^{256}Fm α decay 1968Ho13

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	A. M. Mattera, S. Zhu, A. B. Hayes, E. A. Mccutchan	NDS 172, 543 (2021)	1-Jan-2021

Parent: ^{256}Fm: E=0.0; $J^\pi=0^+$; $T_{1/2}$=157.1 min *10*; Q(α)=7027 *5*; %α decay=8.1 *3*

1968Ho13: ^{256}Fm was directly produced in reactions of ^{253}Es(α,p), or as the ε-decay daughter of ^{256}Md produced in reactions of ^{253}Es(α,n) using a 38-MeV ^{4}He beam at the Heavy Ion Linear Accelerator in Berkeley. The isotopic purity of ^{256}Fm was achieved by using an isotope separator after both ^{256}Fm and ^{256}Md were collected on beryllium foils for chemical purification.

$T_{1/2}$(^{256}Fm): weighted average of 150 min *4* (1981Lo15), 157.6 min *13* (1972Fl04), 157 min *2* (1968Ho13), 162 min *6* (1965Si14), 160 min *10* (1958Ph40).

Q(α)(^{256}Fm)=7027 keV *5* derived from Eα=6917 keV *5* (2017Wa10). Using Eα=6915 keV *2* as adopted here would result in Q(α)(^{256}Fm)=7025 keV *2*.

^{252}Cf Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	0^+		
45.72 *5*	2^+	92 ps *6*	E(level),J^π,$T_{1/2}$: From the Adopted Levels.

α radiations

Eα	E(level)	Iα[‡#]	HF[†]	Comments
6870 *2*	45.72	14 *2*	3.9 *6*	Eα: deduced by evaluator taking Eα=6915 keV *2* to ground state and adopted E=45.72 keV for level 2^+. Measured: 6868 keV (1970Fi12).
6915 *2*	0.0	86 *2*	1.000	Eα: measured by 2019Ah04 with adopted Eα standards in 1991Ry01. Other: 6911 keV *5* (1970Fi12); 6925 keV *5* (1968Ho13), which is adjusted to 6917 keV *5* by 1991Ry01 due to changes in Eα calibration standards; 6918 keV *2* (1993Mo18), which used the 1973Ry07 Eα standards.

[†] r_0(^{252}Cf)=1.499 *3* is calculated from HF(6915α)=1.0 and α/(α+SF)=0.081 *3*.
[‡] From 1970Fi12.
[#] For absolute intensity per 100 decays, multiply by 0.081 *3*.