

^{248}Cm SF decay [1997Ur01](#)

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

[1997Ur01](#): measured γ , $\gamma\gamma\gamma$, linear polarization, DCO ratios. γ assignment by coincidence with Zr partner. Eurogam II, 52 Ge including 24, 4-crystal Clover detectors, 4 LEPS. FWHM=2.5 keV at low energy, 4 keV at 3 MeV. Other (same group): [1997AhZZ](#).

[1995Zh34](#), [1997Ha64](#): ^{242}Pu , ^{252}Cf SF decay. Measured γ , $\gamma\gamma$, $\gamma\gamma\gamma$. Assignments by coin with Mo partners in ^{252}Cf and Sr partners in ^{242}Pu SF decays. Authors have extended the decay scheme presented by [1990DuZW](#) (one of the authors in [1997Ur01](#)). [1997Ha64](#) present the same level scheme as that in [1995Zh34](#). [1999HaZV](#) give B(E1)/B(E2) ratios for the octupole band.

Decay scheme presented here is from [1997Ur01](#), which is in agreement earlier schemes for lower levels. [1997Ur01](#) have suggested alternate with placement for some of the transitions. [1995Zh34](#) reported levels at 1325.9(966.6 γ , 1325.9 γ), 2848.1(655.4 γ , 896.1 γ) but not reported by [1997Ur01](#). The former have been seen in β^- decay. [1995Zh34](#) assign 3794 and 4517 levels to octupole band.

[1986Ph02](#), [1970Wi16](#): ^{252}Cf SF decay; measured: γ , (K x ray)(γ) ([1971Ch44](#)); γ , $\gamma\gamma$, $\gamma(\theta)$ ([1986Ph02](#)).

Other: [1972Wi15](#).

 ^{142}Ba Levels

E(level) [†]	J^π [‡]	$T_{1/2}$	Comments
0.0 [#]	0 ⁺		
359.50 [#] 10	2 ⁺	82 ps 8	$T_{1/2}$: differential-plunger technique (2005Bi02).
834.50 [#] 15	4 ⁺	17.3 ps 25	$T_{1/2}$: differential-plunger technique (2005Bi02).
1292.30 [@] 23	3 ⁽⁻⁾		
1465.70 [#] 17	6 ⁺		
1541.12 [@] 19	5 ⁻		
1746.96 ^a 19	5 ⁽⁺⁾		
1848.05 ^{&} 18	6 ⁺		
1952.64 [@] 18	7 ⁻		
2069.98 ^a 19	7 ⁽⁺⁾		
2159.15 [#] 19	8 ⁺		
2229.06 ^{&} 19	8 ⁺		
2513.52 [@] 21	9 ⁻		
2679.92 ^a 23	(9 ⁺)		
2814.64 ^{&} 22	(10 ⁺)		
2925.63 [#] 23	(10 ⁺)		
3153.62 [@] 25	(11 ⁻)		
3342.8 ^a 3			
3507.0 ^{&} 3			
3794.6 [#] 4			
3932.6 [@] 4			
4517.1 [?] 4			

[†] From least-squares fit to $E\gamma$.

[‡] From Adopted Levels.

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

[@] Band(B): octupole band.

[&] Band(C): possible rotational band-1.

^a Band(D): possible rotational band-2.

^{248}Cm SF decay **1997Ur01** (continued) $\gamma(^{142}\text{Ba})$

DCO values given are for $\gamma\gamma$ (θ), unless stated otherwise.

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
101.0 2	1.5 5	1848.05	6 ⁺	1746.96	5 ⁽⁺⁾	
159.0 2	3.0 6	2229.06	8 ⁺	2069.98	7 ⁽⁺⁾	
205.8 2	1.3 3	1746.96	5 ⁽⁺⁾	1541.12	5 ⁻	
206.6 2	2.3 8	2159.15	8 ⁺	1952.64	7 ⁻	
222.0 2	2.2 5	2069.98	7 ⁽⁺⁾	1848.05	6 ⁺	
228.0 2	2.1 4	3153.62	(11 ⁻)	2925.63	(10 ⁺)	
276.8 2	2.3 3	2229.06	8 ⁺	1952.64	7 ⁻	
284 1	0.7 3	2513.52	9 ⁻	2229.06	8 ⁺	
301.1 2	1.2 3	2814.64	(10 ⁺)	2513.52	9 ⁻	
306.9 2	4.0 4	1848.05	6 ⁺	1541.12	5 ⁻	
323.2 2	1.5 3	2069.98	7 ⁽⁺⁾	1746.96	5 ⁽⁺⁾	
354.3 2	5.1 4	2513.52	9 ⁻	2159.15	8 ⁺	DCO=1.25 10 from $\gamma\gamma\gamma(\theta)$. Lin pol >0.
359.5 1	100 5	359.50	2 ⁺	0.0	0 ⁺	
380.9 2	6.5 8	2229.06	8 ⁺	1848.05	6 ⁺	
382.4 2	1.0 5	1848.05	6 ⁺	1465.70	6 ⁺	
411.8 2	2.3 4	1952.64	7 ⁻	1541.12	5 ⁻	
412.1 2	1.0 2	2925.63	(10 ⁺)	2513.52	9 ⁻	
451.0 2	4.5 5	2679.92	(9 ⁺)	2229.06	8 ⁺	
475.0 1	85 5	834.50	4 ⁺	359.50	2 ⁺	DCO=0.93 2. Lin pol=0.15 3.
487.0 1	18 2	1952.64	7 ⁻	1465.70	6 ⁺	DCO=1.16 4 in $\gamma\gamma(\theta)$. DCO=1.14 6 in $\gamma\gamma\gamma(\theta)$. Lin pol=0.09 3.
560.9 2	4.5 4	2513.52	9 ⁻	1952.64	7 ⁻	
585.7 2	5.5 5	2814.64	(10 ⁺)	2229.06	8 ⁺	
603.8 2	6 1	2069.98	7 ⁽⁺⁾	1465.70	6 ⁺	DCO=1.12 7 in $\gamma\gamma(\theta)$. DCO=1.38 16 in $\gamma\gamma\gamma(\theta)$.
609.8 2	3.8 8	2679.92	(9 ⁺)	2069.98	7 ⁽⁺⁾	
631.1 1	40 3	1465.70	6 ⁺	834.50	4 ⁺	DCO=0.96 3 in $\gamma\gamma(\theta)$. DCO=1.02 4 in $\gamma\gamma\gamma(\theta)$. Lin pol=0.16 4.
640.1 2	5 1	3153.62	(11 ⁻)	2513.52	9 ⁻	
641.0 2	2 1	3794.6		3153.62	(11 ⁻)	
655.4 2	1.3 3	2814.64	(10 ⁺)	2159.15	8 ⁺	
662.9 2	1.3 3	3342.8		2679.92	(9 ⁺)	
692.4 2	2 1	3507.0		2814.64	(10 ⁺)	
693.4 1	13 2	2159.15	8 ⁺	1465.70	6 ⁺	DCO=0.92 4 in $\gamma\gamma(\theta)$. DCO=0.98 8 in $\gamma\gamma\gamma(\theta)$. Lin pol=0.15 5.
706.8 2	6.0 6	1541.12	5 ⁻	834.50	4 ⁺	DCO=1.09 4 in $\gamma\gamma(\theta)$. DCO=1.17 15 in $\gamma\gamma\gamma(\theta)$. Lin pol=0.12 6.
722.5 2	0.6 3	4517.1?		3794.6		
763.4 2	4.5 5	2229.06	8 ⁺	1465.70	6 ⁺	DCO=0.94 5.
766.5 2	2.3 3	2925.63	(10 ⁺)	2159.15	8 ⁺	
779.0 2	0.8 3	3932.6		3153.62	(11 ⁻)	
869.0 [†] 3	0.5 3	3794.6		2925.63	(10 ⁺)	
912.6 2	3.5 5	1746.96	5 ⁽⁺⁾	834.50	4 ⁺	DCO=1.31 15. Lin pol=-0.6 3.
932.8 2	2 1	1292.30	3 ⁽⁻⁾	359.50	2 ⁺	
1013.6 2	2.9 4	1848.05	6 ⁺	834.50	4 ⁺	DCO=0.8 1. Lin pol=0.5 2.

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

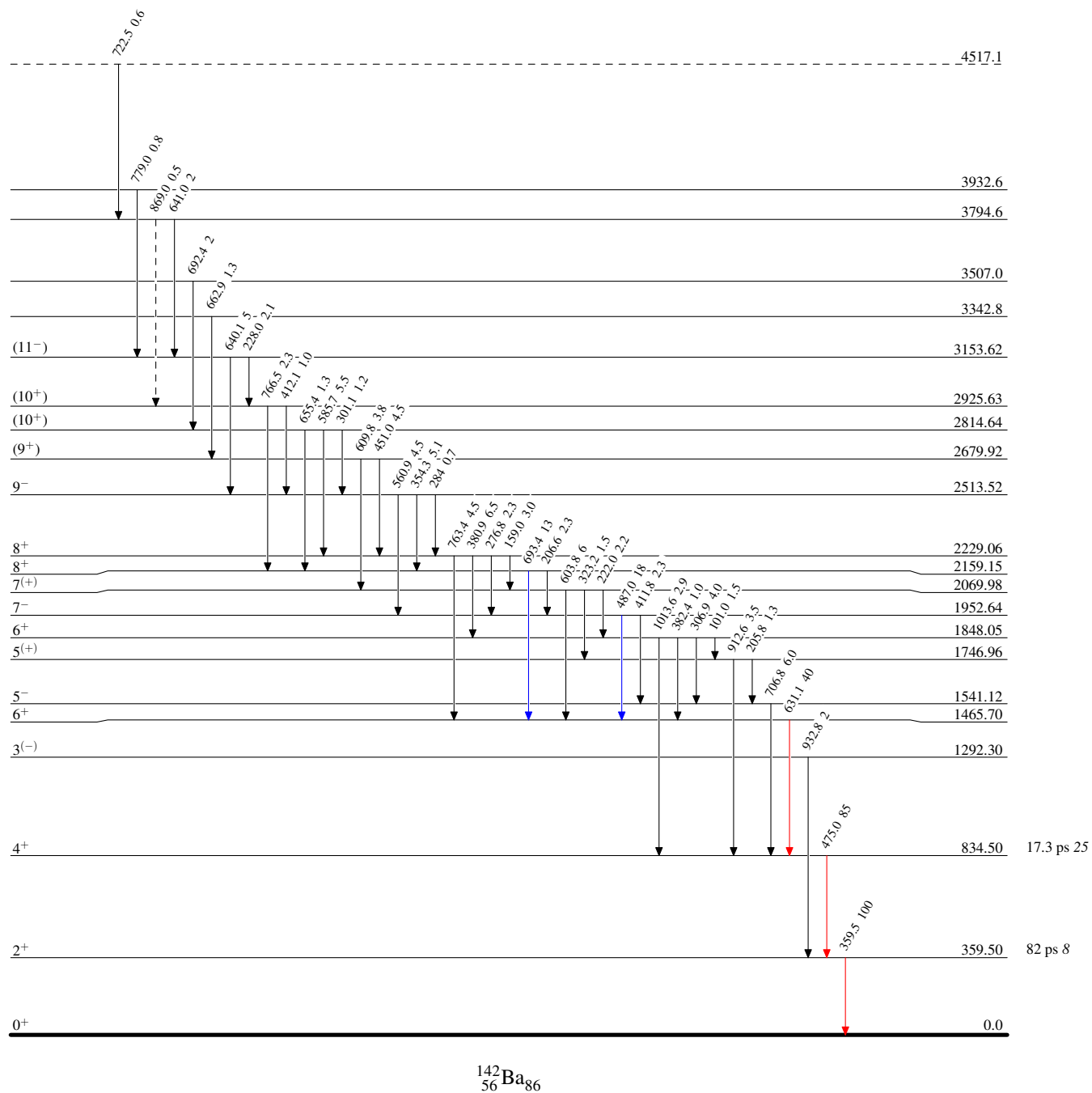
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Legend

Level Scheme

Intensities: Type not specified

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

 $^{142}_{56}\text{Ba}_{86}$

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