

^{254}Cf SF decay 1980ChZM

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	G. Gürdal and F. G. Kondev		NDS 113, 1315 (2012)	1-Aug-2011

Parent: ^{254}Cf : $E=0.0$; $J^\pi=0^+$; $T_{1/2}=60.5$ d 2; %SF decay=99.69 2

1980ChZM: ^{254}Cf source was produced at the TRU facility at ORNL by a chain of neutron irradiations and chemical separation of heavy actinides leading through Cf isotopes to chemically purified ^{253}Es . A sample of ^{253}Es was then irradiated for 2-3 days in the high-flux reactor leading to ^{254}Es , which has a 0.08% ϵ branch to ^{254}Cf . Subsequent chemical purification lead to a source of 2.5×10^{11} atoms (0.2 g) of ^{254}Cf . At the end of a two-month experiment, 90% of the fission activity was due to ^{254}Cf , the rest due to ^{252}Cf . The source was received in liquid solution and dried on a very flat $40 \mu\text{g}/\text{cm}^2$ carbon foil held on a stretched nickel electromesh of 90% transparency. Microspheres of teflon were added to the solution in order to spread it evenly on the supporting foil into an area of 0.5-1 cm^2 . 2 fission fragment detectors and one Ge(Li) detector were used. Measured: E_γ , I_γ , $T_{1/2}$.

 ^{110}Ru Levels

E(level)	J^π †	$T_{1/2}$	Comments
0.0	0^+	12.04 s 17	$T_{1/2}$: From Adopted Levels.
240.5	2^+	0.30 ns 2	$T_{1/2}$: From 1980ChZM, by varying the distance between the source and the fission fragments detector using a micrometer screw.

† From Adopted Levels.

 $\gamma(^{110}\text{Ru})$

E_γ	$E_i(\text{level})$	J^π_i	E_f	J^π_f
240.5	240.5	2^+	0.0	0^+

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