

^{252}Cf SF decay [2006Lu12](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 110, 1239 (2009)	1-Feb-2008

Parent: ^{252}Cf : $E=0.0$; $J^\pi=0^+$; $T_{1/2}=2.645$ y 8; %SF decay=?

Measured E_γ , I_γ , $\gamma\gamma$ using Gammasphere array composed of 102 Compton-suppressed Ge detectors.

 ^{111}Tc Levels

E(level) [†]	J^π [‡]	Comments
0.0 [#]	5/2 ⁺	E(level): level noted as 0.0+y in figure 3 of 2006Lu12 , however, there is no evidence of existence of isomerism in ^{111}Tc . 2005Ur01 consider the lowest state populated in high-spin study as most probably the g.s.
67.5 [@] 3	7/2 ⁺	
199.5 [#] 4	9/2 ⁺	
483.8 [@] 4	11/2 ⁺	
575.3 ^{&} 5	(11/2 ⁺)	
610.2 [#] 5	13/2 ⁺	
888.4 ^{&} 6	(13/2 ⁺)	
1029.6 [@] 5	15/2 ⁺	
1162.3 [#] 5	17/2 ⁺	
1182.0 ^{&} 6	(15/2 ⁺)	
1706.8 [@] 5	(19/2 ⁺)	
1830.8 [#] 6	(21/2 ⁺)	
2554.4 [#] 7	(25/2 ⁺)	
3214.6 [#] 7	(29/2 ⁺)	
3952.4 [#] 8	(33/2 ⁺)	

[†] From least-squares fit to E_γ 's; $\Delta E_\gamma=0.3$ keV assumed for each transition.

[‡] As proposed by [2006Lu12](#) based on band assignment, systematics and model predictions. The assignments are the same in 'Adopted Levels', except that parentheses have been added due to lack of strong arguments.

[#] Band(A): $\alpha=+1/2$.

[@] Band(a): $\alpha=-1/2$.

[&] Band(B): K+2, satellite band.

 $\gamma(^{111}\text{Tc})$

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
67.5		67.5	7/2 ⁺	0.0	5/2 ⁺
124.0 [†]		1830.8	(21/2 ⁺)	1706.8	(19/2 ⁺)
126.5	14.3	610.2	13/2 ⁺	483.8	11/2 ⁺
132.0	100	199.5	9/2 ⁺	67.5	7/2 ⁺
132.6	3.6	1162.3	17/2 ⁺	1029.6	15/2 ⁺
284.2	26.1	483.8	11/2 ⁺	199.5	9/2 ⁺
293.6 [†]		1182.0	(15/2 ⁺)	888.4	(13/2 ⁺)
313.1	4.2	888.4	(13/2 ⁺)	575.3	(11/2 ⁺)
375.8	13.6	575.3	(11/2 ⁺)	199.5	9/2 ⁺
410.6	47.7	610.2	13/2 ⁺	199.5	9/2 ⁺
416.3	12.9	483.8	11/2 ⁺	67.5	7/2 ⁺

Continued on next page (footnotes at end of table)

^{252}Cf SF decay [2006Lu12](#) (continued) $\gamma(^{111}\text{Tc})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
419.5	7.0	1029.6	15/2 ⁺	610.2	13/2 ⁺	
507.9 [†]		575.3	(11/2 ⁺)	67.5	7/2 ⁺	
544.5	2.6	1706.8	(19/2 ⁺)	1162.3	17/2 ⁺	
545.8	6.9	1029.6	15/2 ⁺	483.8	11/2 ⁺	
552.1	28.7	1162.3	17/2 ⁺	610.2	13/2 ⁺	
606.7	3.2	1182.0	(15/2 ⁺)	575.3	(11/2 ⁺)	
660.2	4.3	3214.6	(29/2 ⁺)	2554.4	(25/2 ⁺)	
668.5	19.2	1830.8	(21/2 ⁺)	1162.3	17/2 ⁺	Initial level=1271.2 listed in table II of 2006Lu12 seems a misprint.
677.3	2.1	1706.8	(19/2 ⁺)	1029.6	15/2 ⁺	
723.6	9.5	2554.4	(25/2 ⁺)	1830.8	(21/2 ⁺)	
737.8	0.7	3952.4	(33/2 ⁺)	3214.6	(29/2 ⁺)	

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

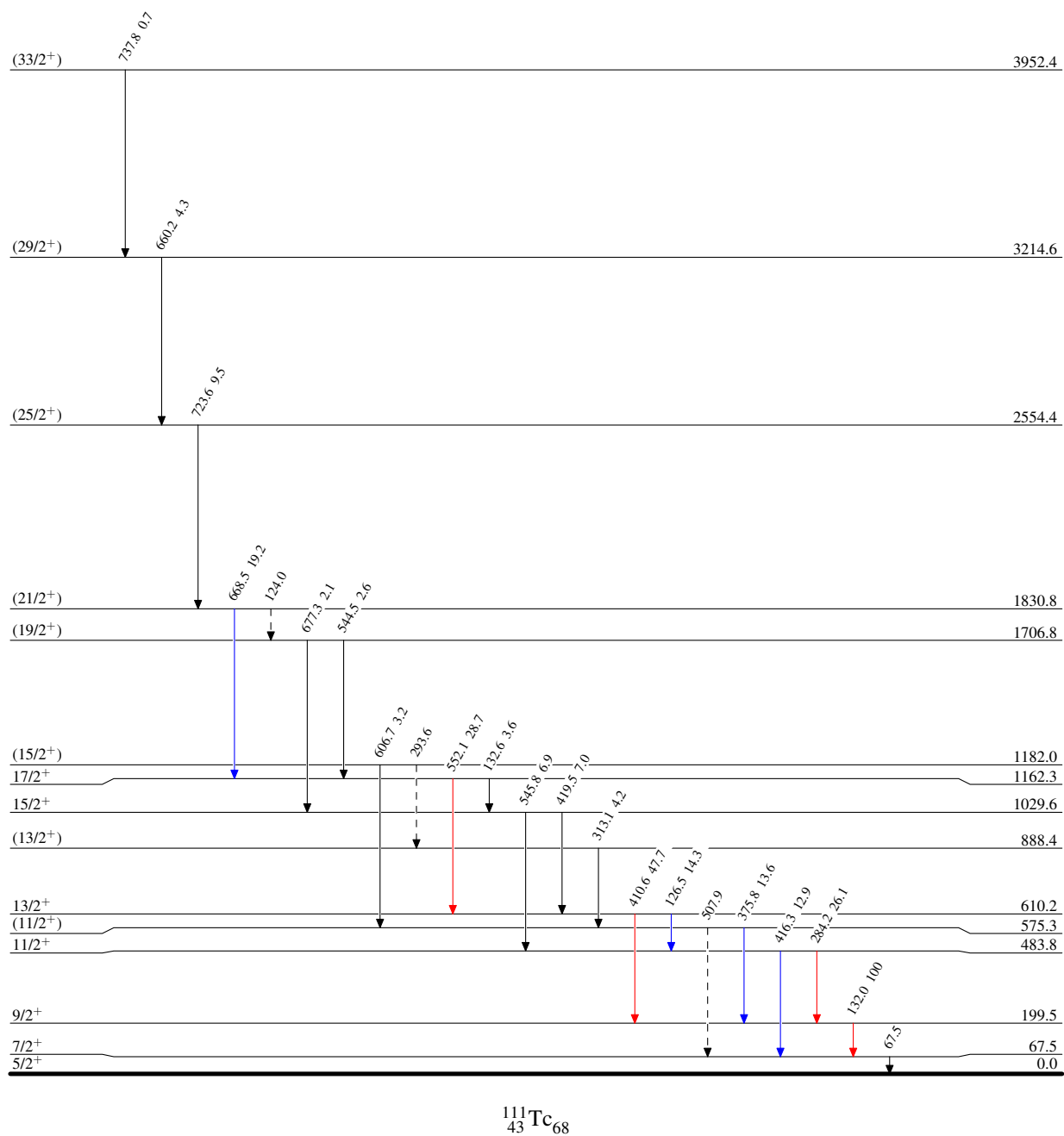
^{252}Cf SF decay 2006Lu12

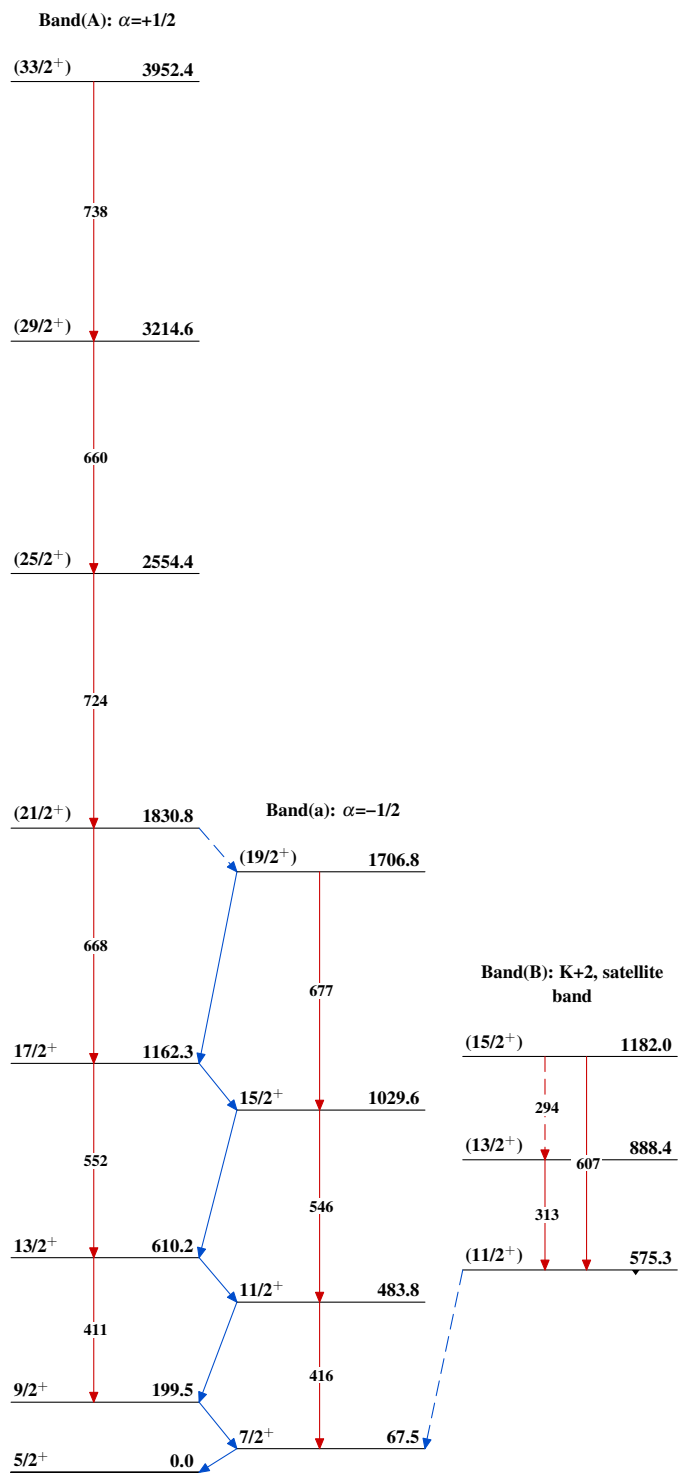
Level Scheme

Intensities: Relative I_γ

Legend

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



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