^{248}Cm SF decay 1996Be06,1990Mo18,2003Ur02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson, D. Symochko(a), M. Fadil(b), and J. K. Tuli	NDS 112, 1949 (2011)	1-Jun-2010

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

1996Be06: Eurogam-1 array with 5 low-energy photon spectrometers (LEPS) and 45 Compton suppressed Ge detectors. Measured $\gamma\gamma\gamma$, X$\gamma\gamma$. Observed coincidence with transitions in Mo isotopes (1996Be06). 1996Be06 have extended level scheme of 1990Mo18.

2003Ur02: Eurogam-2 array of anti-Compton Ge detectors. Measured Eγ, $\gamma\gamma$. Octupole band observed.

2009Go09: Gammasphere array. Measured g factor of the first 2^+ state by the method of correlation attenuations in randomly oriented magnetic fields (IPAC).

^{142}Xe Levels

E(level)[†]	J^π[‡]	Comments
0.0[#]	0^+	
287.20[#] *20*	2^+	g=0.42 *13* (2009Go09) g: For $T_{1/2}$=0.20 ns *3*. The authors report g=25 *10* for $T_{1/2}$=0.34 ns *+12−7*.
690.7[#] *3*	(4^+)	
1181.1[#] *4*	(6^+)	
1258.5[@] *11*	(3^-)	
1516.3[@] *11*		
1622.4 *5*		
1732.2[#] *4*	(8^+)	
1864.5 *8*		
1888.3[@] *9*	(7^-)	
1981.2 *6*		
2211.7[&] *7*		
2342.6[#] *5*	(10^+)	
2351.2[@] *7*	(9^-)	
2605.3[&] *6*		
2805.9[&] *9*		
2891.7[@] *9*	(11^-)	
3014.3[#] *7*	(12^+)	
3210.4[&] *14*		
3496.2[@] *14*	(13^-)	
3739.7[#] *12*	(14^+)	
3764.3[&] *17*		
4511.2[#] *16*	(16^+)	

[†] From least-squares fit to Eγ.
[‡] From Adopted Levels.
[#] Band(A): g.s. band.
[@] Band(B): octupole band.
[&] Band(C): possible rotational band.

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γ(^{142}Xe)

Angular distribution coefficients for the 707.2 and 540.5 transitions from a summed correlation with several g.s. band transitions.

E_γ[#]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	α[†]	Comments
116.7	1.1 *4*	1981.2		1864.5				
200.6		2805.9		2605.3				
230.4		2211.7		1981.2				
254.0	0.9 *4*	2605.3		2351.2	(9$^-$)			
287.2 *2*		287.20	2$^+$	0.0	0$^+$			
347.2		2211.7		1864.5				
358.9	1.5 *4*	1981.2		1622.4				
372[@a]		1888.3	(7$^-$)	1516.3				
393.4	1.3 *4*	2605.3		2211.7				
403.5 *2*	100 *10*	690.7	(4$^+$)	287.20	2$^+$			
404.5		3210.4		2805.9				
441.1		1622.4		1181.1	(6$^+$)			
454.8		2805.9		2351.2	(9$^-$)			
462.9	2 *1*	2351.2	(9$^-$)	1888.3	(7$^-$)			
479.5		2211.7		1732.2	(8$^+$)			
481.6[@a]		3496.2	(13$^-$)	3014.3	(12$^+$)			
490.4 *2*	72 *7*	1181.1	(6$^+$)	690.7	(4$^+$)			
540.5[@]		2891.7	(11$^-$)	2351.2	(9$^-$)	(E2)	0.00725 *11*	α=0.00725 *11*; α(K)=0.00615 *9*; α(L)=0.000876 *13*; α(M)=0.000179 *3*; α(N+..)=4.11×10^{-5} *6* α(N)=3.67×10^{-5} *6*; α(O)=4.42×10^{-6} *7* γ-γ(θ): A$_2$=− 0.10 *5*, A$_4$= 0.00 *5*. No half-life longer than 10 ns was observed for 2891-kev level.
549.1[@]		2891.7	(11$^-$)	2342.6	(10$^+$)			
551.1 *2*	39 *4*	1732.2	(8$^+$)	1181.1	(6$^+$)			
553.9		3764.3		3210.4				
604.5[@]		3496.2	(13$^-$)	2891.7	(11$^-$)			
610.4 *2*	12 *3*	2342.6	(10$^+$)	1732.2	(8$^+$)			
618.9	10 *1*	2351.2	(9$^-$)	1732.2	(8$^+$)	E1	0.00182 *3*	α=0.00182 *3*; α(K)=0.001577 *22*; α(L)=0.000194 *3*; α(M)=3.90×10^{-5} *6*; α(N+..)=9.06×10^{-6} *13* α(N)=8.06×10^{-6} *12*; α(O)=1.004×10^{-6} *14* (619)(θ): A$_2$=− 0.08 *1*, A$_4$=+ 0.02 *1*. POL=+0.3 *1* (2003Ur02).
671.7 *5*	2.2 *3*	3014.3	(12$^+$)	2342.6	(10$^+$)			
683.4	6 *1*	1864.5		1181.1	(6$^+$)			
707.2		1888.3	(7$^-$)	1181.1	(6$^+$)	D		A$_2$=− 0.14 *4*, A$_4$=− 0.02 *5*.
725.4		3739.7	(14$^+$)	3014.3	(12$^+$)			
771.5[@]		4511.2	(16$^+$)	3739.7	(14$^+$)			
800.1 *5*	4 *1*	1981.2		1181.1	(6$^+$)			
825.6[@]		1516.3		690.7	(4$^+$)			
873.1 *5*	4 *1*	2605.3		1732.2	(8$^+$)			
931.7 *5*	3 *1*	1622.4		690.7	(4$^+$)			
971.3[@]		1258.5	(3$^-$)	287.20	2$^+$			

[†] Additional information 1.
[‡] Intensity in coincidence with 287.1γ. Average of values from 1996Be06 and 1990Mo18. Minimum 10% uncertainty assumed by the evaluators.

Continued on next page (footnotes at end of table)

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$\gamma(^{142}Xe)$ (continued)

Values with uncertainties are from 1990Mo18. Values without uncertainties are from 1996Be06 unless otherwise noted. 0.5-keV uncertainty assumed for calculation of level energies.
@ From 2003Ur02.
& From angular correlations and linear polarization measurements when available (2003Ur02).
a Placement of transition in the level scheme is uncertain.

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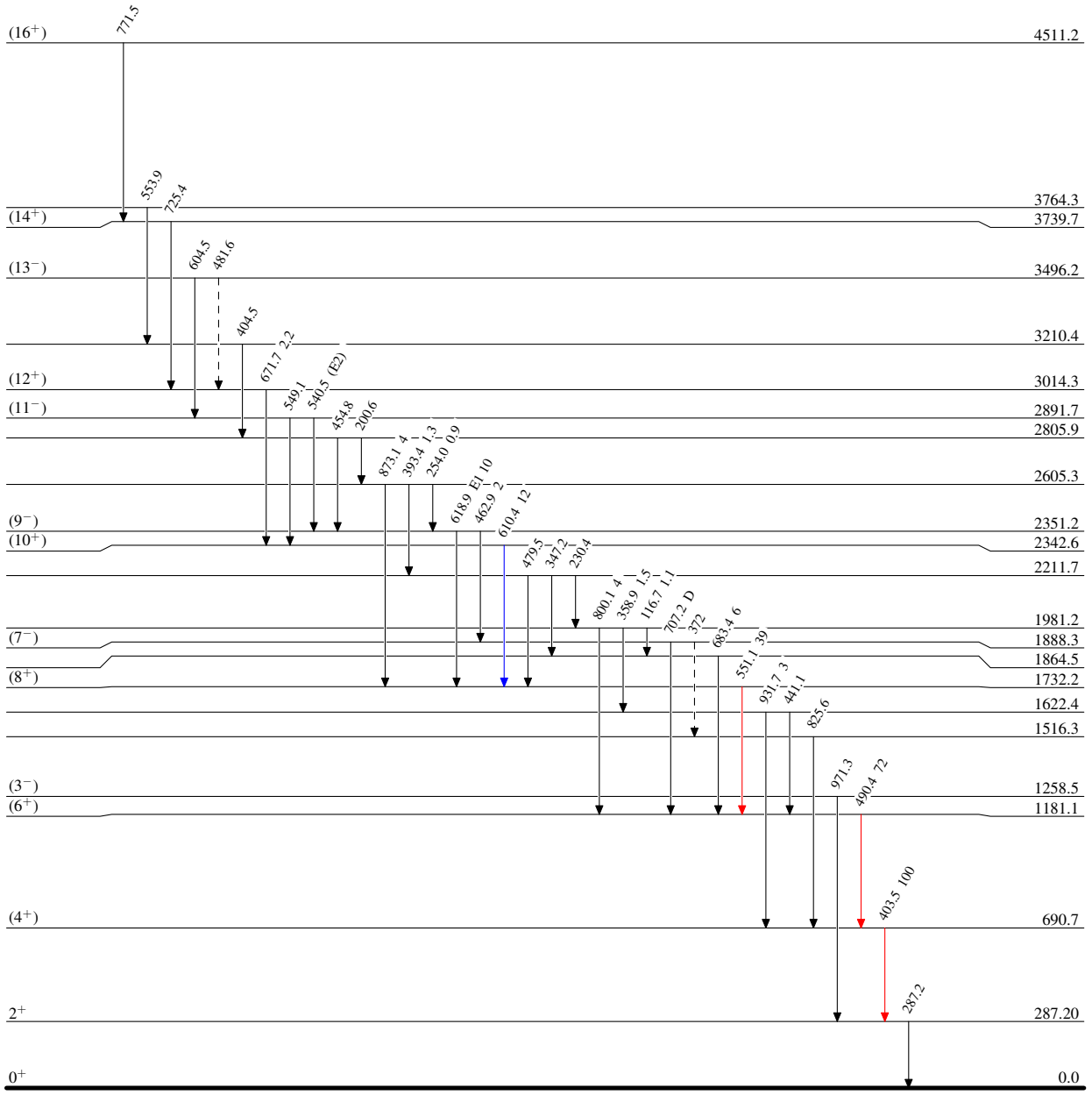
Level Scheme

Intensities: Type not specified

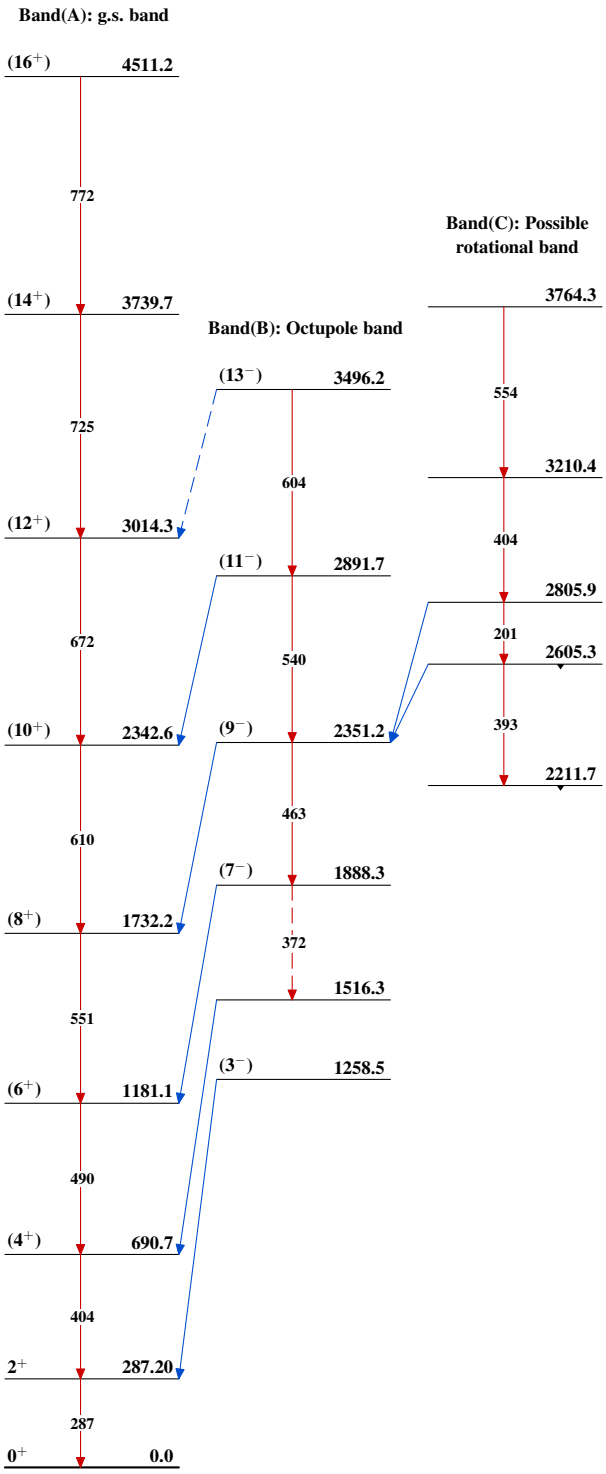
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{142}_{54}Xe_{88}$

^{248}Cm SF decay 1996Be06,1990Mo18,2003Ur02



$^{142}_{54}Xe_{88}$