^{248}Cm SF decay 2000Ur04

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 187,1 (2023)	12-Oct-2022

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

2000Ur04: Eurogam2, measured $\gamma\gamma\gamma$, X$\gamma\gamma$, $\gamma(\theta)$, directional polarization, Ge, LEPS.

1996Be06 (same authors as 2000Ur04): Eurogam with 5 LEPS, 45 Compton-suppressed large volume Ge detectors. Measured $\gamma\gamma\gamma$, X$\gamma\gamma$.

^{141}Xe Levels

E(level)[†]	J^π[‡]	Comments
0.0[#]	$5/2^{(-)}$	J^π: adopted value.
35.6[a]	$7/2^{(-)}$	
111.9[#]	$9/2^{(-)}$	
481.5[#]	$13/2^{(-)}$	
552.2[a]	$(11/2^-)$	
997.3[#]	$17/2^{(-)}$	
1029.1[a]	$15/2^{(-)}$	
1155.0[&]	$(13/2^+)$	
1332.0[@]	$(15/2^+)$	
1494.4[&]	$(17/2^+)$	
1670.8[@]	$19/2^{(+)}$	
1679.1[#]	$21/2^{(-)}$	
1972.9[&]	$(21/2^+)$	
1980.6		
2134.7[@]	$(23/2^+)$	
2396.5[#]	$25/2^{(-)}$	
2546.0		
2574.7[&]	$(25/2^+)$	
2696.7[@]	$(27/2^+)$	
3106.7[#]	$29/2^{(-)}$	
3365.5[@]	$(31/2^+)$	

[†] From 2000Ur04 confirming 1996Be06 except for 2546.0 and 1980.6 that are only from 1996Be04.
[‡] Based on γ-ray multipolarities obtained from $\gamma\gamma(\theta)$, linear pol, and band assignments.
[#] Band(A): Simplex=−i, π=− band.
[@] Band(B): Simplex=−i, π=+ band.
[&] Band(C): Simplex=+i, π=+ band.
[a] Band(D): Simplex=+i, π=− band.

$\gamma(^{141}$Xe)

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[#]	Comments
35.6	35.6	$7/2^{(-)}$	0.0	$5/2^{(-)}$	M1+E2		Mult.: from α(K)(exp)=14 *1*. Other: 15.0 *5* (1996Be06).
76.3	111.9	$9/2^{(-)}$	35.6	$7/2^{(-)}$	M1(+E2)		α(exp)=1.4 *4* Mult.: from α(exp), $\gamma\gamma(\theta)$. A_2=+0.01 *2*, A_4=+0.01 *2* for 370-76 cascade.
111.9	111.9	$9/2^{(-)}$	0.0	$5/2^{(-)}$	(E2)	1.21	Mult.: stretched Q from $\gamma\gamma(\theta)$, most likely E2. A_2=+0.10 *2*, A_4=−0.06 *2* for 370-112 cascade.

Continued on next page (footnotes at end of table)

^{248}Cm SF decay 2000Ur04 (continued)

$\gamma(^{141}Xe)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α [#]	Comments
300.7		1980.6		1679.1	$21/2^{(-)}$			
338.5		1670.8	$19/2^{(+)}$	1332.0	$(15/2^+)$			
339.4		1494.4	$(17/2^+)$	1155.0	$(13/2^+)$			
369.6	98 *3*	481.5	$13/2^{(-)}$	111.9	$9/2^{(-)}$	E2	0.0217	Mult.: from $\gamma\gamma(\theta)$, lin pol=+0.25 *9*. A_2=+0.08 *1*, A_4=−0.05 *2* for 370-516 cascade.
440.3		552.2	$(11/2^-)$	111.9	$9/2^{(-)}$			
454.7		2134.7	$(23/2^+)$	1679.1	$21/2^{(-)}$			
463.9	18 *1*	2134.7	$(23/2^+)$	1670.8	$19/2^{(+)}$			
465.3		1494.4	$(17/2^+)$	1029.1	$15/2^{(-)}$			
477.7		1029.1	$15/2^{(-)}$	552.2	$(11/2^-)$			
478.5		1972.9	$(21/2^+)$	1494.4	$(17/2^+)$			
497.0		1494.4	$(17/2^+)$	997.3	$17/2^{(-)}$			
515.8	100 *3*	997.3	$17/2^{(-)}$	481.5	$13/2^{(-)}$	E2		Mult.: from $\gamma\gamma(\theta)$, lin pol=+0.20 *6*.
516.5		552.2	$(11/2^-)$	35.6	$7/2^{(-)}$			
547.6		1029.1	$15/2^{(-)}$	481.5	$13/2^{(-)}$	M1(+E2)		Mult.: stretched D from $\gamma\gamma(\theta)$, lin pol=−0.30 *15*. A_2=+0.01 *2*, A_4=−0.02 *2* for 548-370 cascade.
562.0	14 *1*	2696.7	$(27/2^+)$	2134.7	$(23/2^+)$	[E2]		
565.3		2546.0		1980.6				
601.8		2574.7	$(25/2^+)$	1972.9	$(21/2^+)$			
602.8		1155.0	$(13/2^+)$	552.2	$(11/2^-)$			
668.8		3365.5	$(31/2^+)$	2696.7	$(27/2^+)$	[E2]		
672.6	24 *1*	1670.8	$19/2^{(+)}$	997.3	$17/2^{(-)}$	E1		Mult.: stretched D from $\gamma\gamma(\theta)$, lin pol=+0.30 *12*. A_2=−0.08 *3* for 673−(370+516) cascade.
673.5		1155.0	$(13/2^+)$	481.5	$13/2^{(-)}$			
681.8	26 *1*	1679.1	$21/2^{(-)}$	997.3	$17/2^{(-)}$	E2		Mult.: from $\gamma\gamma(\theta)$, lin pol=+0.20 *10*. A_2=+0.12 *4*, A_4=−0.04 *4* for 682−(370+516) cascade.
709.2		3106.7	$29/2^{(-)}$	2396.5	$25/2^{(-)}$			
717.4	8 *1*	2396.5	$25/2^{(-)}$	1679.1	$21/2^{(-)}$			
850.5		1332.0	$(15/2^+)$	481.5	$13/2^{(-)}$			
866.1		2546.0		1679.1	$21/2^{(-)}$			

[†] Uncertainties not provided in 2000Ur04 and 1996Be06. The larger set of γ-ray energy values from 2000Ur04 is adopted. 2000Ur04 confirm all γ-ray values and placements of 1996Be06 except for 565.3γ, 300.7γ and 866.1γ whose existence and placement will later be confirmed by 2017Hu09 (see ^{252}Cf SF decay dataset).

[‡] Intensity in coincidence with the 370.1γ from 1996Be06.

[#] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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Level Scheme

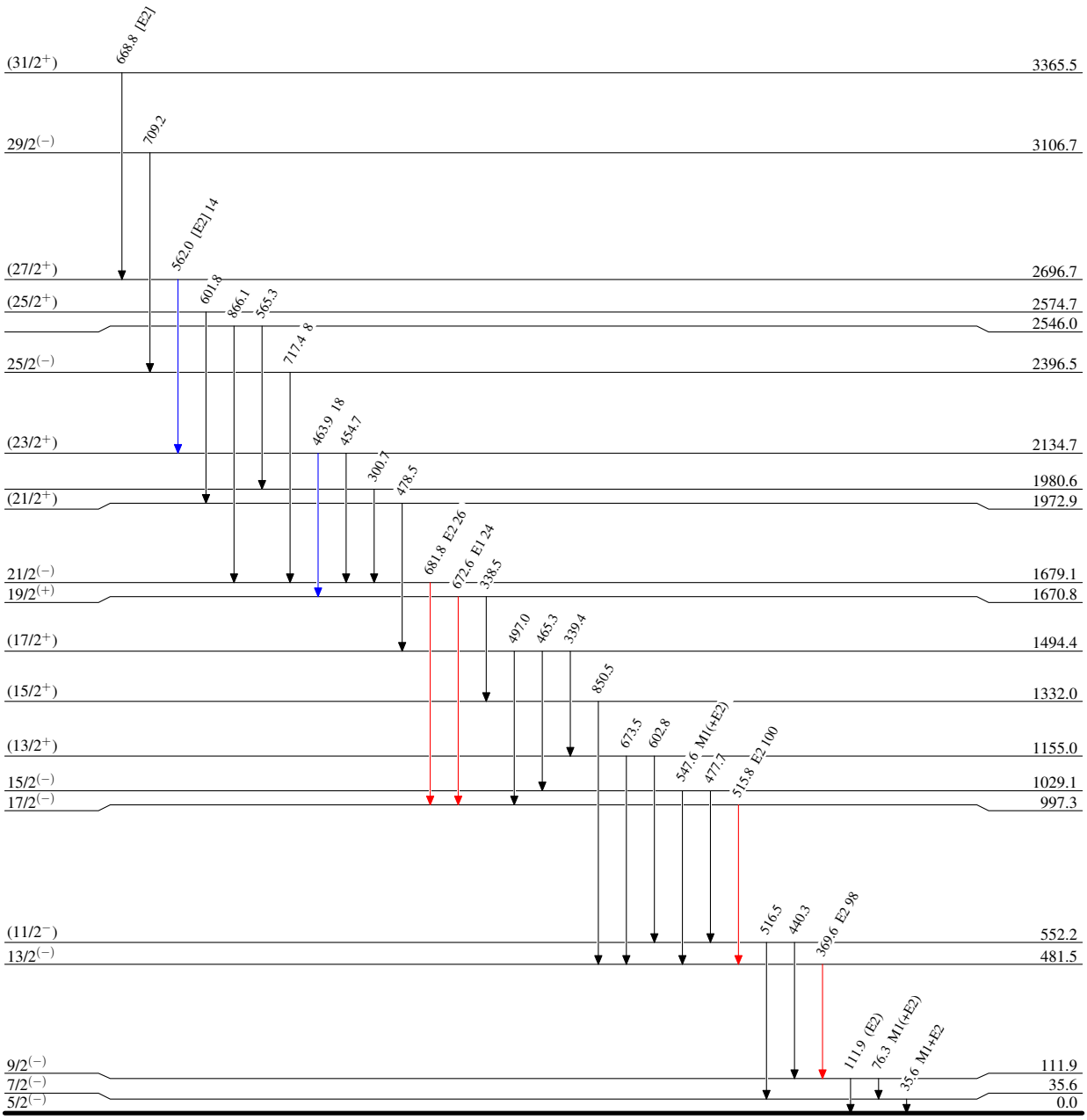
Intensities: Relative I_γ

Legend

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

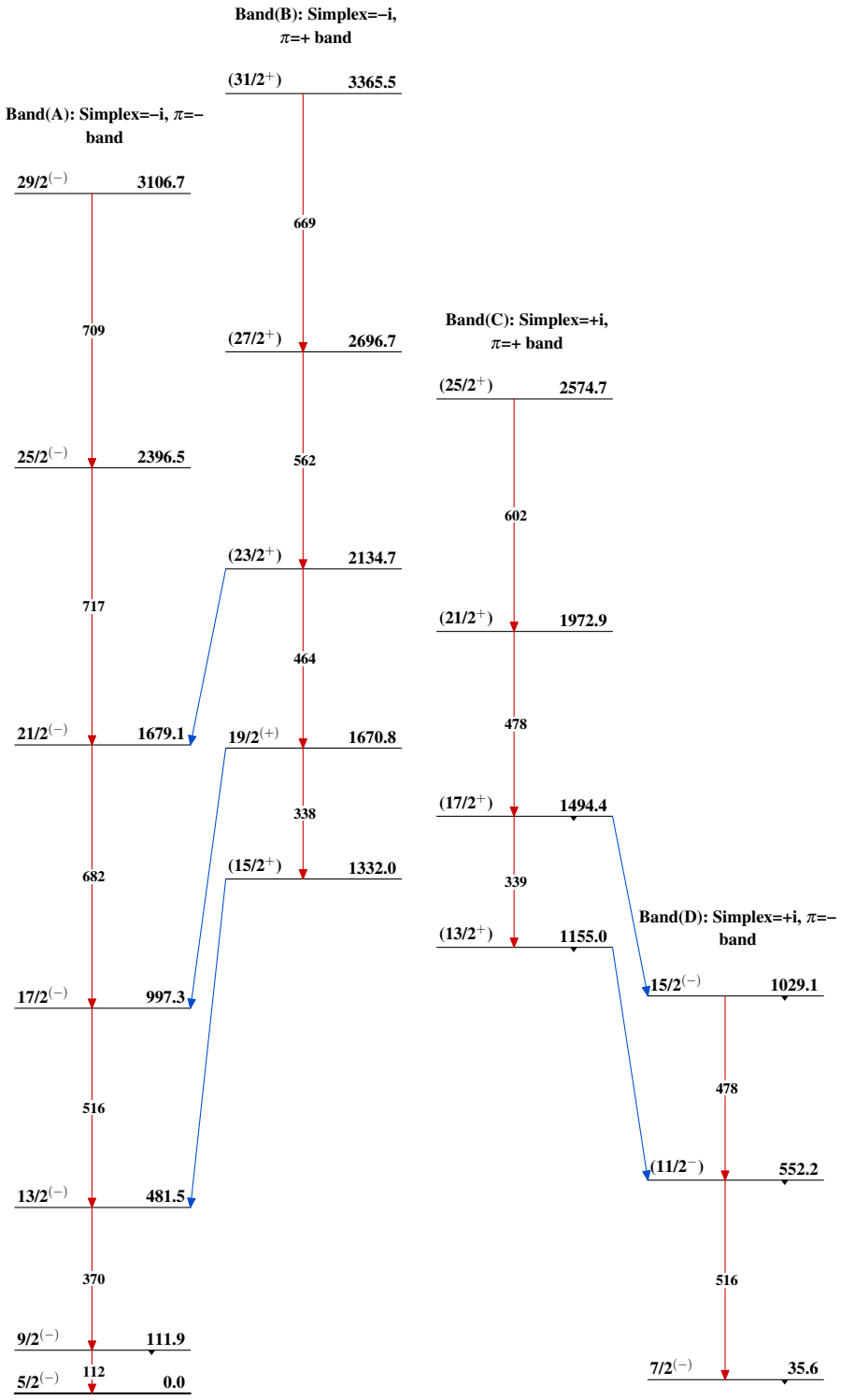
$I_\gamma < 10\% \times I_\gamma^{max}$

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



$^{141}_{54}Xe_{87}$

^{248}Cm SF decay 2000Ur04



$^{141}_{54}Xe_{87}$