Adopted Levels

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

Q(β^-)=39 *12*; S(n)=5832 *10*; S(p)=7.4×10^3 *syst*; Q(α)=5169 *18* 2012Wa38
Note: Current evaluation has used the following Q record 37 11 *5832* 10 *7409* syst 5169 19 1995Au04.

Theoretical studies:
For theoretical calculations of spontaneous fission half-life of ^{250}Cm, see, for example, 1974Ho05, 1976Ra02, 1978Po09, 1983Bo15, 1987Mo16, 1989St20 (included pairing vibrations).
Decay by pion emission probability relative to SF decay was calculated by 1988Io04.
For fission barrier calculations, see 1972Ma11, 1973Ba19, 1976Iw02, 1977Pr10, 1980Ku14, 1984Ku05, 1991Pe03.
For equilibrium deformations calculations, see 1982Du16, 1983Bo15.
Spontaneously fissioning isomeric state was predicted, and its properties were calculated by 1978Po01, 1992Bh03.
For the calculated B(E2; 0$^+$ to 2$^+$) value for the excitation of the first excited state by using the N(p)N(n) scheme, see 1993Sa05.

^{250}Cm Levels

Cross Reference (XREF) Flags

A ^{254}Cf α decay

E(level)[†]	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0	0$^+$[‡]	≈8.3×10^3 y	A	%SF≈74; %α≈18; %β^-≈8 Only SF decay has been observed. Spontaneous fission half-life was measured: T$_{1/2}$(SF)=17.4×10^3 y *24* (1966Rg01); 11.3×10^3 y *5* (1967Me16). Other measurement: 20×10^3 y (1957Hu76). T$_{1/2}$(SF)=11.3×10^3 y *5* is recommended by 1989Ho24 and 2000Ho27. Any probable α and β^- decay branchings may Be deduced from estimated partial half-lives (see below): if T$_{1/2}$(α)=45.5×10^3 y *7* and T$_{1/2}$(β^-)≈106×10^3 y, then, by using T$_{1/2}$(SF)=11.3×10^3 y, the total half-life and decay branchings are calculated as T$_{1/2}$≈8.3×10^3, and %SF≈74, %α≈18, %β^-≈8. From absence of ^{250}Cf in debris of a thermonuclear explosion test, 1956Fi11 deduced that either ^{250}Cm is stable against β decay or its β half-life is >130 y. Because of the available Q(β^-)(^{250}Cm)=37 *11*, any β transition from ^{250}Cm should populate only the 2$^-$ g.s. of ^{250}Bk. Requirement of log $f^{1u}t$≥8.5 yields T$_{1/2}$(β^-)≥6.7×10^3 y. If log $f^{1u}t$≈9.7, as it is for the ^{250}Bk β^- decay to ^{250}Cf g.s., then T$_{1/2}$(β^-)≈106×10^3 y. From r$_0$ systematics (see 1998Ak04), r$_0$=1.515 *5* is estimated; by using this r$_0$ parameter, Q(α)(^{250}Cm)=5269 *19* (from 1995Au04), Iα(unobserved 5086α; g.s. to g.s.)=85 *15* per 100 α decays [from systematics Iα(to g.s.)/Iα(to 2$^+$) for the region], and by requiring that HF(5086α)=1.0, the partial α decay half-life of ^{250}Cm is calculated as T$_{1/2}$(α)=45.5×10^3 y *7*. For a systematic study of spontaneous fissioning nuclei, see, for example, 1997Ro12. The kinetic energy distribution of fission fragments were measured by 1973Ho02.
43 *5*	2$^+$[‡]		A	J$^\pi$: hindrance factor (2.9) for the 5791α from ^{254}Cf; energy systematics of 2$^+$ levels in nearby even-A californium isotopes.

[†] Levels were populated in ^{254}Cf α decay.
[‡] K=0 g.s. rotational band.