^{248}Cm SF decay 2000Ko15

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 146, 1 (2017)	30-Sep-2017

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

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

2000Ko15,2002KoZY: ^{248}Cm source was made of potasium chloride mixed with curium oxide. γ rays were detected with the EUROGAM2 array in Strasbourg, consisting of 52 large Ge detectors in anti-Compton shields including 24 four-crystal CLOVER detectors; x rays were detected with four LEPS detectors. Measured Eγ, Iγ, $\gamma(\theta)$, γ(pol), $\gamma\gamma$-coin. Deduced levels, J, π. Comparisons with shell-model calculations. 2000Ko15 supersede 1994Be25.

Additional information 1.

2005Ga25: Measured Eγ, Iγ. Deduced fission yield.

^{138}Xe Levels

E(level)†	J^π‡	E(level)†	J^π‡	E(level)†	J^π‡	E(level)†
0#	0^+	2293.2 *5*	(6^+)	3412.7 *6*		4511.8 *6*
588.87# *25*	2^+	2391.0 *6*		3571.2# *6*	12^+	4526.2 *7*
1072.5# *4*	4^+	2655.1 *5*	(8^+)	3839.7 *6*		4689.9 *7*
1464.04 *25*	(2^+)	2710.1 *6*		3876.6 *6*		4964.9 *7*
1554.6# *5*	6^+	2972.1# *6*	10^+	3898.6 *6*		4989.6 *7*
1903.0 *4*	(4^+)	3224.7 *6*		4084.6 *6*		5520.0 *7*
2115.5 *5*		3276.5 *6*		4357.4 *6*		5814.0 *8*
2284.2# *5*	8^+	3354.7 *6*		4419.0# *7*	(14^+)	

† From a least-squares fit to γ-ray energies assuming $\Delta E\gamma$=0.3 keV.

‡ From 2000Ko15 based on deduced γ-ray multipolarities and band structure.

Band(A): Yrast band.

$\gamma(^{138}Xe)$

E_γ†	I_γ†	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	Comments
272.9		4357.4		4084.6			
327.4		3898.6		3571.2	12^+		
370.9		2655.1	(8^+)	2284.2	8^+		
382.6@		3354.7		2972.1	10^+		
458.9		4357.4		3898.6			
482.1#	167# *1*	1554.6	6^+	1072.5	4^+	(E2)	Mult.: E2 is quoted for the 482.1-483.6 doublet. A_2=+0.089 *1*, A_4=+0.035 *1* for the 482.1-483.6 doublet (2000Ko15).
483.6#	167# *1*	1072.5	4^+	588.87	2^+	(E2)	Mult.: E2 is quoted for the 482.1-483.6 doublet. A_2=+0.089 *1*, A_4=+0.035 *1* for the 482.1-483.6 doublet (2000Ko15).
530.3		5520.0		4989.6			
544.0		3898.6		3354.7			
545.9		4964.9		4419.0	(14^+)		
555.0		5520.0		4964.9			
570.6		4989.6		4419.0	(14^+)		
588.9	100 *1*	588.87	2^+	0	0^+	E2	A_2=+0.102 *6*, A_4=+0.006 *7* (2000Ko15).
599.0	19.90 *6*	3571.2	12^+	2972.1	10^+	E2	A_2=+0.098 *6*, A_4=+0.035 *7* (2000Ko15).
613.1		4511.8		3898.6			
615.0		3839.7		3224.7			

Continued on next page (footnotes at end of table)

^{248}Cm SF decay 2000Ko15 (continued)

$\gamma(^{138}Xe)$ (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	Comments
687.9	28.3 *1*	2972.1	10^+	2284.2	8^+	E2	A_2=+0.109 *3*, A_4=+0.023 *4* (2000Ko15).
699.5		3354.7		2655.1	(8^+)		
729.6	35 *1*	2284.2	8^+	1554.6	6^+	E2	A_2=+0.13 *1*, A_4=+0.01 *1* (2000Ko15).
738.6		2293.2	(6^+)	1554.6	6^+		
786		4357.4		3571.2	12^+		A_2=−0.04 *1*, A_4=+0.03 *1* (2000Ko15).
824.3		5814.0		4989.6			
830.5		1903.0	(4^+)	1072.5	4^+		
836.4		2391.0		1554.6	6^+		
847.8	4.26 *4*	4419.0	(14^+)	3571.2	12^+		
867.5		3839.7		2972.1	10^+		
875.2		1464.04	(2^+)	588.87	2^+		
904.5		3876.6		2972.1	10^+		
926.5		3898.6		2972.1	10^+		
940.5		3224.7		2284.2	8^+		
940.6		4511.8		3571.2	12^+		
955.0		4526.2		3571.2	12^+		
992.3		3276.5		2284.2	8^+		
1043.0		2115.5		1072.5	4^+		
1070.5		3354.7		2284.2	8^+		
1100.5		2655.1	(8^+)	1554.6	6^+		
1112.5		4084.6		2972.1	10^+		
1118.6		4689.9		3571.2	12^+		
1128.5		3412.7		2284.2	8^+		
1155.5		2710.1		1554.6	6^+		
1220.7		2293.2	(6^+)	1072.5	4^+		
1314.2		1903.0	(4^+)	588.87	2^+		
1464.0		1464.04	(2^+)	0	0^+		

[†] From 2002KoZY.
[‡] From 2002KoZY, based on γ angular correlations and linear polarizations.
[#] Multiply placed with undivided intensity.
[@] Placement of transition in the level scheme is uncertain.

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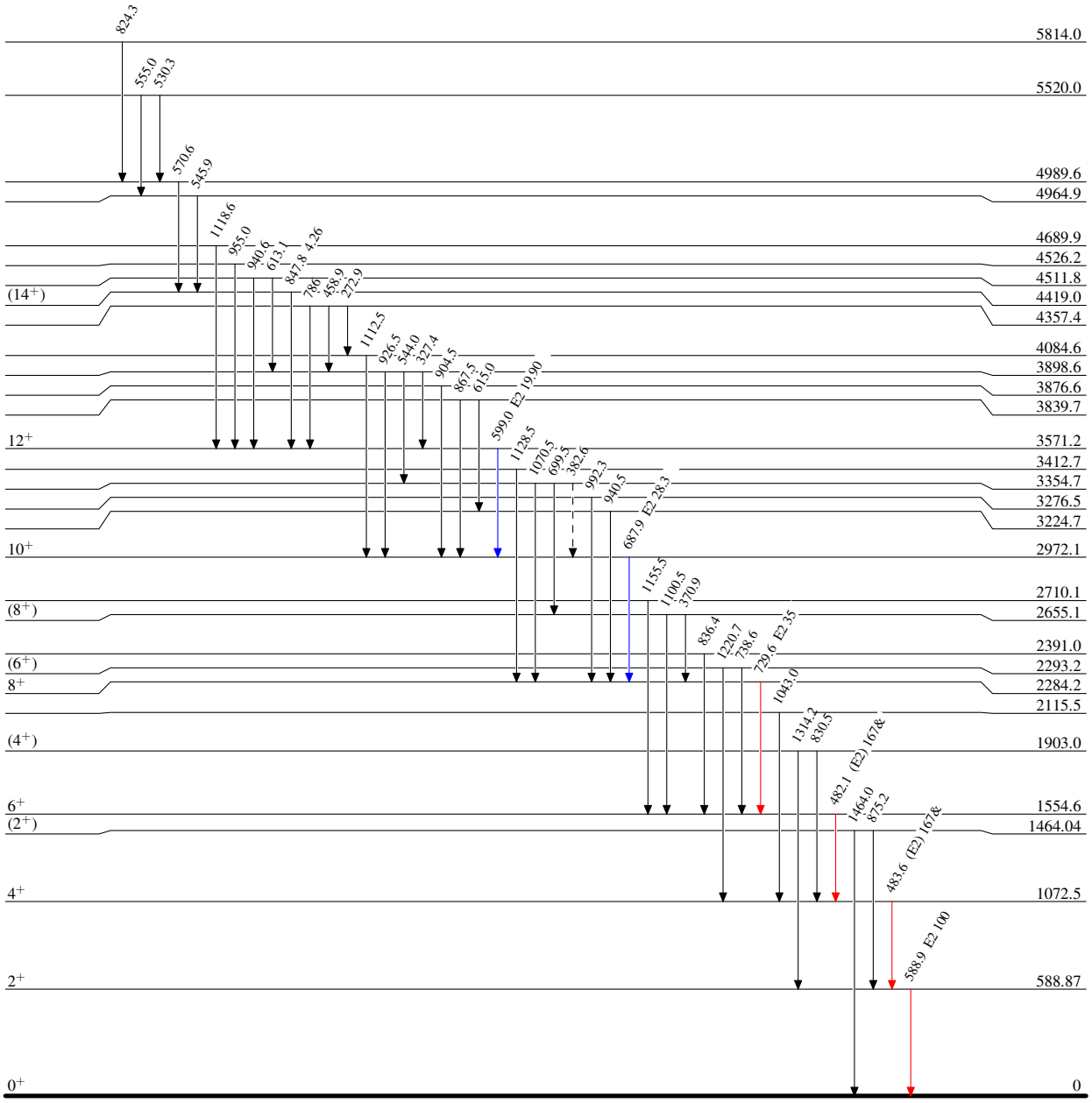
Level Scheme

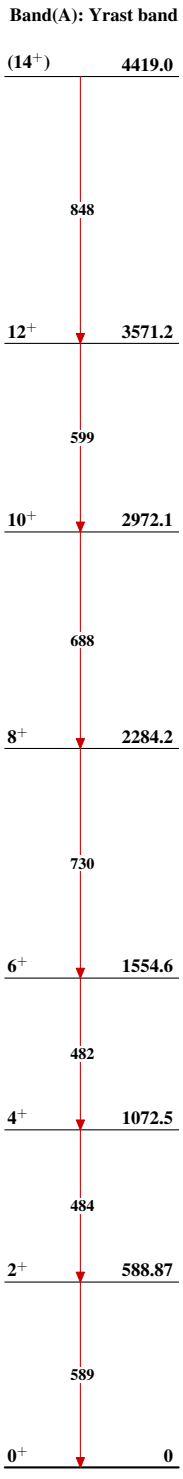
Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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)



$^{138}_{54}Xe_{84}$

^{248}Cm SF decay 2000Ko15



$^{138}_{54}Xe_{84}$