

$^{50}\text{Cr}(\alpha, p\gamma)$ 1973Sa10, 1979Fi08

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Huo Junde	NDS 110,2689 (2009)	31-Mar-2007

1973Sa10: E=14.2 MeV, measured: γ , $\gamma\gamma$, $\gamma(\theta)$, DSAM linear polarization of γ , $\gamma(\theta)$, DSAM.

1979Fi08: E=14.5 MeV, measured: γ , $\gamma(\theta)$, DSAM.

1974Ge07: E=8-10 MeV, measured: $\gamma(\theta)$, DSAM.

1972Go10: E=9-10 MeV, measured: γ , $\gamma(\theta)$, DSAM.

1974En04: E=10 MeV, measured: $\gamma(\theta)$, RDM.

1972Br14: E=9 MeV, measured: γ , $\gamma(\theta)$, DSAM.

1970Sz02: E=10 MeV, measured: $\gamma(\theta)$.

Others: 1977Ev03, 1976Ma61.

 ^{53}Mn Levels

E(level)	$J^{\pi\dagger}$	$T_{1/2}^{\ddagger}$	Comments
0.0	$7/2^-$		
377.82 19	$5/2^-$		
1289.8 3	$3/2^-$	0.55 ps 4	$T_{1/2}$: others: 0.41 ps $+14-10$ (1979Fi08), 0.60 ps 14 (1972Br14), 0.6 ps 2 (1972Go10).
1441.1 3	$11/2^-$	0.60 ps 8	$T_{1/2}$: others: 0.43 ps 10 (1979Fi08), <0.54 ps (1973Sa10), 0.6 ps 2 (1972Go10), 0.8 ps 3 (1972Br14), <2.1 ps (1974En04).
1621.5 3	$9/2^-$	0.48 ps 6	$T_{1/2}$: others: 0.36 ps $+11-8$ (1979Fi08), <0.29 ps (1973Sa10), 0.46 $+17-11$ (1972Go10), 0.39 11 (1972Br14).
2275.9 8	$5/2^-$	0.25 ps 5	$T_{1/2}$: others: 0.21 ps 6 (1979Fi08), 0.33 ps $+11-7$ (1972Go10).
2408.5 11	$3/2^-$	0.11 ps 4	$T_{1/2}$: from 1979Fi08. Others: 0.29 ps 4 (1974Ge07), 0.12 ps 3 (1972Go10).
2563.2 4	$13/2^-$	14 ps $+6-4$	$T_{1/2}$: from 1974En04.
2573.3 9	$7/2^-$	0.06 [#] ps 2	$T_{1/2}$: others: 0.13 ps 3 (1974Ge07), 0.05 ps 2 (1972Go10).
2671.3 22	$1/2^-$		
2693.3 4	$15/2^-$	0.04 [@] ps 3	
2698.1 3	$11/2^-$		
2706.8 21	$1/2^+$	0.8 [@] ps 3	
2874.9 11	$3/2^-$	0.11 ps 2	
2912.8 11	$3/2^-$		
2949.1 10	$(9/2)^-$	0.06 ps 2	
3004.4 8		>0.84 ps	
3100.3 17	$3/2^-$	0.074 ps 13	$T_{1/2}$: other: 0.04 ps 2 (1979Fi08).
3103.5 11			
3129.0 9	$5/2^-$	0.11 ps 2	$T_{1/2}$: other: 0.06 ps 2 (1979Fi08).
3183.3 8		0.07 ps 2	
3426.4 5	$13/2^-$	0.7 [#] ps $+4-3$	
3440.3 5	$15/2^-$	0.09 [#] ps $+4-3$	$T_{1/2}$: other: <0.4 ps (1973Sa10).
3705.7 8			
4147.1 6		0.05 [#] ps 1	
4169.1 11			
4236.3 11			
4310.3 8			
4384.3 12	$17/2^{(-)}$		

[†] From $\gamma(\theta)$ and linear polarization data (1973Sa10).

[‡] From 1974Ge07 by DSAM, except as noted.

[#] From 1979Fi08 by DSAM.

[@] From 1972Go10 by DSAM.

$^{50}\text{Cr}(\alpha, p\gamma)$ **1973Sa10, 1979Fi08 (continued)**

$\gamma(^{53}\text{Mn})$								
E_γ †	I_γ ^a	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. @	δ ^a	Comments
130.1 ‡ 4	1.6	2693.3	15/2 ⁻	2563.2	13/2 ⁻	M1+(E2)	-0.08 8	Additional information 13.
377.8 2		377.82	5/2 ⁻	0.0	7/2 ⁻	M1+E2	+0.49 # 3	Additional information 1.
728.3 4	4.5	3426.4	13/2 ⁻	2698.1	11/2 ⁻	M1+E2	-0.98 -36+20	Additional information 18.
747.0 4	76 ^c 3	3440.3	15/2 ⁻	2693.3	15/2 ⁻	M1+E2	+0.15 -17+10	Additional information 19.
877.1 20 884	24 ^c 3	3440.3 4310.3	15/2 ⁻	2563.2 3426.4	13/2 ⁻ 13/2 ⁻	M1		
912.0 ‡ 3	7.9	1289.8	3/2 ⁻	377.82	5/2 ⁻	M1+E2	+0.15 # 3	Additional information 2.
944		4384.3	17/2 ⁽⁻⁾	3440.3	15/2 ⁻			
1076.2 ‡ 3	9.4	2698.1	11/2 ⁻	1621.5	9/2 ⁻	M1		Additional information 15. δ : 0.00 3.
1118 # 3	59 ^b 3	2408.5	3/2 ⁻	1289.8	3/2 ⁻	M1+E2	+0.13 # 5	Additional information 9.
1122.3 ‡ 3	27	2563.2	13/2 ⁻	1441.1	11/2 ⁻	M1+(E2)	+0.02 2	Additional information 12.
1142.0 10 1243.1 20	21 ^c 9 10 ^c 2	3705.7 1621.5	9/2 ⁻	2563.2 377.82	13/2 ⁻ 5/2 ⁻	E2		Additional information 5.
1252.1 2	25	2693.3	15/2 ⁻	1441.1	11/2 ⁻	E2		Mult.: predicted linear pol=+70 to +0.91, exp=+1.0 4 (1973Sa10). Additional information 14.
1257.2 ‡ 2	5.1	2698.1	11/2 ⁻	1441.1	11/2 ⁻	M1+E2	+0.61 20	Additional information 16.
1289.8 ‡ 4	7.6	1289.8	3/2 ⁻	0.0	7/2 ⁻	E2		δ : +0.07 10. Additional information 3.
1382 # 3 1417 # 2	67 ^b 12 100 ^b	2671.3 2706.8	1/2 ⁻ 1/2 ⁺	1289.8 1289.8	3/2 ⁻ 3/2 ⁻	E1		Additional information 17.
1441.4 ‡ 3	100	1441.1	11/2 ⁻	0.0	7/2 ⁻	E2		δ : +0.02 2. Additional information 4.
1452 1471 1482		4147.1 4169.1 3103.5		2693.3 2698.1 1621.5	15/2 ⁻ 11/2 ⁻ 9/2 ⁻			
1584.3 5 1620.9 4	90 ^c 2	4147.1 1621.5	9/2 ⁻	2563.2 0.0	13/2 ⁻ 7/2 ⁻	M1+E2	+2.7 3	Additional information 6. δ : other: +4.9 1 (1972Go10).
1623 1673		2912.8 4236.3	3/2 ⁻	1289.8 2563.2	3/2 ⁻ 13/2 ⁻			
1715 & 1747		3004.4 4310.3		1289.8 2563.2	3/2 ⁻ 13/2 ⁻			
1893.6 10 1900 # 3	39 ^c 8 26 ^b 3	3183.3 2275.9	3/2 ⁻ 5/2 ⁻	1289.8 377.82	3/2 ⁻ 5/2 ⁻	M1+E2	-0.74 3	Additional

Continued on next page (footnotes at end of table)

$^{50}\text{Cr}(\alpha, p\gamma)$ **1973Sa10, 1979Fi08 (continued)** $\gamma(^{53}\text{Mn})$ (continued)

E_γ^\dagger	I_γ^a	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. @	δ^a	Comments
2030# 3	12 ^b 1	2408.5	3/2 ⁻	377.82	5/2 ⁻	M1+(E2)		information 7. δ : from 1970Sz02.
2084.6 10	79 ^c 9	3705.7		1621.5	9/2 ⁻			Additional information 10.
2195.3 9	73 ^b 14	2573.3	7/2 ⁻	377.82	5/2 ⁻	M1+E2		
2275.7 8	74 ^b 6	2275.9	5/2 ⁻	0.0	7/2 ⁻	M1+E2	+0.17 5	Additional information 8. δ : other: +0.26 8 (1970Sz02).
2293# 3	33 ^b 5	2671.3	1/2 ⁻	377.82	5/2 ⁻			
2408.7 12	29 ^b 2	2408.5	3/2 ⁻	0.0	7/2 ⁻	E2		Additional information 11.
2497&		2874.9	3/2 ⁻	377.82	5/2 ⁻			
2575# 3	27 ^b 9	2573.3	7/2 ⁻	0.0	7/2 ⁻	M1+E2		
2626&		3004.4		377.82	5/2 ⁻			
2722.4 16		3100.3	3/2 ⁻	377.82	5/2 ⁻			
2751.1 8		3129.0	5/2 ⁻	377.82	5/2 ⁻			
2805.2 10	61 ^c 8	3183.3		377.82	5/2 ⁻			
2949&		2949.1	(9/2) ⁻	0.0	7/2 ⁻			

[†] From 1979Fi08, except as noted.

[‡] From 1973Sa10.

From 1972Go10.

@ From $\gamma(\theta)$ and linear polarization data, comparison to RUL.

& From 1974Ge07.

^a From 1973Sa10, except as noted.

^b Photon branching from level (1972Go10).

^c Photon branching from 1979Fi08.

⁵⁰Cr(α,pγ) 1973Sa10,1979Fi08

Level Scheme

Intensities: Relative I_γ

Legend

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}

