^{252}Cf SF decay 2004Lu03

History

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

Parent: ^{252}Cf: E=0; $J^\pi=0^+$; $T_{1/2}$=2.645 y *8*; %SF decay=3.086 *8*

2004Lu03: ≈62μCi ^{252}Cf source was placed between two iron foils with a thickness of 10mg/cm^2 and in the center of Gamma sphere array (at LBNL), consisting of 102 Compton-suppressed Ge detectors. More than 5.7×10^{11} triple-γ or higher coincident events were collected. Measured: Eγ, Iγ, $\gamma\gamma\gamma$.

^{110}Rh Levels

E(level)†	J^π‡	$T_{1/2}$	Comments
0+x	(5^+)		Additional information 1.
58.9+x *5*	(6^-)		
124.7+x# *7*	(7^-)	16 ns *4*	$T_{1/2}$: From 65.8γ(t) in 2004Lu03. However, this level is assigned as a collective, band-member in the Adopted Levels, and hence, the lifetime should originate from another state.
284.0+x@ *8*	(8^-)		
470.8+x# *8*	(9^-)		
770.7+x@ *9*	(10^-)		
1028.7+x# *9*	(11^-)		
1391.0+x@ *9*	(12^-)		
1766.2+x# *10*	(13^-)		

† From a least-square fit to E_γ's. $\Delta E\gamma$ = 0.5 keV was assumed by the evaluator.
‡ From 2004Lu03.
# Band(A): (7^-) band,α=1.
@ Band(a): (8^-) band,α=0.

$\gamma(^{110}Rh)$

Eγ‡	Iγ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	α†	Comments
58.9	>180	58.9+x	(6^-)	0+x	(5^+)	E1	0.663	α(K)=0.576 *8*; α(L)=0.0717 *10*; α(M)=0.01320 *19*; α(N+..)=0.00220 *3* α(N)=0.00212 *3*; α(O)=8.54×10^{-5} *12* Mult.: α(exp) deduced from intensity balance.
65.8	>130	124.7+x	(7^-)	58.9+x	(6^-)	M1+E2	3.6 *25*	α(K)=2.6 *17*; α(L)=0.8 *7*; α(M)=0.15 *14*; α(N+..)=0.024 *20* α(N)=0.023 *20*; α(O)=0.00038 *20* Mult.: From α(exp)=1.49 *5*, using intensity balance.
159.3	100	284.0+x	(8^-)	124.7+x	(7^-)	M1+E2	0.17 *8*	α(K)=0.15 *7*; α(L)=0.023 *13*; α(M)=0.0043 *25*; α(N+..)=0.0007 *4* α(N)=0.0007 *4*; α(O)=2.4×10^{-5} *9* Mult.: From α(exp)=0.09 *5*, using intensity balance.
186.8	53.1	470.8+x	(9^-)	284.0+x	(8^-)			
258.0	13.1	1028.7+x	(11^-)	770.7+x	(10^-)			
299.9	23.9	770.7+x	(10^-)	470.8+x	(9^-)			
346.1	1.3	470.8+x	(9^-)	124.7+x	(7^-)			
362.3	7.9	1391.0+x	(12^-)	1028.7+x	(11^-)			
375.3	2.8	1766.2+x	(13^-)	1391.0+x	(12^-)			
486.7	5.6	770.7+x	(10^-)	284.0+x	(8^-)			
557.9	5.9	1028.7+x	(11^-)	470.8+x	(9^-)			

Continued on next page (footnotes at end of table)

^{252}Cf SF decay 2004Lu03 (continued)

$\gamma(^{110}Rh)$ (continued)

E_γ [‡]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π
620.3	10.9	1391.0+x	(12^-)	770.7+x	(10^-)
737.5	1.4	1766.2+x	(13^-)	1028.7+x	(11^-)

† Additional information 2.
‡ From 2004Lu03.

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Level Scheme

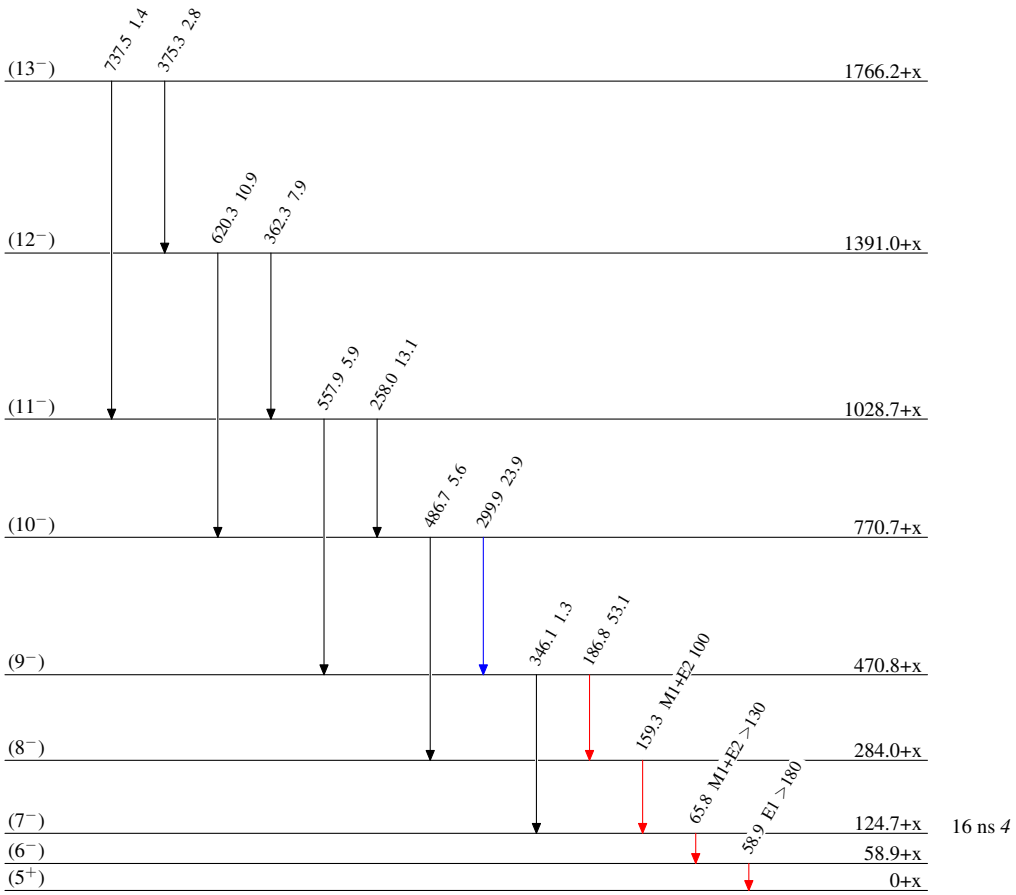
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

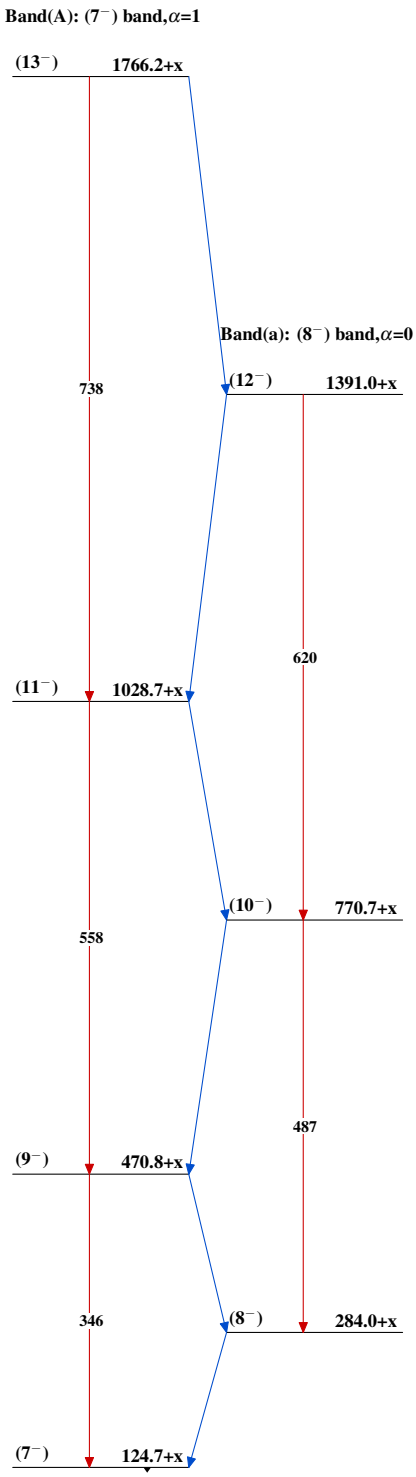
$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{110}_{45}Rh_{65}$

^{252}Cf SF decay 2004Lu03



$^{110}_{45}Rh_{65}$