^{248}Cm SF decay 1995Du10,1991Ho16,1996Sm04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 172,1 (2021)	31-Jan-2021

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

^{248}Cm-%SF decay: %SF=8.39 *16* for ^{248}Cm SF decay from the Adopted Levels of ^{248}Cm.

1995Du10 (also 1996Sm04,1995Sm04): ^{248}Cm SF decay. Measured Eγ, Iγ, γγγ-coin using EUROGAM array. Deduced levels, J, π, band structures. Some discussion of 2-quasiparticle bands is also given by 2003Du25.

1991Ho16 (also 1990Ho12): measured Eγ, Iγ, γγ.

1996Sm04(or 2012Sm02): measured lifetimes by Doppler-broadened line shapes using EUROGAM-2 array.

1995Du10, 1996Sm04, 1991Ho16 are from the same group.

Other: 2009Ur03.

^{100}Zr Levels

E(level)[†]	J^π[‡]	$T_{1/2}$[#]	Comments
0.0[@]	0^+		
212.6[@] *5*	2^+		
564.5[@] *7*	4^+		
1062.0[@] *9*	6^+		
1414.4 *10*			
1687.6[@] *10*	8^+	1.77 ps *21*	$T_{1/2}$: statistical uncertainty=0.12 ps, systematic uncertainty=0.17 ps (1996Sm04).
1856.1 *11*			
2259.8[&] *10*	(6^+)		
2426.2[@] *11*	10^+	0.75 ps *9*	$T_{1/2}$: statistical uncertainty=0.042 ps, systematic uncertainty=0.069 ps (1996Sm04).
2479.8[&] *13*	(7^+)		
2729.8[&] *13*	(8^+)		
3014.8[&] *14*	(9^+)		
3272.8[@] *12*	12^+	0.37 ps *4*	$T_{1/2}$: statistical uncertainty=0.021 ps, systematic uncertainty=0.035 ps (1996Sm04).
3329.8[&] *15*	(10^+)		

[†] From least-squares fit to Eγ data, assuming ΔEγ=0.5 keV for Eγ values given as decimals and 1 keV for integer Eγ.

[‡] As given by 1995Du10 based on band assignments.

[#] From Doppler-broadened line shapes (Doppler-profile method, 1996Sm04).

[@] Band(A): g.s. band.

[&] Band(B): $K^\pi=(6^+)$ band. Probable configuration=$\nu9/2[404]\otimes\nu3/2[411]$ (1995Du10).

γ(^{100}Zr)

E_γ[†]	I_γ[@]	E_i(level)	J_i^π	E_f	J_f^π
212.6[‡]	100	212.6	2^+	0.0	0^+
220		2479.8	(7^+)	2259.8	(6^+)
250		2729.8	(8^+)	2479.8	(7^+)
285		3014.8	(9^+)	2729.8	(8^+)
315		3329.8	(10^+)	3014.8	(9^+)
351.9[‡]	81 *8*	564.5	4^+	212.6	2^+
352		1414.4		1062.0	6^+
404		2259.8	(6^+)	1856.1	
470		2729.8	(8^+)	2259.8	(6^+)
497.4[‡]	49 *5*	1062.0	6^+	564.5	4^+

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^{248}Cm SF decay 1995Du10,1991Ho16,1996Sm04 (continued)

$\gamma(^{100}Zr)$ (continued)

E_γ [†]	I_γ [@]	E_i(level)	J_i^π	E_f	J_f^π	Comments
535		3014.8	(9^+)	2479.8	(7^+)	
600		3329.8	(10^+)	2729.8	(8^+)	
625.6[#]	14 *3*	1687.6	8^+	1062.0	6^+	E_γ: 625.4 (1991Ho16).
738.6[#]	4 *1*	2426.2	10^+	1687.6	8^+	E_γ: 738.7 (1991Ho16).
845		2259.8	(6^+)	1414.4		
846.6[#&]		3272.8	12^+	2426.2	10^+	
850		1414.4		564.5	4^+	
1198		2259.8	(6^+)	1062.0	6^+	
1292		1856.1		564.5	4^+	
1695		2259.8	(6^+)	564.5	4^+	

† From 1995Du10, unless otherwise stated.
‡ From 1991Ho16.
# From 1996Sm04.
@ From 1991Ho16.
& About 4 keV higher as compared to 842.5 in ^{252}Cf SF decay and 842.1 in ^{238}U(α,Fγ).

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Level Scheme

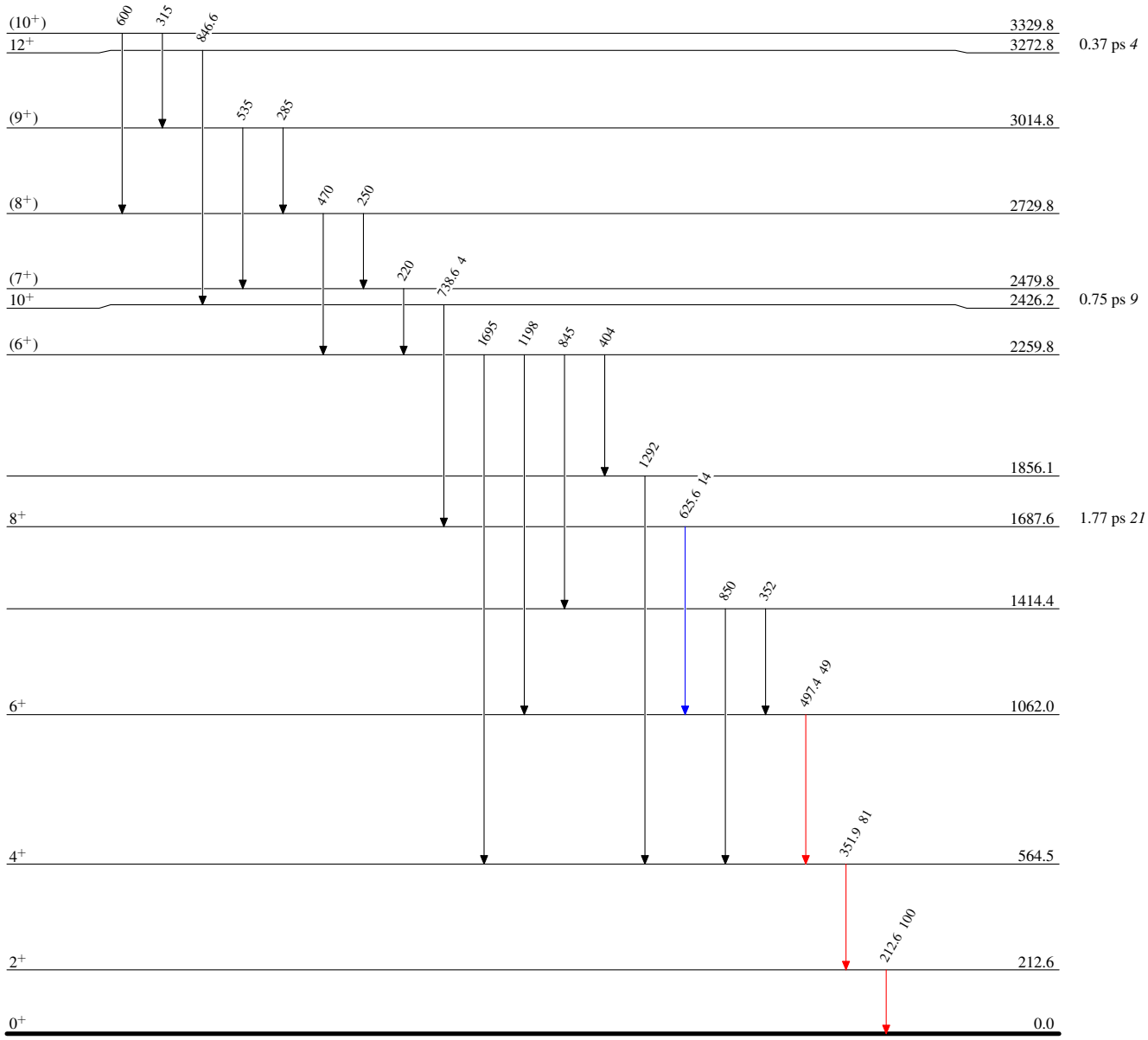
Intensities: Relative I_γ

Legend

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

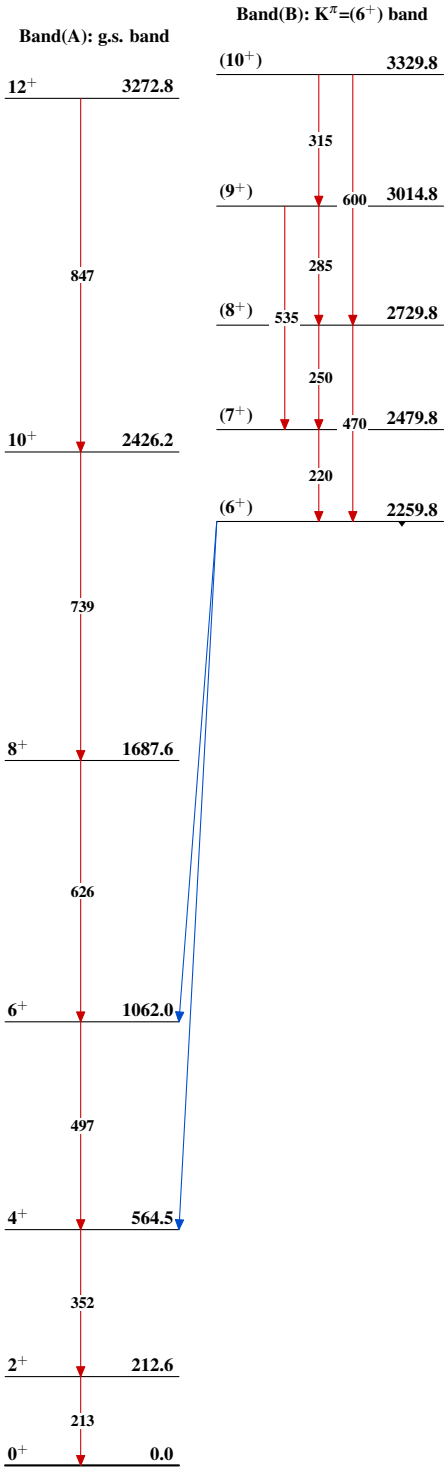
$I_\gamma < 10\% \times I_\gamma^{max}$

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



$^{100}_{40}Zr_{60}$

^{248}Cm SF decay 1995Du10,1991Ho16,1996Sm04



$^{100}_{40}Zr_{60}$