

^{247}Cf α decay 1984Ah02

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja, E. A. Mccutchan		NDS 121, 695 (2014)	30-Sep-2013

Parent: ^{247}Cf : $E=0.0$; $J^\pi=(7/2^+)$; $T_{1/2}=3.11$ h 3; $Q(\alpha)=6495$ 15; $\% \alpha$ decay=0.035 5

^{247}Cf - $T_{1/2}$: from $\gamma(t)$ of 294γ emitted in the ε decay of ^{247}Cf (1984Ah02).

^{247}Cf - $\% \alpha$ decay: from ratio of measured α 's to Cm X-rays = 4.7×10^{-4} 5, taking K x-ray intensity of 72.3 per 100 ^{247}Cf ε decays (1984Ah02).

^{247}Cf activity from $^{246}\text{Cm}(\alpha,3n)$, $E\alpha=40$ MeV followed by chemical and electromagnetic separation. Measured $E\alpha$, $I\alpha$ with Au-Si surface barrier detector and $E\gamma$, $I\gamma$ with planar Ge(Li) detector. No $\alpha\gamma$ or α -K x ray coincidences were observed.

 ^{243}Cm Levels

E(level)	J^π [†]	Comments
0.0	$5/2^+$	
95 16	$(7/2^+)$	E(level): nonobservation of K x-rays in coincidence with α 's suggests that the level populated by the 6296-keV α has an energy less than the K-binding energy of curium (128 keV). A level at 133 keV 4 observed in the (d,t) reaction was tentatively assigned as the $7/2^+$, $7/2[624]$ state. This state is expected to be fed by the unhindered 6296-keV α transition from the probable $7/2[624]$ ground state of ^{247}Cf . The level energy here is from $Q(\alpha)(^{247}\text{Cf})=6495$ 15 (2012Wa38) and $E\alpha=6296$ 5.
154 16	$(9/2^+)$	

[†] From Adopted Levels.

 α radiations

$E\alpha$ [†]	E(level)	$I\alpha$ ^{†#}	HF [‡]
6238 6	154	5 1	15 5
6296 5	95	95 3	1.6 3

[†] From 1984Ah02. The alpha intensities are per 100 alpha decays.

[‡] $r_0(^{243}\text{Cm})=1.4902$ 17, average of $r_0(^{242}\text{Cm})=1.4953$ 9 and $r_0(^{244}\text{Cm})=1.4851$ 24, is used in the calculations.

[#] For absolute intensity per 100 decays, multiply by 0.00035 5.