

$^{254}\text{Fm}$   $\alpha$  decay

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Y. Akovali	NDS 94,131 (2001)	1-Aug-2001

Parent:  $^{254}\text{Fm}$ : E=0.0;  $J^\pi=0^+$ ;  $T_{1/2}=3.240$  h 2;  $Q(\alpha)=7307.2$  20; % $\alpha$  decay=99.9408 3  
 $T_{1/2}(^{254}\text{Fm})=3.240$  h 2, % $\alpha(^{254}\text{Fm})=99.9408$  3,  $Q(\alpha)(^{254}\text{Fm})=7307.2$  20.

 $^{250}\text{Cf}$  Levels

E(level)	$J^\pi$
0.0 <sup>†</sup>	0 <sup>+</sup>
42.721 <sup>†</sup> 5	2 <sup>+</sup>
141.875 <sup>†</sup> 10	4 <sup>+</sup>
296.22 <sup>†</sup> 6	6 <sup>+</sup>

<sup>†</sup> Band(A): K=0<sup>+</sup> g.s. band.

 $\alpha$  radiations

$E\alpha$ <sup>†</sup>	E(level)	$I\alpha$ <sup>‡@</sup>	HF <sup>#</sup>
6898 3	296.22	0.0066 8	780 10
7050 2	141.875	0.82 6	28 2
7150 2	42.721	14.2 3	4.0 1
7192 2	0.0	85.0 5	1.0

<sup>†</sup> Energies are measurements of 1984Ah02. Other measurements: 1956As60, 1964As01, 1977Be36.

<sup>‡</sup>  $\alpha$  intensity per 100  $\alpha$  decays, measured by 1984Ah02.

<sup>#</sup>  $r_0(^{250}\text{Cf})=1.4888$  8 is calculated from  $\text{Hf}(7192\alpha)=1.0$ .

<sup>@</sup> For absolute intensity per 100 decays, multiply by 0.999408 3.

 $\gamma(^{250}\text{Cf})$ 

$E_\gamma$ <sup>†</sup>	$I_\gamma$ <sup>‡@</sup>	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. <sup>#</sup>	$\alpha$ <sup>&amp;</sup>	Comments
42.76 5	0.013 1	42.721	2 <sup>+</sup>	0.0	0 <sup>+</sup>	E2	1293	$\alpha(\text{L})=939$ ; $\alpha(\text{M})=266$
99.16 5	0.031 3	141.875	4 <sup>+</sup>	42.721	2 <sup>+</sup>	E2	23.8	$\alpha(\text{L})=17.0$ ; $\alpha(\text{M})=4.84$ ; $\alpha(\text{N}+..)=1.934$
151 5	0.0010	296.22	6 <sup>+</sup>	141.875	4 <sup>+</sup>	E2	3.33	$\alpha(\text{K})=0.155$ ; $\alpha(\text{L})=2.27$ ; $\alpha(\text{M})=0.647$ ; $\alpha(\text{N}+..)=0.258$ $E_\gamma$ : measured by 1963Le17. $E_\gamma=154.35$ 6 was measured in $^{250}\text{Es}$ $\epsilon$ decay. $I_\gamma$ : measured by 1963Le17. Intensity balance At the 296.23-keV level gives $I_\gamma=0.00152$ 19.

<sup>†</sup> Measurement of 1984Ah02, except where noted. Other measurements: 1955As08, 1963Bj03, 1963Le17.

<sup>‡</sup> Photon intensity per 100  $\alpha$  decays. No other gammas were observed. From  $\alpha$ - $\gamma$  coincidence data,  $I_\gamma<0.0001$  for any  $\gamma$  with  $E_\gamma>400$  was determined by 1963Le17, and  $I_\gamma<0.0007$  for any  $\gamma$  with  $E_\gamma>540$  by 1963Bj03.

<sup>#</sup> Multipolarities were determined by 1977Fr03 from conversion electron measurements in  $^{250}\text{Es}$   $\epsilon$  decay.




<sup>@</sup> For absolute intensity per 100 decays, multiply by 0.999408 3.

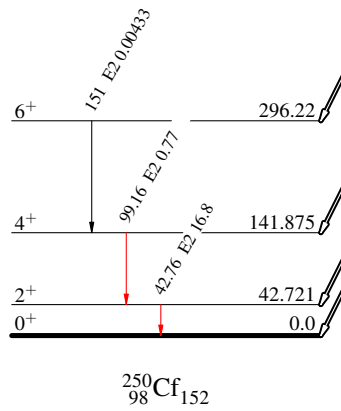
<sup>&</sup> Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on  $\gamma$ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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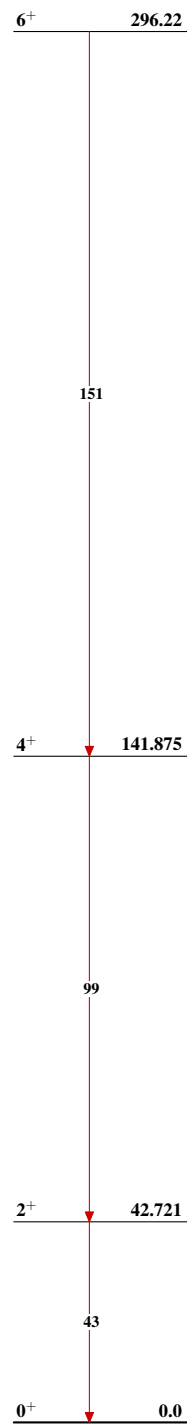
## Decay Scheme

Legend

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

Intensities:  $I_{(\gamma+ce)}$  per 100 decays through this branch

$E_\alpha$	$I_\alpha$	HF
6898	0.0066	780
7050	0.82	28
7150	14.2	4.0
7192	84.9	1.0

${}^{254}\text{Fm}$   $\alpha$  decayBand(A):  $K=0^+$  g.s. band ${}^{250}_{98}\text{Cf}_{152}$