

$^{55}\text{Mn}(\alpha,2n\gamma)$  1985Ba16,1996Re15

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. R. Bhat	NDS 85, 415 (1998)	24-Sep-1998

Target  $J^\pi=5/2^-$ .1985Ba16:  $E\alpha=25$ , 28.6 MeV, in-beam spectroscopy, Ge(Li),  $E_\gamma$ ,  $I_\gamma$ , mean life by DSAM.1996Re15:  $E\alpha=25$  MeV, Ge(Li), measured  $E_\gamma$ ,  $\gamma\gamma$  coin.

All data are from 1985Ba16 unless indicated otherwise. Data from 1996Re15 observed upto the 3121-keV level confirm earlier measurements.

 $^{57}\text{Co}$  Levels

E(level) <sup>†</sup>	$J^\pi$ <sup>#</sup>	$T_{1/2}$	E(level) <sup>†</sup>	$J^\pi$ <sup>#</sup>	$T_{1/2}$
0.0	$7/2^-$		2311.4 5	$7/2^-$	0.24 ps 10
1223.9 3	$9/2^-$	52 fs 24	2523.7 6	$(13/2)^-$	0.08 ps 3
1378.0 4	$3/2^-$		2560.2 4	$(7/2^-,9/2,11/2^-)$	0.36 ps 15
1505.0 <sup>‡</sup> 7	$1/2^-$		3121? <sup>‡</sup>		
1689.7 4	$11/2^-$	0.22 ps 8	4035.6 8	$(15/2)$	0.05 ps 2
1897.3 4	$7/2^-$		4817.3 8	$(17/2)$	>1.4 ps
2133.4 4	$5/2^-$		5921.4 9	$(19/2)$	0.14 ps 5

<sup>†</sup> From a least-squares fit to  $E_\gamma$  data.<sup>‡</sup> Observed by 1996Re15 only.<sup>#</sup> From Adopted Levels. $\gamma(^{57}\text{Co})$ 

$E_\gamma$ <sup>†</sup>	$I_\gamma$ <sup>#</sup>	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Comments
127.0 <sup>‡</sup> 5		1505.0	$1/2^-$	1378.0	$3/2^-$	
465.7 5	62	1689.7	$11/2^-$	1223.9	$9/2^-$	
673.4 5	4.8	1897.3	$7/2^-$	1223.9	$9/2^-$	
755.0 5		2133.4	$5/2^-$	1378.0	$3/2^-$	$E_\gamma$ : from 1996Re15; 1985Ba16 observed a weak $\gamma$ at 756 keV.
781.8 5	1	4817.3	$(17/2)$	4035.6	$(15/2)$	
810 <sup>‡@</sup> 1		3121?		2311.4	$7/2^-$	
834.0 5	65	2523.7	$(13/2)^-$	1689.7	$11/2^-$	
870.4 5	2.2	2560.2	$(7/2^-,9/2,11/2^-)$	1689.7	$11/2^-$	
933.5 5		2311.4	$7/2^-$	1378.0	$3/2^-$	$E_\gamma$ : from 1996Re15; 1985Ba16 observed a weak $\gamma$ at 934 keV.
988 <sup>‡@</sup> 1		3121?		2133.4	$5/2^-$	
1087.3	3	2311.4	$7/2^-$	1223.9	$9/2^-$	
1104.1 5	14.7	5921.4	$(19/2)$	4817.3	$(17/2)$	
1223.8 5	100	1223.9	$9/2^-$	0.0	$7/2^-$	
1224 <sup>‡@</sup> 1		3121?		1897.3	$7/2^-$	
1336.3 5	5.7	2560.2	$(7/2^-,9/2,11/2^-)$	1223.9	$9/2^-$	
1377.7 5	3.4	1378.0	$3/2^-$	0.0	$7/2^-$	
1512.0 5	9.2	4035.6	$(15/2)$	2523.7	$(13/2)^-$	
1689.7 5	43	1689.7	$11/2^-$	0.0	$7/2^-$	
1897.2 5	2.2	1897.3	$7/2^-$	0.0	$7/2^-$	
2133.8 5	3.2	2133.4	$5/2^-$	0.0	$7/2^-$	
2293.5 5	22.2	4817.3	$(17/2)$	2523.7	$(13/2)^-$	
2311 1	WEAK	2311.4	$7/2^-$	0.0	$7/2^-$	
2560.1 5	2	2560.2	$(7/2^-,9/2,11/2^-)$	0.0	$7/2^-$	

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$^{55}\text{Mn}(\alpha,2n\gamma)$  **1985Ba16,1996Re15** (continued)

$\gamma(^{57}\text{Co})$  (continued)

† From **1985Ba16**, unless indicated otherwise. The evaluator has assumed an uncertainty of 0.5 keV.

‡ Observed by **1996Re15** only; since the authors did not specify an uncertainty, the evaluator has assumed an uncertainty of 0.5 keV for most gammas and an uncertainty of 1 keV for weak gammas.

# Relative intensity observed at  $\theta=125^\circ$  with  $E\alpha=28.6$  MeV. Estimated uncertainty 5-10% for  $I_\gamma=5-100$  and higher for weaker gammas (**1985Ba16**).

@ Placement of transition in the level scheme is uncertain.

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Legend

## Level Scheme

Intensities: Relative  $I_\gamma$ 

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

