

$^{48}\text{Ca}(^{13}\text{C},3\text{n}\text{p}\gamma), (^{15}\text{N},2\text{n}\alpha\gamma)$ 1978Na06

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

E=25 to 65 MeV. Data presented from E(^{13}C)= 40 MeV, except as noted. The $\gamma\gamma$ -coincidence scheme was identified by means of excitation functions, relative yields for different projectiles (A=9-18), and by the intensity balance with β^- decay to ^{57}Fe . See $^{48}\text{Ca}(^{13}\text{C},4\text{n}\gamma)$ for details.

 ^{57}Mn Levels

E(level)	J^π [‡]	$T_{1/2}$ [†]	Comments
0	$5/2^-$		J^π : 5/2 from $\gamma(\theta)$.
83.26 20	$5/2^-, 7/2^-$		J^π : (7/2) from $\gamma(\theta)$.
1075.21? 31	-		J^π : (9/2) from $\gamma(\theta)$.
1227.56 26	-	>0.35 ps	J^π : (11/2 ⁻) from $\gamma(\theta)$ with arguments favoring formation of yrast levels.
≥1618?#			
2758.5 4		<1.4 ps	J^π : (13/2) from $\Gamma(1531\gamma)$ and arguments for formation of yrast states.
3287.3 4		0.49 ps 14	J^π : (15/2) from $\gamma(\theta)$ of 529 γ ; $T_{1/2}$ constrains this γ to be predominantly dipole.
≥3959?@			
≥4073?@			
4710.4 10		<0.28 ps	J^π : (17/2) from $\gamma(\theta)$.

[†] From DSAM.

[‡] From Adopted Levels; supporting arguments from this data set are indicated.

Energy of state could not be determined. From $\gamma\gamma$ data, a state with E≥1228 should be fed.

@ Energy of state could not be determined. From $\gamma\gamma$ data, a state with E≥3287 should be fed.

 $\gamma(^{57}\text{Mn})$

$E_i(\text{level})$	J_i^π	E_γ	I_γ [†]	E_f	J_f^π	Mult.	Comments
83.26	$5/2^-, 7/2^-$	83.10 10	100	0	$5/2^-$		Observed in excit only. Additional information 1.
1075.21?	-	(991.95 [‡])		83.26	$5/2^-, 7/2^-$		
		(1075.2 [‡])		0	$5/2^-$		
1227.56	-	152.35 [@] 16	8 1	1075.21?	-		Additional information 2.
		1144.29 17	92 1	83.26	$5/2^-, 7/2^-$		
≥1618?		390.26 10		1227.56	-		
2758.5		1530.92 30	100	1227.56	-		M: d or E2 from RUL.
3287.3		528.85 20	100	2758.5		E1,M1	Mult.: Γ greatly exceeds RUL for M2.
≥3959?		671.9 [#] 20		3287.3			
≥4073?		785.8 [#] 20		3287.3			
4710.4		1423.0 9	100	3287.3			From $^{48}\text{Ca}(^{15}\text{n},2\text{n}\alpha\gamma)$.

[†] Percent photon branching from each level.

[‡] Not observed. Energies calculated from differences in excitation energies.

Observed in coincidences only.

@ Placement of transition in the level scheme is uncertain.

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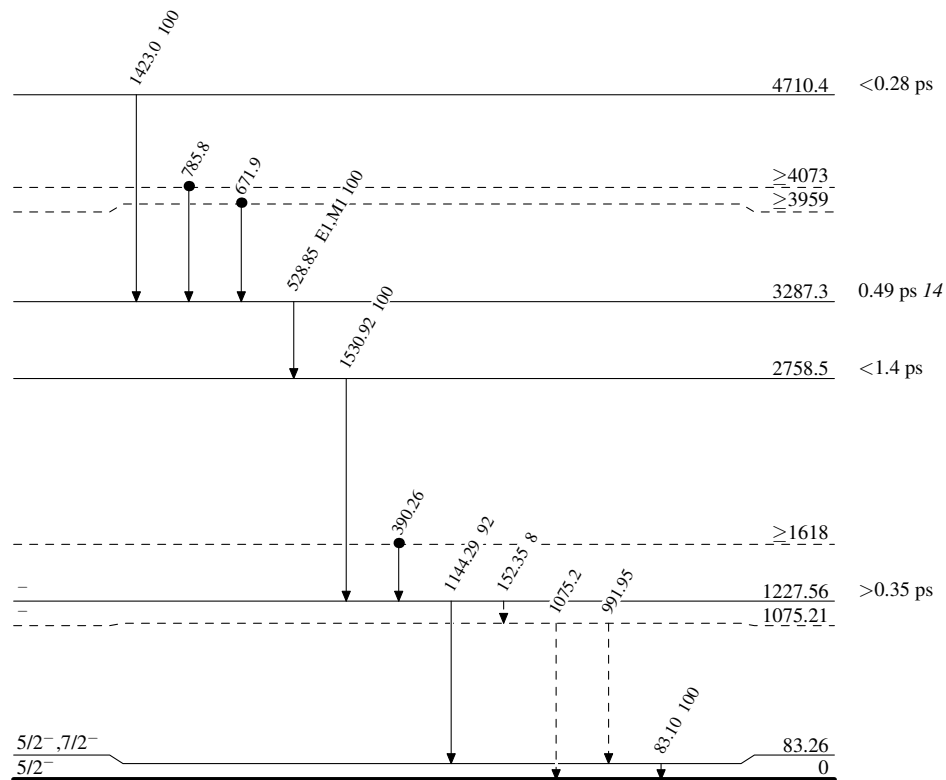
Legend

Level Scheme

Intensities: % photon branching from each level

- - - - - $\rightarrow$ γ Decay (Uncertain)

• Coincidence

 $^{57}_{25}\text{Mn}_{32}$