup>			
358.4 I	44 I	1312.82	17/2 <sup>+</sup>	954.39	13/2 <sup>+</sup>	E2		pol=+0.15 5. (358.4 $\gamma$ )(295.8 $\gamma$ )( $\theta$ ): A <sub>2</sub> =-0.06 5, A <sub>4</sub> =-0.07 7. (358.4 $\gamma$ )(400.2 $\gamma$ )( $\theta$ ): A <sub>2</sub> =+0.098 2, A <sub>4</sub> =-0.011 4. (358.4 $\gamma$ )(724.9 $\gamma$ )( $\theta$ ): A <sub>2</sub> =+0.10 I, A <sub>4</sub> =+0.02 I.
400.2 I	64 2	954.39	13/2 <sup>+</sup>	554.20	9/2 <sup>+</sup>	E2		pol=+0.16 6.
424.2 I	1.5 I	3166.98	29/2 <sup>+</sup>	2742.66	25/2 <sup>+</sup>			(424.2 $\gamma$ )(724.9 $\gamma$ )( $\theta$ ): A <sub>2</sub> =+0.16 2, A <sub>4</sub> =+0.17 3.
429.1 I	0.4 I	2037.70	21/2 <sup>+</sup>	1608.64	19/2 <sup>+</sup>			
484.4 I		3651.45	(31/2 <sup>+</sup> )	3166.98	29/2 <sup>+</sup>			
488.2 I	4.6 7	1108.74	15/2 <sup>+</sup>	620.51	11/2 <sup>+</sup>	E2		pol=+0.3 2.
499.9 I	1.3 4	1608.64	19/2 <sup>+</sup>	1108.74	15/2 <sup>+</sup>			
519.6 I	0.7 I	2742.66	25/2 <sup>+</sup>	2222.99	23/2 <sup>+</sup>			
554.2 I	100 I	554.20	9/2 <sup>+</sup>	0.0	7/2 <sup>+</sup>	M1+E2	+1.1 6	$\delta$ : +0.5 to +1.7 from $\gamma\gamma(\theta)$ and $\gamma(\text{lin pol})$ . pol=+0.08 3. (554.2 $\gamma$ )(400.2 $\gamma$ )( $\theta$ ): A <sub>2</sub> =-0.233 6, A <sub>4</sub> =-0.033 7. (566.7 $\gamma$ )(summed $\gamma$ )( $\theta$ ): A <sub>2</sub> =+0.11 4, A <sub>4</sub> =+0.03 5. (614.3 $\gamma$ )(295.8 $\gamma$ )( $\theta$ ): A <sub>2</sub> =-0.01 3, A <sub>4</sub> =0.00 I.
566.7 I	2.2 I	3651.45	(31/2 <sup>+</sup> )	3084.87	27/2 <sup>+</sup>			
614.3 I	7 I	2222.99	23/2 <sup>+</sup>	1608.64	19/2 <sup>+</sup>			

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$^{248}\text{Cm}$  SF decay **2001Ko78** (continued) $\gamma(^{137}\text{I})$  (continued)

$E_\gamma$	$I_\gamma$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult.	Comments
620.5 1	37 2	620.51	11/2 <sup>+</sup>	0.0	7/2 <sup>+</sup>	E2	(620.5 $\gamma$ )(333.9 $\gamma$ )( $\theta$ ): $A_2=-0.109$ 3, $A_4=+0.014$ 4. (620.5 $\gamma$ )(488.2 $\gamma$ )( $\theta$ ): $A_2=+0.10$ 4, $A_4=-0.03$ 5.
685.5 3	0.30 5	3852.82	(33/2 <sup>+</sup> )	3166.98	29/2 <sup>+</sup>		
705.0 1	2.3 1	2742.66	25/2 <sup>+</sup>	2037.70	21/2 <sup>+</sup>		(705.0 $\gamma$ )(summed $\gamma$ )( $\theta$ ): $A_2=+0.10$ 8, $A_4=-0.07$ 10.
724.9 1	11 1	2037.70	21/2 <sup>+</sup>	1312.82	17/2 <sup>+</sup>	E2	pol=+0.2 1.
861.9 1	1.8 1	3084.87	27/2 <sup>+</sup>	2222.99	23/2 <sup>+</sup>		(861.9 $\gamma$ )(summed $\gamma$ )( $\theta$ ): $A_2=+0.15$ 12, $A_4=+0.06$ 19.

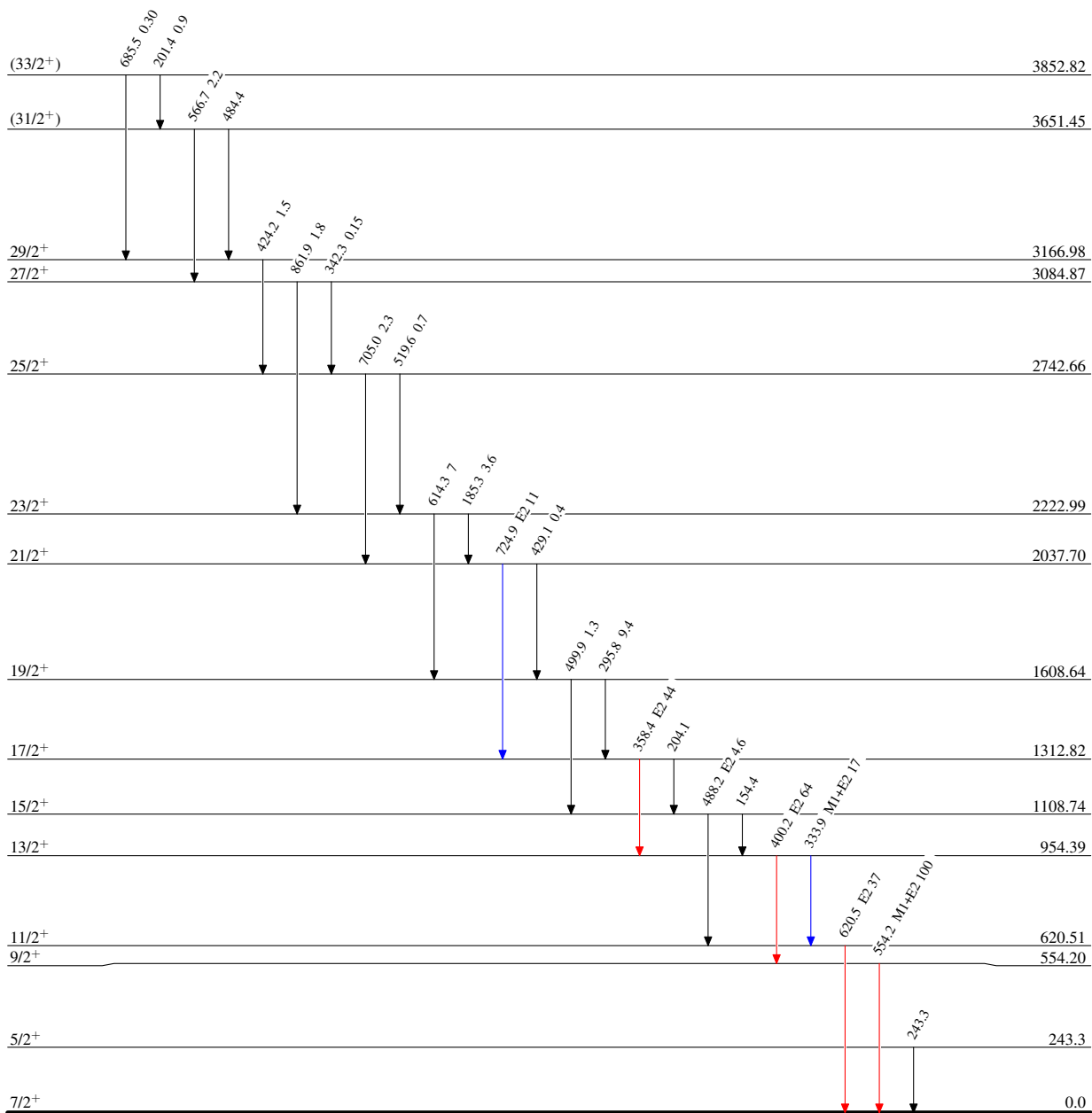
$^{248}\text{Cm}$  SF decay **2001Ko78**

## Level Scheme

Intensities: Relative  $I_\gamma$ 

## Legend

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

 $^{137}_{53}\text{I}_{84}$

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