^{248}Cm SF decay 2012Ur04,1997Ho11

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 185, 2 (2022)	23-Aug-2022

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

^{248}Cm-$T_{1/2}$: From ^{248}Cm Adopted Levels in the ENSDF database (Sept 2014 update).

^{248}Cm-%SF decay: %SF=8.39 *16* for ^{248}Cm decay.

2012Ur04: measured Eγ, Iγ, γγ-coin using EUROGAM2 array of anti-Compton spectrometers and four LEPS. Deduced levels, J^π, bands, and configurations.

1997Ho11: measured Eγ, Iγ, γγ, γγ(θ)(DCO) using EUROGAM II array 52 escape-suppressed Ge detectors, 24 Clovers, and four LEPS at Strasbourg. Some authors are the same on 1997Ho11 and 2012Ur04.

All data are from 2012Ur04, unless otherwise stated.

^{149}Ce Levels

Following levels proposed in 1997Ho11 are omitted, as not confirmed in 2012Ur04: 57.4, 64.2, 119.2 keV.

E(level)[†]	J^π[‡]	Comments
0.0[@]	3/2$^-$	
55.0[#] *1*	5/2$^-$	
133.5[a] *1*	3/2$^+$	
142.6[&] *1*	5/2$^+$	
147.7[@] *2*	7/2$^-$	
187.3 *2*	(5/2$^-$)	
190.8[a] *2*	7/2$^+$	B(E1)/B(E2)=8.3×10^{-7} b^{-1} *19*. Electric dipole moment D_0=0.020 efm *3*, using Q_0=4.75 eb.
206.7[&] *2*	9/2$^+$	
239.5[#] *2*	9/2$^-$	
288.9 *3*	(7/2$^-$)	
335.7[a] *2*	11/2$^+$	B(E1)/B(E2)=6.5×10^{-8} b^{-1} *16*. Electric dipole moment D_0=0.023 efm *4*, using Q_0=4.75 eb.
347.0[&] *2*	13/2$^+$	
403.7[@] *2*	11/2$^-$	
525.7[#] *2*	13/2$^-$	
587.9[a] *2*	15/2$^+$	
588.4[&] *2*	17/2$^+$	
752.1[@] *2*	15/2$^-$	
896.8[#] *2*	17/2$^-$	
931.6[&] *3*	21/2$^+$	
945.1[a] *2*	19/2$^+$	
1163.1[@] *3*	19/2$^-$	
1329.0[#] *3*	21/2$^-$	
1362.6[&] *3*	25/2$^+$	
1395.5[a] *3*	23/2$^+$	
1620.9[@] *5*	(23/2$^-$)	
1803.9[#] *4*	25/2$^-$	
1864.6[&] *4*	29/2$^+$	
1923.4[a] *4*	27/2$^+$	
2313.4[#] *10*	(29/2$^-$)	

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^{248}Cm SF decay 2012Ur04,1997Ho11 (continued)

^{149}Ce Levels (continued)

E(level)[†]	Jπ[‡]
2421.8[&] *4*	33/2+
2510.4[a] *5*	(31/2+)
3018.0[&] *5*	(37/2+)

† From least-squares fit to Eγ data.
‡ As proposed by 2012Ur04 based on band assignments and decay modes.
# Band(A): *ν*3/2[532],*α*=+1/2.
@ Band(a): *ν*3/2[532],*α*=−1/2.
& Band(B): *ν*3/2[651],*α*=+1/2.
a Band(b): *ν*3/2[651],*α*=−1/2.

γ(^{149}Ce)

Eγ	Iγ	Ei(level)	Jiπ	Ef	Jfπ	Mult.	I(γ+ce)	Comments
(9.1[†])		142.6	5/2+	133.5	3/2+		40[†] *15*	
(11.3[†])		347.0	13/2+	335.7	11/2+		7[†] *2*	
(15.9[†])		206.7	9/2+	190.8	7/2+		60[†] *20*	
48.1 *2*	8 *3*	190.8	7/2+	142.6	5/2+			
55.1 *3*	18 *3*	55.0	5/2−	0.0	3/2−			Eγ=54.9 (1997Ho11).
57.4 *3*	12 *3*	190.8	7/2+	133.5	3/2+			
64.0 *2*	6 *2*	206.7	9/2+	142.6	5/2+			Eγ=64.2 (1997Ho11, assigned from a 64 level).
78.5 *2*	7 *2*	133.5	3/2+	55.0	5/2−			
87.5 *1*	13 *2*	142.6	5/2+	55.0	5/2−			Eγ=87.4 (1997Ho11, assigned from 207 level)).
91.7 *2*	14 *2*	239.5	9/2−	147.7	7/2−			
92.6 *2*	20 *2*	147.7	7/2−	55.0	5/2−			
96.3 *3*	2.7 *4*	335.7	11/2+	239.5	9/2−			
101.5 *3*	3 *1*	288.9	(7/2−)	187.3	(5/2−)			
121.9 *2*	4 *1*	525.7	13/2−	403.7	11/2−			
129.0 *1*	14 *2*	335.7	11/2+	206.7	9/2+			Eγ=129.0, %Iγ=41 *2* (1997Ho11).
132.2 *3*	4 *2*	187.3	(5/2−)	55.0	5/2−			
133.5 *1*	20 *2*	133.5	3/2+	0.0	3/2−			Eγ=133.4 (1997Ho11, assigned from 191 level).
135.8 *1*	49 *3*	190.8	7/2+	55.0	5/2−			Eγ=135.8 (1997Ho11).
140.5 *2*	55 *3*	347.0	13/2+	206.7	9/2+			Eγ=140.6 (1997Ho11).
141.3 *3*	7 *1*	288.9	(7/2−)	147.7	7/2−			
142.6 *2*	44 *3*	142.6	5/2+	0.0	3/2−			Eγ=142.5 (1997Ho11, assigned from 207 level).
144.9 *1*	18 *2*	335.7	11/2+	190.8	7/2+			Eγ=144.9, %Iγ=59 *2* (1997Ho11).
147.7 *3*	7 *1*	147.7	7/2−	0.0	3/2−			
164.2 *2*	8 *1*	403.7	11/2−	239.5	9/2−			
184.5 *1*	32 *3*	239.5	9/2−	55.0	5/2−			
187.2 *3*	8 *2*	187.3	(5/2−)	0.0	3/2−			
226.3[‡] *4*	2 *1*	752.1	15/2−	525.7	13/2−			
241.1 *2*	14 *2*	587.9	15/2+	347.0	13/2+			Eγ=241.2, %Iγ=41 *2* (1997Ho11).
241.4 *1*	100 *4*	588.4	17/2+	347.0	13/2+			Eγ=241.3 (1997Ho11).
252.2 *1*	19 *2*	587.9	15/2+	335.7	11/2+			Eγ=252.2, %Iγ=59 *2* (1997Ho11).
255.8 *2*	18 *2*	403.7	11/2−	147.7	7/2−			
286.2 *1*	24 *2*	525.7	13/2−	239.5	9/2−			
343.2 *1*	72 *4*	931.6	21/2+	588.4	17/2+	Q		Eγ=342.9 (1997Ho11). DCO=0.96 *6*, gated on stretched quadrupole 241.2γ (1997Ho11).

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^{248}Cm SF decay 2012Ur04,1997Ho11 (continued)

$\gamma(^{149}Ce)$ (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
							DCO=0.96 *6*, gated on stretched quadrupole 241.2γ (1997Ho11).
348.5 *1*	17 *2*	752.1	15/2$^-$	403.7	11/2$^-$		
357.2 *1*	19 *2*	945.1	19/2$^+$	587.9	15/2$^+$		Eγ=357.2 (1997Ho11).
371.1 *1*	16 *2*	896.8	17/2$^-$	525.7	13/2$^-$		
411.0 *2*	6 *1*	1163.1	19/2$^-$	752.1	15/2$^-$		
431.0 *1*	38 *2*	1362.6	25/2$^+$	931.6	21/2$^+$	Q	Eγ=430.7 (1997Ho11).
							DCO=0.90 *6*, gated on stretched quadrupole 342.9γ (1997Ho11).
432.2 *2*	9 *2*	1329.0	21/2$^-$	896.8	17/2$^-$		
450.4 *2*	11 *1*	1395.5	23/2$^+$	945.1	19/2$^+$		Eγ=450.2 (1997Ho11).
457.8 *3*	2 *1*	1620.9	(23/2$^-$)	1163.1	19/2$^-$		
474.9 *2*	5 *1*	1803.9	25/2$^-$	1329.0	21/2$^-$		
502.0 *2*	25 *2*	1864.6	29/2$^+$	1362.6	25/2$^+$		Eγ=501.7 (1997Ho11).
509.5 *9*	3 *1*	2313.4	(29/2$^-$)	1803.9	25/2$^-$		
527.9 *2*	7 *1*	1923.4	27/2$^+$	1395.5	23/2$^+$		Eγ=527.9 (1997Ho11).
557.2 *2*	9 *1*	2421.8	33/2$^+$	1864.6	29/2$^+$		Eγ=556.9 (1997Ho11).
587.0 *3*	4 *1*	2510.4	(31/2$^+$)	1923.4	27/2$^+$		Eγ=586.7 (1997Ho11).
596.2 *3*	5 *1*	3018.0	(37/2$^+$)	2421.8	33/2$^+$		

† Energy deduced by evaluators from level-energy difference. Transition intensity listed by 2012Ur04 is from intensity balance at the relevant level.
‡ Placement of transition in the level scheme is uncertain.

^{248}Cm SF decay 2012Ur04,1997Ho11

Level Scheme

Intensities: Relative I_γ

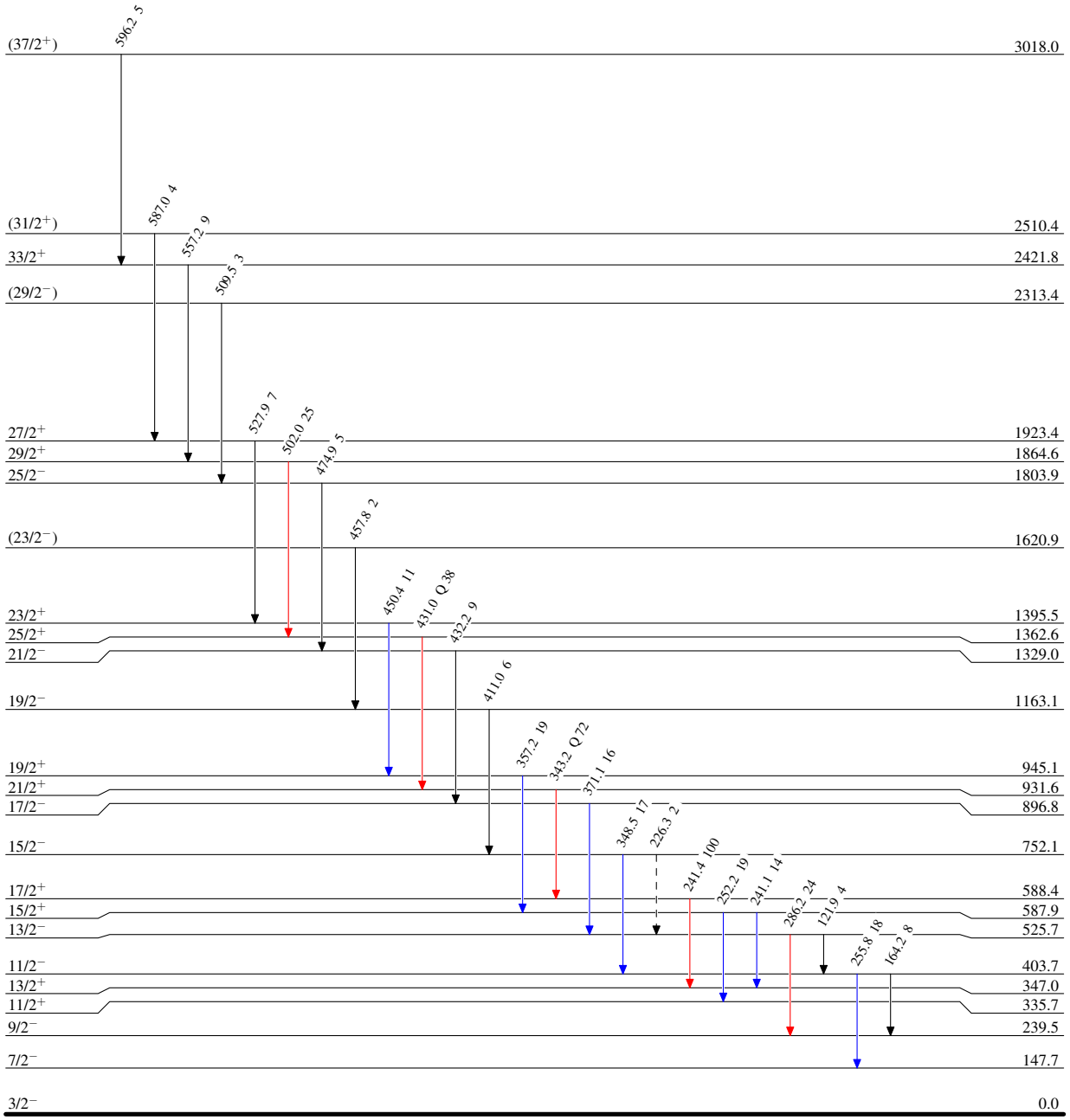
Legend

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

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

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

γ Decay (Uncertain)



$^{149}_{58}Ce_{91}$

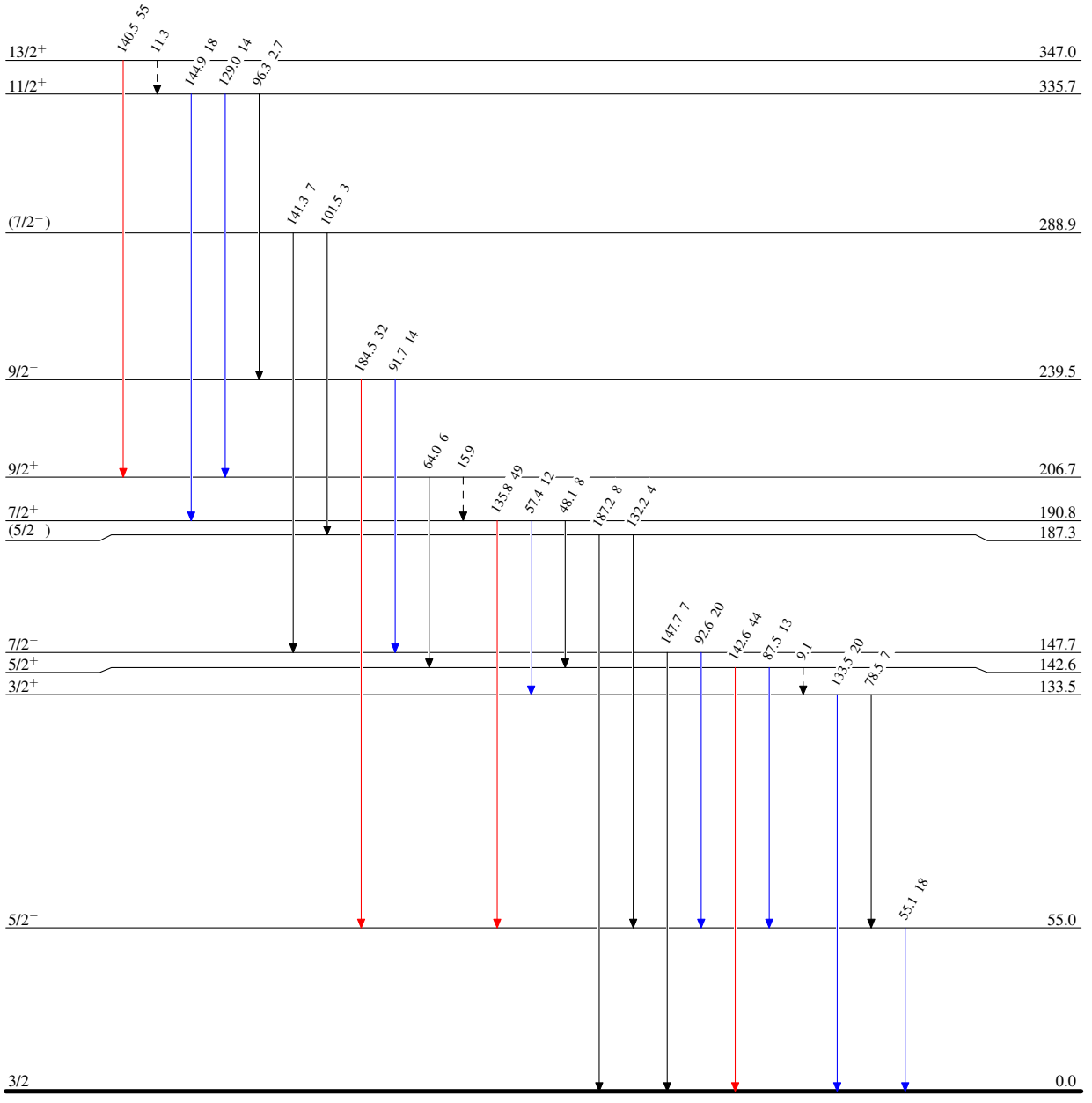
^{248}Cm SF decay 2012Ur04,1997Ho11

Level Scheme (continued)

Intensities: Relative I_γ

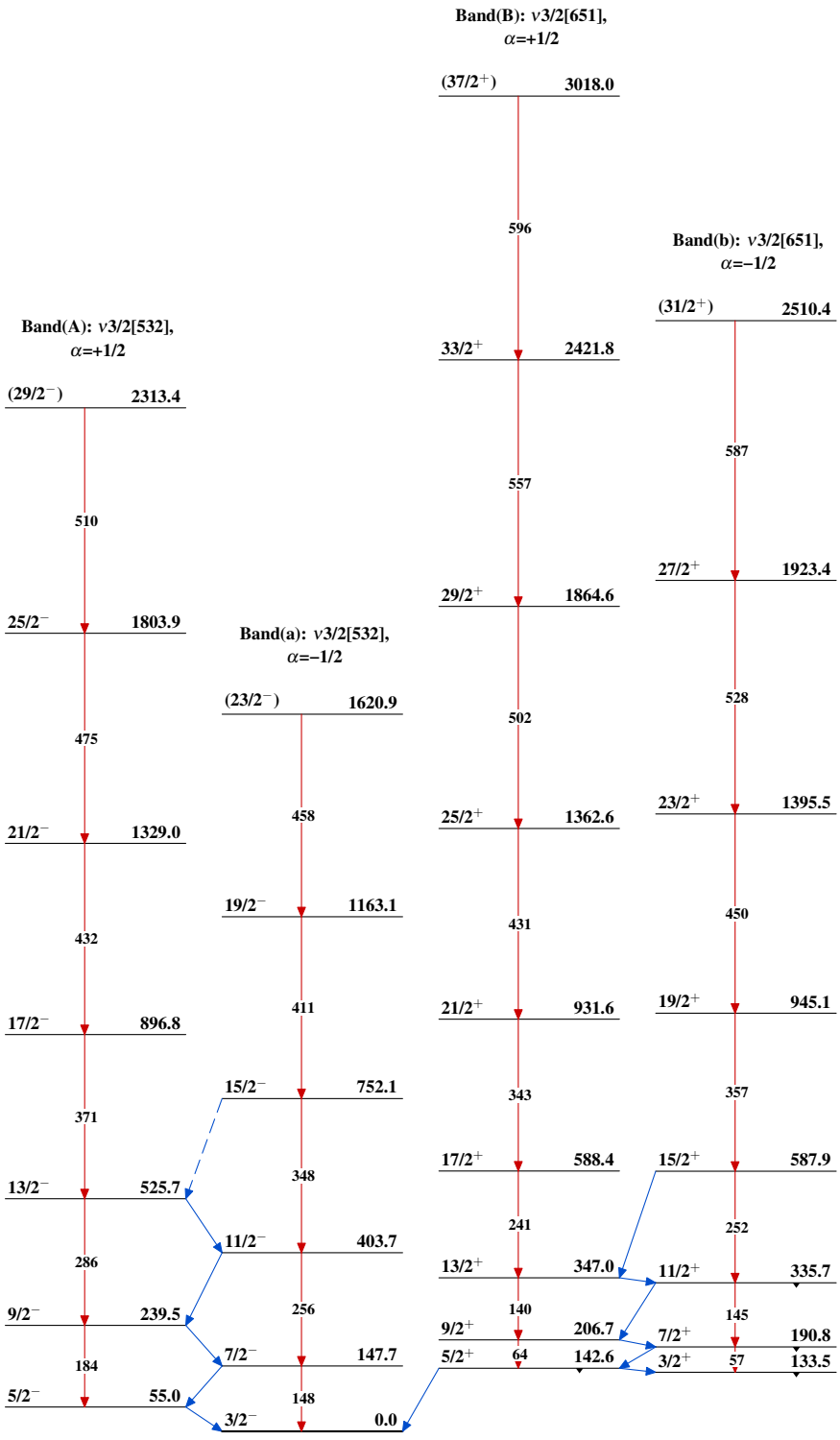
Legend

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



$^{149}_{58}Ce_{91}$

^{248}Cm SF decay 2012Ur04,1997Ho11



$^{149}_{58}Ce_{91}$