

^{237}Cm α decay 2006As03

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	B. Singh, J. K. Tuli, E. Browne		NDS 170, 499 (2020)	8-Oct-2020

Parent: ^{237}Cm : $E=0$; $J^\pi=(5/2^+)$; $Q(\alpha)=6770.50$; $\% \alpha$ decay < 1.0

^{237}Cm - J^π : Ground state configuration= $\nu 5/2[633]$ suggested from energy systematics of Nilsson orbitals in $N=139$ and 141 isotones.

^{237}Cm - $T_{1/2}$: Systematics value is 20 min from 2017Au03. $T_{1/2}(\epsilon$ decay) $=3.98$ min from improved gross theory of β decay in JAEA-2004 chart. Partial $t_{1/2}(\alpha)=6.6 \times 10^4$ s, estimated from the assumption that 6656 α transition from ^{237}Cm decay is favored, with an hindrance factor of 1.0. Theoretical half-lives (2019Mo01): 29.1 s for β decay, 43 h for α decay.

^{237}Cm - $Q(\alpha)$: From 2017Wa10.

^{237}Cm - $\% \alpha$ decay: $\% \alpha < 1\%$ estimated from theoretical $T_{1/2}(\epsilon$ decay) $=3.98$ min (from improved gross theory of β decay in JAEA-2004 chart), and partial α -decay half-life of 1100 min (2006As03). Theoretical half-lives of 29.1 s for β decay and 43 h for α decay in 2019Mo01 give $\% \alpha \approx 0.02$.

2006As03: The nuclei ^{237}Cm produced by the $^{237}\text{Np}(^6\text{Li},6n),E=52-59$ MeV reaction using tandem accelerator at Japan Atomic Energy Agency (JAEA). Measured α energy using Si detectors using the tape transport system. Statistics were not enough to obtain decay rate, and half-life of ^{237}Cm decay. See also an earlier paper 2002As08 from this group.

 ^{233}Pu Levels

E(level)	$T_{1/2}$	Comments
0	20.9 min 4	$T_{1/2}$: from the Adopted Levels.

 α radiations

E_α	E(level)	Comments
6656 10	0	E_α : from 2006As03.