

$^{243}\text{Cf}$   $\alpha$  decay

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli		NDS 122, 293 (2014)	30-Jun-2013

Parent:  $^{243}\text{Cf}$ :  $E=0.0$ ;  $J^\pi=(1/2^+)$ ;  $T_{1/2}=10.7$  min 5;  $Q(\alpha)=7420$  SY;  $\% \alpha$  decay  $\approx 14.0$

Additional information 1.

$Q(\alpha)=7420$  keV, systematic value for  $^{243}\text{Cf}$  g.s. decay ([2012Wa38](#)) suggests that the observed 7170- and 7060-keV  $\alpha$ 's feed levels in  $^{239}\text{Cm}$  at about 130 and 242 keV, respectively.

 $^{239}\text{Cm}$  Levels

E(level)	$J^\pi$ <sup>†</sup>	Comments
0.0	(7/2 <sup>-</sup> )	Alpha decay to this level was not detected ( <a href="#">1967Fi04</a> ).
$\approx 130?$		
$\approx 242$	(1/2 <sup>+</sup> )	

<sup>†</sup> From Adopted Levels.

 $\alpha$  radiations

$E\alpha$ <sup>‡</sup>	E(level)	$I\alpha$ <sup>#@</sup>	HF <sup>†</sup>	Comments
7060 10	$\approx 242$	$\approx 71$	$\approx 0.70$	$I\alpha$ : 7060 $\alpha$ /7171 $\alpha \approx 2.5$ is given in <a href="#">1967Fi04</a> . HF: the $\alpha$ HF is low for $J=1/2$ (compare HF=2.7 and 2.5 for the favored transitions in the $\alpha$ decay of $^{239}\text{Pu}$ and $^{241}\text{Cm}$ , respectively) suggesting that the $\alpha$ branch for $^{243}\text{Cf}$ is $<14\%$ , as estimated in <a href="#">1967Si08</a> . $E\alpha$ : 7050 20 is reported in <a href="#">1967Si08</a> .
7170 & 10	$\approx 130?$	$\approx 29$	$\approx 4.5$	Not seen by <a href="#">1967Si08</a> . It may have been obscured in their spectrum by the presence of the 7.22-MeV $\alpha$ from $^{244}\text{Cf}$ .

<sup>†</sup> Using  $r_0(^{239}\text{Cm})=1.493$ , average of  $r_0(^{238}\text{Cm})=1.490$  20 and  $r_0(^{240}\text{Cm})=1.495$  12 ([1998Ak04](#)).

<sup>‡</sup> Measurements of [1967Fi04](#) (semi). Other measurement: [1967Si08](#).

<sup>#</sup> From [1967Fi04](#).

<sup>@</sup> For absolute intensity per 100 decays, multiply by  $\approx 0.14$ .

<sup>&</sup> Existence of this branch is questionable.