

^{248}Cm SF decay **1997Ur01**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 117, 1 (2014)	1-Oct-2013

Parent: ^{248}Cm : $E=0.0$; $J^\pi=0^+$; $T_{1/2}=3.48\times 10^5$ y 6; %SF decay=?

Eurogam2, 52 Ge including 24, four-crystal clover detectors, 4 LEPS. Measured: E_γ , I_γ , DCO ratios, $\gamma\gamma\gamma(\theta)$, linear polarization.

Assigned by coincidence with Zr partner. Other: [1997AhZZ](#).

 ^{148}Ba Levels

E(level) [†]	J^π [‡]	Comments
0.0 [#]	0 ⁺	
141.80 [#] 10	2 ⁺	
423.10 [#] 15	4 ⁺	
775.00 [@] 23	(3 ⁻)	
807.90 [#] 18	6 ⁺	J^π : 6 ⁺ .
963.20 [@] 25	(5 ⁻)	J^π : (5 ⁻).
1255.70 [@] 20	7 ⁻	J^π : 7 ⁻ .
1264.70 [#] 20	8 ⁺	J^π : 8 ⁺ .
1644.92 [@] 21	9 ⁻	E(level): 1665.0 In 1997Ur01 is a typographical error. J^π : 9 ⁻ .
1767.78 [#] 22	10 ⁺	J^π : 10 ⁺ .
2117.30 [@] 25	(11 ⁻)	J^π : (11 ⁻).
2303.5 [#] 3	(12 ⁺)	J^π : (12 ⁺).
2659.3? [@] 4		
2867.0? [#] 4		

[†] From a least-squares fit to E_γ data.

[‡] From Adopted Levels; supporting assignments based on DCO ratios, linear polarization, and $\gamma\gamma\gamma(\theta)$ from this data set are given in comments.

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

[@] Band(B): octupole band.

 $\gamma(^{148}\text{Ba})$

[1997Ur01](#) give the following characteristic values for DCO ratios:

a) from $\gamma\gamma\gamma(\theta)$, for a stretched quadrupole transition DCO = 1.00, independent of the spin value of the initial level; for a stretched, unmixed dipole transition DCO = 1.20, independent of the spin value of the initial level; for a non-stretched, unmixed dipole transition in a 4 -> 4 -> 2 -> 0 cascade DCO = 0.91; and for a stretched, unmixed dipole transition in a 3 -> 4 -> 2 -> 0 cascade DCO = 1.28.

b) from $\gamma\gamma(\theta)$, for a stretched quadrupole transition DCO = 0.89 independent of the spin value of the initial level; for a stretched, unmixed dipole transition DCO = 1.09 independent of the spin value of the initial level; for a non-stretched, unmixed dipole transition DCO = 0.81 for a 6 -> 6 -> 4 cascade, and DCO = 0.82 for a 8 -> 8 -> 6 cascade; and for a stretched, unmixed dipole transition in a 3 -> 4 -> 2 cascade DCO = 1.19.

[1997Ur01](#) give the following characteristic values for linear polarization: for a stretched quadrupole transition +0.14 for electric transition and -0.14 for magnetic transition independent of the spin value of the initial level; for a stretched unmixed dipole transition +0.09 for electric transition and -0.09 for magnetic transition independent of the spin value of the initial level.

Continued on next page (footnotes at end of table)

^{248}Cm SF decay **1997Ur01 (continued)** $\gamma(^{148}\text{Ba})$ (continued)

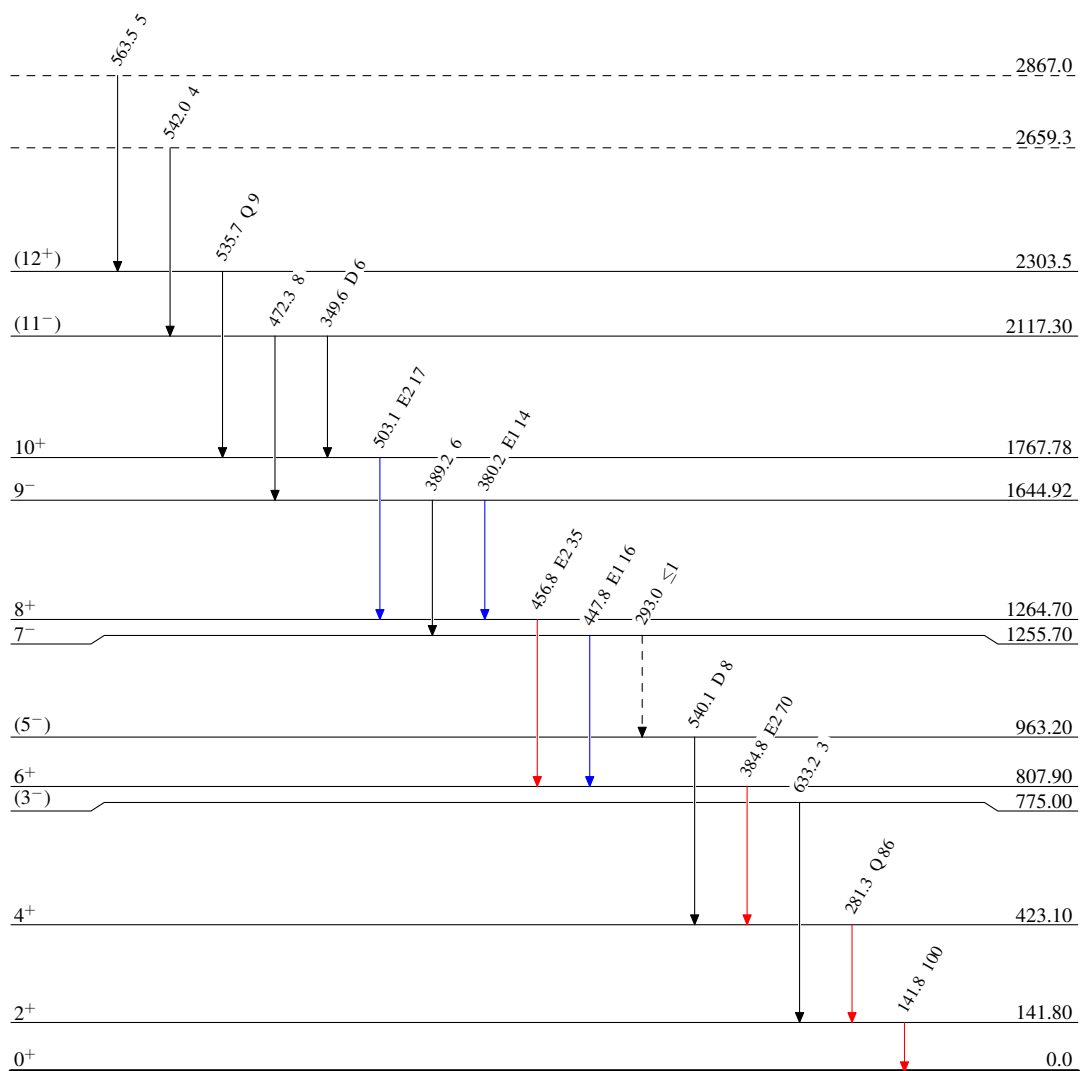
E_γ	$I_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [‡]	Comments
141.8 1	100 5	141.80	2 ⁺	0.0	0 ⁺		
281.3 1	86 5	423.10	4 ⁺	141.80	2 ⁺	Q	DCO=0.89 4 ($\gamma\gamma(\theta)$).
293.0 [#] 3	≤1	1255.70	7 ⁻	963.20	(5 ⁻)		
349.6 2	6 2	2117.30	(11 ⁻)	1767.78	10 ⁺	D	DCO=1.23 12 ($\gamma\gamma(\theta)$).
380.2 1	14 2	1644.92	9 ⁻	1264.70	8 ⁺	E1	DCO=1.3 2 ($\gamma\gamma\gamma(\theta)$); 1.2 1 ($\gamma\gamma(\theta)$); lin pol=0.1 1.
384.8 1	70 5	807.90	6 ⁺	423.10	4 ⁺	E2	DCO=0.98 6 ($\gamma\gamma\gamma(\theta)$); 0.89 3 ($\gamma\gamma(\theta)$); lin pol=0.12 4.
389.2 2	6 2	1644.92	9 ⁻	1255.70	7 ⁻		
447.8 1	16 2	1255.70	7 ⁻	807.90	6 ⁺	E1	DCO=1.2 2 ($\gamma\gamma\gamma(\theta)$); 1.17 7 ($\gamma\gamma(\theta)$); lin pol=0.6 3.
456.8 1	35 4	1264.70	8 ⁺	807.90	6 ⁺	E2	DCO=1.03 8 ($\gamma\gamma\gamma(\theta)$); 0.92 3 ($\gamma\gamma(\theta)$); lin pol=0.20 4.
472.3 2	8 2	2117.30	(11 ⁻)	1644.92	9 ⁻		
503.1 1	17 2	1767.78	10 ⁺	1264.70	8 ⁺	E2	DCO=0.93 5 ($\gamma\gamma(\theta)$); lin pol=0.4 2.
535.7 2	9 2	2303.5	(12 ⁺)	1767.78	10 ⁺	Q	DCO=0.8 1 ($\gamma\gamma(\theta)$).
540.1 2	8 1	963.20	(5 ⁻)	423.10	4 ⁺	D	DCO>1 ($\gamma\gamma(\theta)$).
542.0 2	4 2	2659.3?		2117.30	(11 ⁻)		
563.5 2	5 2	2867.0?		2303.5	(12 ⁺)		
633.2 2	3 1	775.00	(3 ⁻)	141.80	2 ⁺		

[†] Relative intensity.[‡] Deduced by evaluator based on DCO and linear polarization measurements.[#] Placement of transition in the level scheme is uncertain.

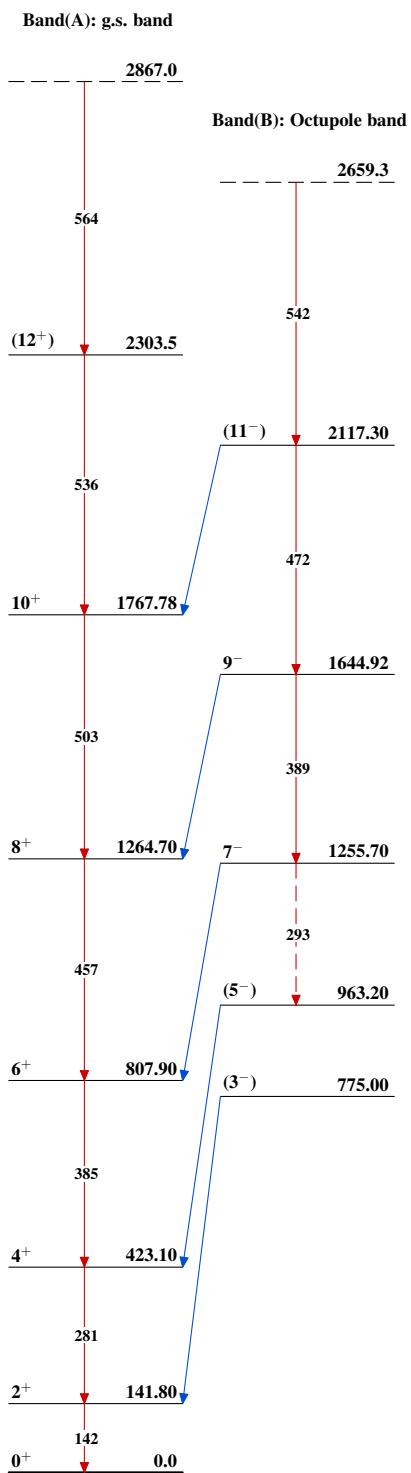
^{248}Cm SF decay $^{1997}\text{Ur01}$ Level SchemeIntensities: Relative I_γ

Legend

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

 $^{148}_{56}\text{Ba}_{92}$

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