

²⁴⁸Cm SF decay 2007Rz03

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

Parent: ²⁴⁸Cm: E=0.0; J^π=0⁺; T_{1/2}=3.48×10⁵ y 6; %SF decay=?

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

2007Rz03: Prompt γ rays following spontaneous fission of ²⁴⁸Cm were detected with the EUROGAM2 array with additional Low Energy Photon detector. Measured E_γ, I_γ, γγ-coin, γγγ-coin. Deduced levels, J, π, configurations, band structure. Comparisons with shell-model calculations.

All data are from **2007Rz03**, unless otherwise noted.

¹³⁸Cs Levels

E(level) [†]	J ^π [‡]	T _{1/2} [#]	Comments
0.0	3 ⁻	32.5 min 2	
79.9 [@]	6 ⁻	2.91 min 10	Configuration=πg _{7/2} ⁴ ⊗πd _{5/2} ⊗νf _{7/2} .
254.87 [@] 22	(7 ⁻)		Configuration=πg _{7/2} ³ ⊗πd _{5/2} ² ⊗νf _{7/2} .
1121.96 24	(8 ⁻)		
1206.37 25	(8 ⁻)		
1312.62 20	(8 ⁻)		
1411.7 [@] 3	(9 ⁻)		
1597.13 [@] 25	(10 ⁻)		
1833.2 [@] 4	(11 ⁻)		
1917.7 [@] 5	(12 ⁻)		
2732.1 6	(13 ⁻)		
2813.1 6	(14 ⁻)		
3260.3 6	(15 ⁻)		
4164.1 7	(16 ⁻)		

[†] From a least-squares fit to γ-ray energies, assuming ΔE_γ=0.5 keV.

[‡] Proposed by **2007Rz03** based on band structure and comparisons with shell-model predictions.

[#] From Adopted Levels.

[@] Band(A): γ sequence based on 6⁻.

γ(¹³⁸Cs)

E _γ	I _γ	E _i (level)	J _i ^π	E _f	J _f ^π	E _γ	I _γ	E _i (level)	J _i ^π	E _f	J _f ^π
84.5	42 5	1917.7	(12 ⁻)	1833.2	(11 ⁻)	447.2	10 3	3260.3	(15 ⁻)	2813.1	(14 ⁻)
175.5	100 5	254.87	(7 ⁻)	79.9	6 ⁻	814.4	5 2	2732.1	(13 ⁻)	1917.7	(12 ⁻)
185.6	58 6	1597.13	(10 ⁻)	1411.7	(9 ⁻)	895.4	15 3	2813.1	(14 ⁻)	1917.7	(12 ⁻)
190.5	15 3	1312.62	(8 ⁻)	1121.96	(8 ⁻)	903.8	3 1	4164.1	(16 ⁻)	3260.3	(15 ⁻)
236.0	55 6	1833.2	(11 ⁻)	1597.13	(10 ⁻)	1041.9	22 3	1121.96	(8 ⁻)	79.9	6 ⁻
284.5	11 2	1597.13	(10 ⁻)	1312.62	(8 ⁻)	1058.1	4 1	1312.62	(8 ⁻)	254.87	(7 ⁻)
321 [†]	2 1	1917.7	(12 ⁻)	1597.13	(10 ⁻)	1126.3	18 2	1206.37	(8 ⁻)	79.9	6 ⁻
390.6	12 2	1597.13	(10 ⁻)	1206.37	(8 ⁻)	1157.0	76 4	1411.7	(9 ⁻)	254.87	(7 ⁻)
421.5	7 2	1833.2	(11 ⁻)	1411.7	(9 ⁻)	1232.5	5 1	1312.62	(8 ⁻)	79.9	6 ⁻

[†] Placement of transition in the level scheme is uncertain.

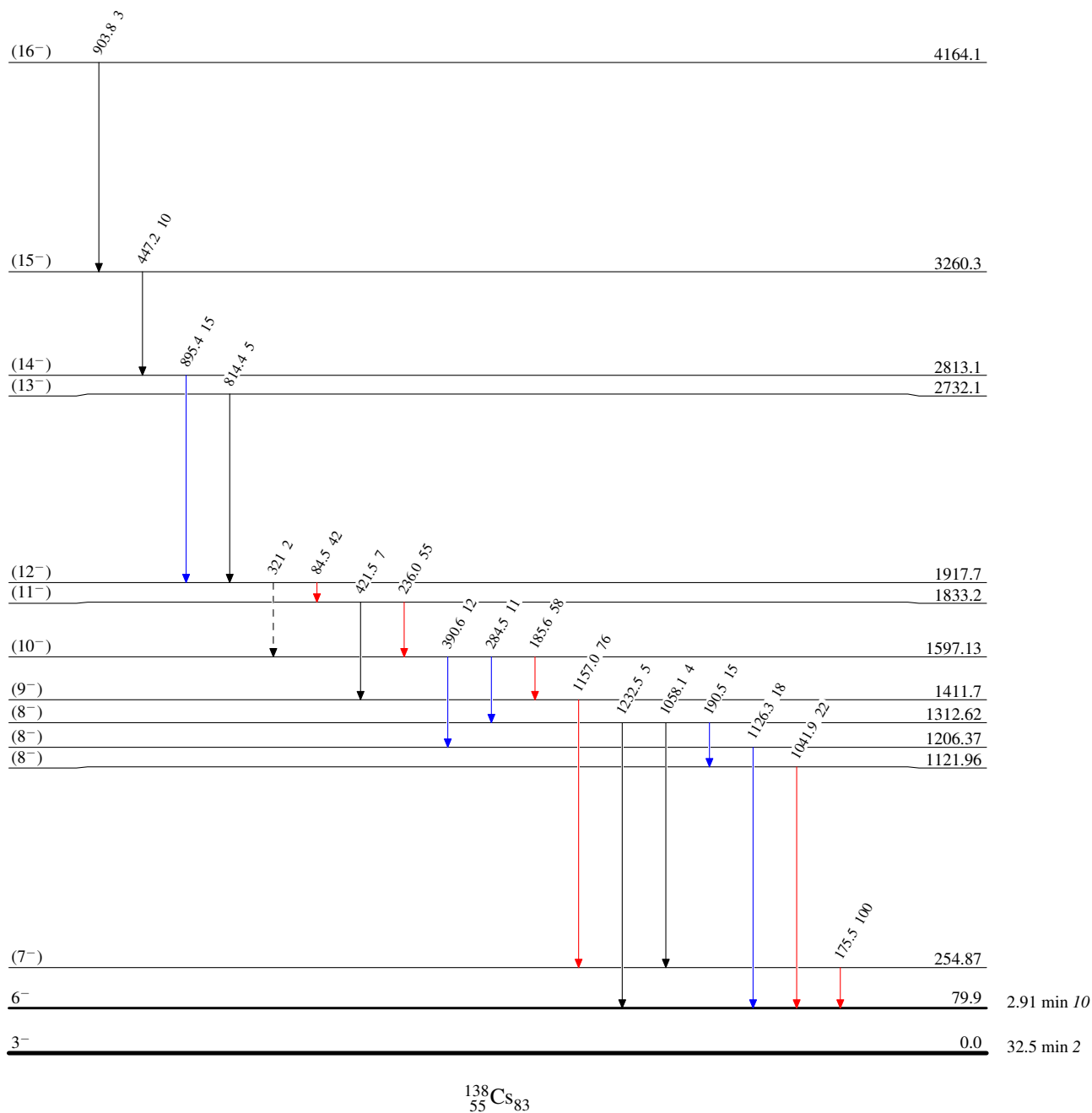
^{248}Cm SF decay 2007Rz03

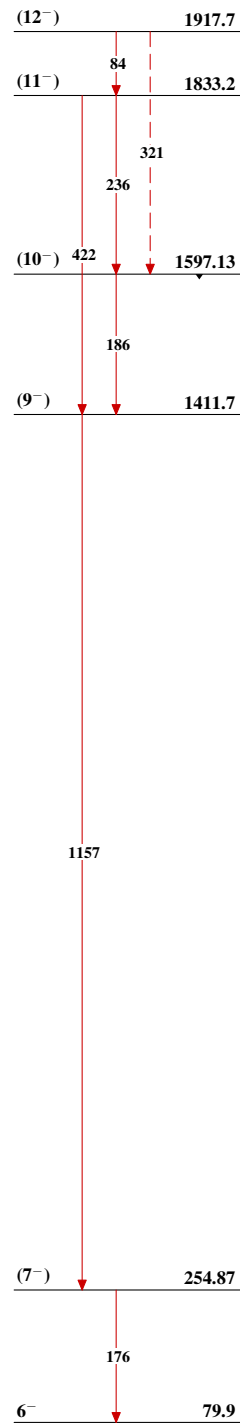
Legend

Level Scheme

Intensities: Relative I_γ

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



^{248}Cm SF decay 2007Rz03Band(A): γ sequence based on 6^-  $^{138}_{55}\text{Cs}_{83}$