

^{118}Tc β^- decay (30 ms) 2013So17

Type	History		Literature Cutoff Date
	Author	Citation	
Full Evaluation	Balraj Singh	ENSDF	14-Jan-2022

Parent: ^{118}Tc : $E=0.0$; $T_{1/2}=30$ ms 4; $Q(\beta^-)=13710$ SY; $\% \beta^-$ decay=100.0

^{118}Tc -E: Could be a mixture of two activities, a low-spin and high-spin as discussed by 2013So17.

^{118}Tc - $T_{1/2}$: From ^{118}Tc Adopted Levels.

^{118}Tc - $Q(\beta^-)$: 13710 450 (syst,2021Wa16).

2013So17: ^{118}Tc isotope produced in $^9\text{Be}(^{238}\text{U},\text{X})$ reaction at 345 MeV/nucleon at RIBF-RIKEN facility. Fragments identified by Zero-degree spectrometer which analyzed events based on $\text{B}\rho$ -tof- ΔE . Measured $E\gamma$, $I\gamma$, $E\beta$, (fragment) γ -coin, $\beta\gamma$ -coin, $\gamma\gamma$ -coin using Euroball-RIKEN array of 12 HPGe cluster detectors and WAS3ABi particle detector array of DSSSDs. Deduced levels, J, π , bands. Comparison with interacting Boson model calculations.

 ^{118}Ru Levels

E(level) [†]	J^π [‡]	$T_{1/2}$	Comments
0.0	0 ⁺	99 ms 3	$T_{1/2}$: from the Adopted Levels.
327.6 3	(2 ⁺)		
647.8 4	(2 ⁺)		
809.9 4	(4 ⁺)		
921.1 4	(3 ⁺)		
1180.5 5	(4 ⁺)		
1415.6 5	(6 ⁺)		

[†] From least-squares fit to $E\gamma$ values.

[‡] From the Adopted Levels, based on systematics of even-even nuclei for the first 2⁺ and 4⁺ states, and from comparison with IBM-1 model calculations for higher states (2013So17).

 $\gamma(^{118}\text{Ru})$

$I\gamma$ normalization: The decay scheme is likely to be incomplete in view of high Q value, thus no normalization can be deduced.

E_γ [†]	I_γ [†]	$E_i(\text{level})$	J_i^π	E_f	J_f^π
273.50 32	29 9	921.1	(3 ⁺)	647.8	(2 ⁺)
320.24 25	68 7	647.8	(2 ⁺)	327.6	(2 ⁺)
327.64 25	100 10	327.6	(2 ⁺)	0.0	0 ⁺
482.27 26	35 4	809.9	(4 ⁺)	327.6	(2 ⁺)
532.75 28	25 4	1180.5	(4 ⁺)	647.8	(2 ⁺)
593.35 29	9.9 28	921.1	(3 ⁺)	327.6	(2 ⁺)
605.68 26	25 5	1415.6	(6 ⁺)	809.9	(4 ⁺)
646.5 [‡] 4	15 6	647.8	(2 ⁺)	0.0	0 ⁺

[†] From 2013So17.

[‡] Placement of transition in the level scheme is uncertain.

^{118}Tc β^- decay (30 ms) 2013So17

Decay Scheme

Intensities: Relative I_γ

Legend

- $I_\gamma < 2\% \times I_\gamma^{\max}$
- $I_\gamma < 10\% \times I_\gamma^{\max}$
- $I_\gamma > 10\% \times I_\gamma^{\max}$
- - - - - γ Decay (Uncertain)

