^{248}Cm SF decay 1994Sh26,2012Sm02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. Lalkovski, F. G. Kondev	NDS 124, 157 (2015)	1-Aug-2014

Parent: ^{248}Cm: E=0.0; $J^\pi=0^+$; $T_{1/2}=3.48\times10^5$ y *6*; %SF decay=8.39 *16*

^{248}Cm-$T_{1/2}$: From ^{248}Cm Adopted Levels in ENSDF database.

1994Sh26: Source: 2 μCi ^{248}Cm in a KCl pellet; Detectors: EUROGAM array; Measured: γ-γ-γ, $\gamma\gamma(\theta)$, Eγ, Iγ; 2x10^9 triple-γ coincidence events; Deduced: level scheme; Other from the same group: 2003Du25.

2012Sm02: Source: 5 mg ^{248}Cm oxide in a KCl pellet; Detectors: EUROGAM-2 array; Measured: triple-γ and higher coincidences, Eγ, Iγ, Doppler-broadened lineshapes; 2.5x10^9 triple-γ and higher coincidence events; Deduced: level lifetimes.

^{112}Ru Levels

E(level)[†]	J^π[‡]	$T_{1/2}$[#]	Comments
0.0[@]	0^+		
236.80[@] *16*	2^+		
523.60[&] *16*	(2^+)		
645.20[@] *20*	4^+		
747.60[a] *19*	(3^+)		
980.80[&] *18*	(4^+)		
1190.1[@] *3*	6^+		
1235.50[a] *23*	(5^+)		
1570.5[&] *3*	(6^+)		
1840.1[@] *4*	8^+	1.84 ps *28*	$T_{1/2}$: statistical uncertainty=0.20 ps and systematic uncertainty=0.19 ps taken in quadrature.
1841.4[a] *3*	(7^+)	2.50 ps *35*	$T_{1/2}$: statistical uncertainty=0.25 ps and systematic uncertainty=0.25 ps taken in quadrature.
2263.8[&] *4*	(8^+)		
2534.5[a] *4*	(9^+)	1.23 ps *17*	$T_{1/2}$: statistical uncertainty=0.12 ps and systematic uncertainty=0.12 ps taken in quadrature.
2563.4[@] *4*	10^+	1.05 ps *16*	$T_{1/2}$: statistical uncertainty=0.12 ps and systematic uncertainty=0.10 ps taken in quadrature.
3290.5[a] *7*	(11^+)	0.78 ps *11*	$T_{1/2}$: statistical uncertainty=0.08 ps and systematic uncertainty=0.08 ps taken in quadrature.
3326.5[@] *7*	12^+	0.80 ps *12*	$T_{1/2}$: statistical uncertainty=0.09 ps and systematic uncertainty=0.08 ps taken in quadrature.

[†] From least-squares fit to Eγ's.
[‡] From the deduced γ-ray transition multipolarities and the apparent band structures.
[#] From 2012Sm02 using Doppler-broadened lineshape technique.
[@] Band(A): $K^\pi=0^+$, g.s. band.
[&] Band(B): $K^\pi=2^+$,γ−vibrational band, α=0.
[a] Band(C): $K^\pi=2^+$,γ−vibrational band, α=1.

$\gamma(^{112}Ru)$

E$_\gamma$[†]	I$_\gamma$[†]	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.[#]
224.0 *2*	9.1 *18*	747.60	(3^+)	523.60	(2^+)	
233.2 *2*	0.70 *14*	980.80	(4^+)	747.60	(3^+)	
236.8 *2*	100 *3*	236.80	2^+	0.0	0^+	E2
286.8 *2*	11.2 *3*	523.60	(2^+)	236.80	2^+	
335.6 *2*	2.0 *4*	980.80	(4^+)	645.20	4^+	
408.4 *2*	55.5 *17*	645.20	4^+	236.80	2^+	E2
457.2 *2*	9.8 *20*	980.80	(4^+)	523.60	(2^+)	
487.9 *2*	21.1 *6*	1235.50	(5^+)	747.60	(3^+)	
510.8 *2*	24.0 *7*	747.60	(3^+)	236.80	2^+	

Continued on next page (footnotes at end of table)

^{248}Cm SF decay 1994Sh26,2012Sm02 (continued)

$\gamma(^{112}Ru)$ (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
523.6 *2*	9.2 *18*	523.60	(2^+)	0.0	0^+		
544.9 *2*	40.8 *12*	1190.1	6^+	645.20	4^+	(E2)	
589.7 *2*	6.4 *13*	1570.5	(6^+)	980.80	(4^+)		
590.3 *2*	1.7 *3*	1235.50	(5^+)	645.20	4^+		
605.9 *2*	10.9 *3*	1841.4	(7^+)	1235.50	(5^+)	(E2)	E_γ: 605.3 in 2012Sm02.
650.0 *2*	15.2 *5*	1840.1	8^+	1190.1	6^+	(E2)	E_γ: 649.7 in 2012Sm02.
693.3 *2*	2.0 *4*	2263.8	(8^+)	1570.5	(6^+)	(E2)	
694.4 *2*	3.1 *6*	2534.5	(9^+)	1840.1	8^+	(E2)	E_γ: 693.8 in 2012Sm02.
723.3 *2*	4.1 *8*	2563.4	10^+	1840.1	8^+	(E2)	E_γ: 722.6 in 2012Sm02.
744.0 *2*	0.70 *14*	980.80	(4^+)	236.80	2^+		
756.0[‡] *5*		3290.5	(11^+)	2534.5	(9^+)	(E2)	
763.1[‡] *5*		3326.5	12^+	2563.4	10^+	(E2)	

[†] From 1994Sh26, unless otherwise stated. Eγ are from the reported level energy differences with ΔEγ=0.2 keV. ΔIγ=20% for Iγ < 10 and ΔIγ=3 % for Iγ > 10.

[‡] From 2012Sm02; ΔEγ=0.5 keV were estimated by the evaluators.

[#] From angular correlation measurements in 1994Sh26 and the apparent band structures.

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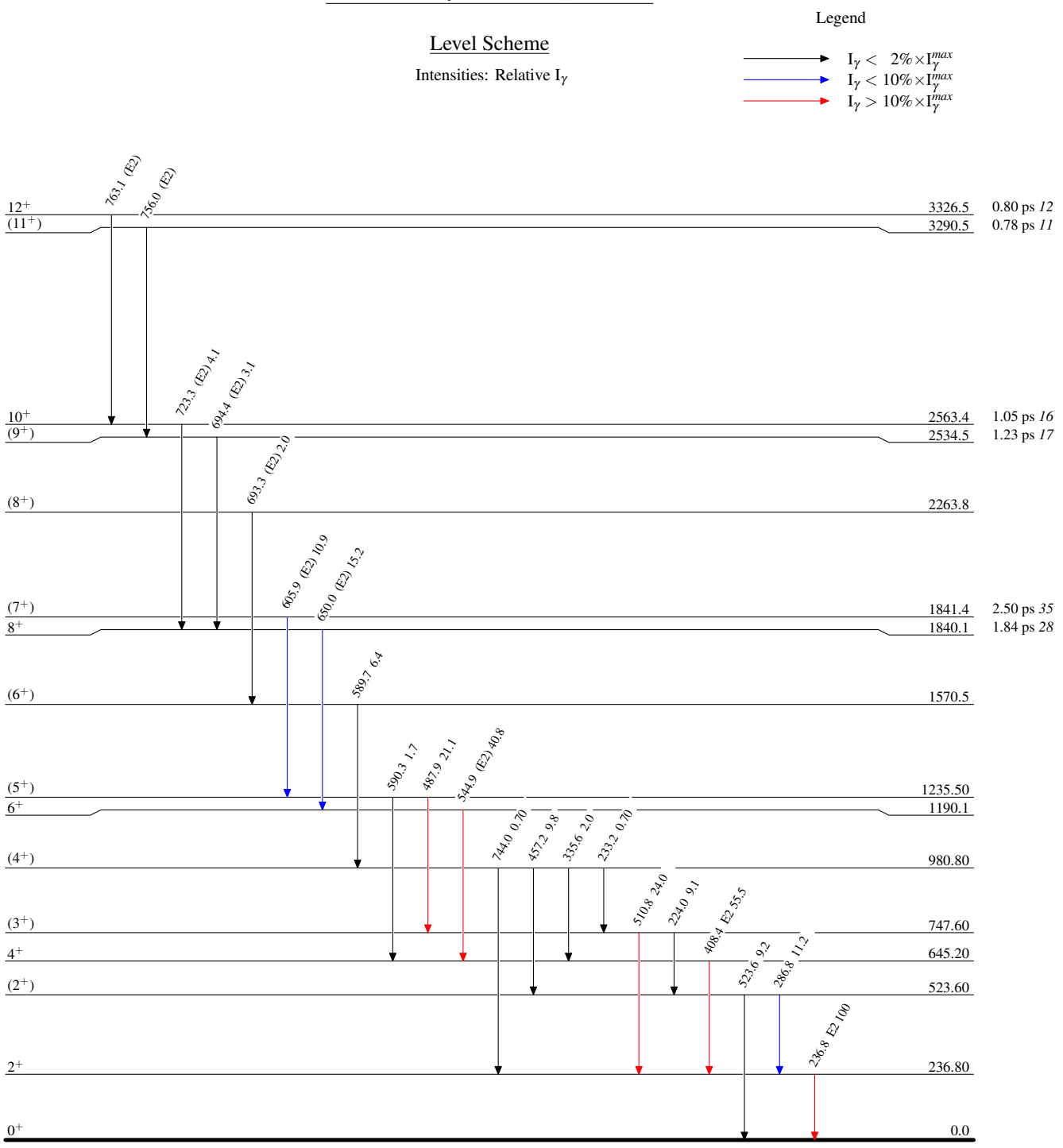
Level Scheme

Intensities: Relative I_γ



$^{112}_{44}Ru_{68}$

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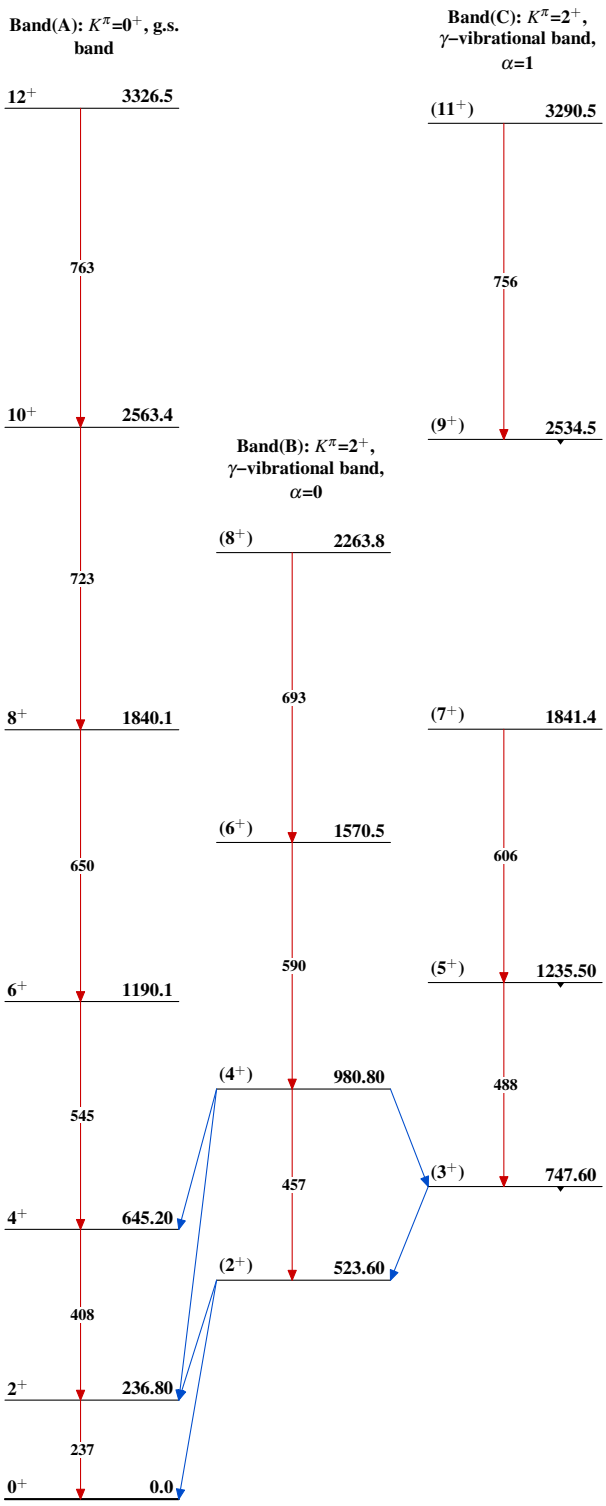

$^{112}_{44}Ru_{68}$