

$^{127}\text{I}(\alpha,4n\gamma)$  **1980Dr07**

Type	Author	History Citation	Literature Cutoff Date
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**1980Dr07:**  $E(\alpha)=43,45,47,51$  MeV;  $\gamma$ ,  $\gamma\gamma$ -coin,  $\gamma(\theta)$ ,  $\gamma(t)$ , excitation function.

Other: **1971Co05:**  $E=20-53$  MeV;  $\alpha\gamma$ -delay coin.

The level scheme is that proposed by **1980Dr07**, unless otherwise noted.

 $^{127}\text{Cs}$  Levels

E(level) <sup>†</sup>	$J^{\pi\ddagger}$	$T_{1/2}$ <sup>#</sup>	E(level) <sup>†</sup>	$J^{\pi\ddagger}$	$T_{1/2}$ <sup>#</sup>
0.0	1/2 <sup>+</sup>		1459.0 4	(19/2 <sup>-</sup> )	<8 ns
66.06 16	(5/2 <sup>+</sup> )		1493.8 4	(17/2 <sup>-</sup> ,19/2 <sup>-</sup> )	<12 ns
139.04 16	(3/2 <sup>+</sup> )		1959.0 4	(19/2 <sup>-</sup> )	<10 ns
246.5 <sup>a</sup> 3	(5/2 <sup>+</sup> )		2098.8 4	(19/2 <sup>+</sup> )	<8 ns
272.95 19	(7/2 <sup>+</sup> )		2119.1 4	(21/2 <sup>-</sup> )	<10 ns
452.46 22	(11/2 <sup>-</sup> )	55 <sup>@</sup> $\mu\text{s}$ 3	2260.5 4	(23/2 <sup>-</sup> )	<8 ns
454.9 <sup>a</sup> 3	(9/2 <sup>+</sup> )		2642.6 <sup>a</sup> 4	(23/2 <sup>-</sup> )	
686.9 <sup>a</sup> 4	(9/2 <sup>+</sup> )		2938.9 4	(25/2 <sup>-</sup> )	<40 ns
707.6 3	(11/2 <sup>+</sup> )	<8 ns	3003.2 5	(23/2 <sup>+</sup> )	<9 ns
854.4 3	(9/2 <sup>+</sup> )		3006.2 <sup>b</sup> 5	(21/2 <sup>-</sup> )	<9 ns
867.0 3	(15/2 <sup>-</sup> )	<8 ns	3161.1 5	(27/2 <sup>-</sup> )	<9 ns
1131.1 4	(11/2 <sup>+</sup> )	<8 ns	3265.7 5	(25/2 <sup>+</sup> )	<16 <sup>&amp;</sup> ns
1324.3 4	(15/2 <sup>+</sup> )	<8 ns	3567.6 <sup>a</sup> 5	(27/2 <sup>+</sup> )	
1442.8 4	(13/2 <sup>+</sup> )	<9 ns			

<sup>†</sup> From a least-squares fit to  $E(\gamma's)$ .

<sup>‡</sup> From Adopted Levels.

<sup>#</sup> From  $\gamma(t)$  between beam burst, unless otherwise noted.

<sup>@</sup> From **1971Co05**.

<sup>&</sup> From 262.5 $\gamma(t)$ . Other: <13 ns in 259.5 $\gamma(t)$ .

<sup>a</sup> From Adopted Levels.

<sup>b</sup> Not confirmed by (HI,xn $\gamma$ ), not adopted by evaluator.

 $\gamma(^{127}\text{Cs})$ 

$E_{\gamma}$	$I_{\gamma}$ <sup>#</sup>	$E_i(\text{level})$	$J_i^{\pi}$	$E_f$	$J_f^{\pi}$	Mult.
66.1 2	16.2 1/2	66.06	(5/2 <sup>+</sup> )	0.0	1/2 <sup>+</sup>	
73.0 2	11 3	139.04	(3/2 <sup>+</sup> )	66.06	(5/2 <sup>+</sup> )	
133.9 2	17.3 7	272.95	(7/2 <sup>+</sup> )	139.04	(3/2 <sup>+</sup> )	
139.0 2	2.0 1	139.04	(3/2 <sup>+</sup> )	0.0	1/2 <sup>+</sup>	
<sup>x</sup> 162.6 <sup>†</sup> 2	6.7 3					
179.5 2	53 2	452.46	(11/2 <sup>-</sup> )	272.95	(7/2 <sup>+</sup> )	
180.4 <sup>†</sup> 2	5.2 4	246.5	(5/2 <sup>+</sup> )	66.06	(5/2 <sup>+</sup> )	
206.9 2	100 3	272.95	(7/2 <sup>+</sup> )	66.06	(5/2 <sup>+</sup> )	
259.5 <sup>‡</sup> 2	3.0 1	3265.7	(25/2 <sup>+</sup> )	3006.2	(21/2 <sup>-</sup> )	
262.5 2	2.6 1	3265.7	(25/2 <sup>+</sup> )	3003.2	(23/2 <sup>+</sup> )	D,Q
276.7 2	6.4 2	1131.1	(11/2 <sup>+</sup> )	854.4	(9/2 <sup>+</sup> )	
301.9 <sup>†</sup> 2	7.0 4	3567.6	(27/2 <sup>+</sup> )	3265.7	(25/2 <sup>+</sup> )	
311.7 2	4.6 2	1442.8	(13/2 <sup>+</sup> )	1131.1	(11/2 <sup>+</sup> )	
386.4 2	11.7 4	452.46	(11/2 <sup>-</sup> )	66.06	(5/2 <sup>+</sup> )	

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$^{127}\text{I}(\alpha,4n\gamma)$  **1980Dr07 (continued)** $\gamma(^{127}\text{Cs})$  (continued)

$E_\gamma$	$I_\gamma$ #	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult.	Comments
388.8 <sup>†</sup> 2	15.0 10	454.9	(9/2 <sup>+</sup> )	66.06	(5/2 <sup>+</sup> )		
414.5 2	84 3	867.0	(15/2 <sup>-</sup> )	452.46	(11/2 <sup>-</sup> )	Q	
434.6 2	24.6 8	707.6	(11/2 <sup>+</sup> )	272.95	(7/2 <sup>+</sup> )	Q	
440.4 <sup>†</sup> 2	8.2 8	686.9	(9/2 <sup>+</sup> )	246.5	(5/2 <sup>+</sup> )		
465.2 2	6.9 3	1959.0	(19/2 <sup>-</sup> )	1493.8	(17/2 <sup>-</sup> ,19/2 <sup>-</sup> )	D,Q	$\delta: -2.2 \geq \delta \leq -0.18.$
581.4 2	5.7 2	854.4	(9/2 <sup>+</sup> )	272.95	(7/2 <sup>+</sup> )		
592.0 2	49.9 18	1459.0	(19/2 <sup>-</sup> )	867.0	(15/2 <sup>-</sup> )	Q	
616.7 2	19.1 7	1324.3	(15/2 <sup>+</sup> )	707.6	(11/2 <sup>+</sup> )	Q	
625.3 <sup>†</sup> 2	4.2 3	2119.1	(21/2 <sup>-</sup> )	1493.8	(17/2 <sup>-</sup> ,19/2 <sup>-</sup> )		
626.9 2	17.5 7	1493.8	(17/2 <sup>-</sup> ,19/2 <sup>-</sup> )	867.0	(15/2 <sup>-</sup> )	D,Q	$\delta: -0.90 \geq \delta \leq -0.21.$
660.0 2	14.4 7	2119.1	(21/2 <sup>-</sup> )	1459.0	(19/2 <sup>-</sup> )	D,Q	$\delta: -1.2 \geq \delta \leq -0.31.$
678.4 2	4.2 3	2938.9	(25/2 <sup>-</sup> )	2260.5	(23/2 <sup>-</sup> )	D,Q	$\delta: -2.0 \geq \delta \leq -0.21.$
683.6 <sup>†</sup> 2	5.8 6	2642.6	(23/2 <sup>-</sup> )	1959.0	(19/2 <sup>-</sup> )		
774.5 2	17.0 8	2098.8	(19/2 <sup>+</sup> )	1324.3	(15/2 <sup>+</sup> )	Q	
801.5 2	25.3 11	2260.5	(23/2 <sup>-</sup> )	1459.0	(19/2 <sup>-</sup> )	Q	
819.8 <sup>†</sup> 2	5.6 3	2938.9	(25/2 <sup>-</sup> )	2119.1	(21/2 <sup>-</sup> )		
900.6 2	10.5 5	3161.1	(27/2 <sup>-</sup> )	2260.5	(23/2 <sup>-</sup> )		
904.5 2	7.9 4	3003.2	(23/2 <sup>+</sup> )	2098.8	(19/2 <sup>+</sup> )		
907.4 2	7.5 5	3006.2	(21/2 <sup>-</sup> )	2098.8	(19/2 <sup>+</sup> )		
1092.0 2	3.8 3	1959.0	(19/2 <sup>-</sup> )	867.0	(15/2 <sup>-</sup> )		

<sup>†</sup> Assignment to  $^{127}\text{Cs}$  is uncertain in [1980Dr07](#).

<sup>‡</sup> 295.5 keV in authors' table is a misprint.

# At  $E(\alpha)=51$  MeV,  $\theta=90$  degrees with respect to beam; relative to  $I(206\gamma)=100$ .




<sup>x</sup>  $\gamma$  ray not placed in level scheme.

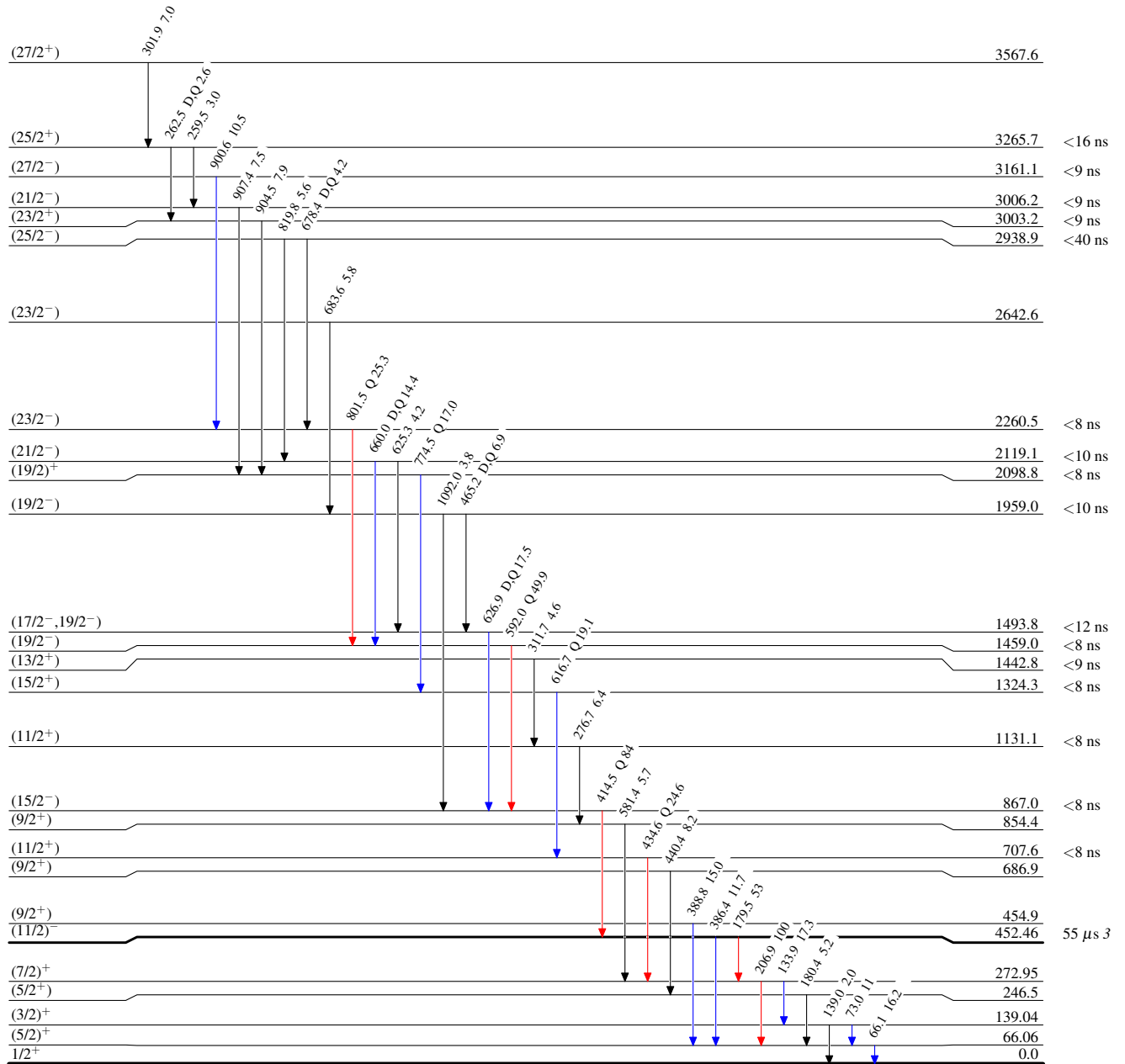
$^{127}\text{I}(\alpha,4n\gamma)$  1980Dr07

## Level Scheme

Intensities: Relative  $I_\gamma$ 

## Legend

-   $I_\gamma < 2\% \times I_\gamma^{\max}$   
  $I_\gamma < 10\% \times I_\gamma^{\max}$   
  $I_\gamma > 10\% \times I_\gamma^{\max}$

 $^{127}_{55}\text{Cs}_{72}$