

$^{53}\text{Cr}(\text{p,n}), (\text{p,n}\gamma)$ 1973Ch25,1970Ta01,1970Mc14

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

1973Ch25: E=3-5 MeV; γ , $\gamma(\theta)$, yield of γ' s, $\gamma(\theta)$ DSAM.

1970Ta01: E=2.74-6.06 MeV; $\sigma(\text{E})$; tof.

1970Mc14: E=2.4-3.7 MeV; $\sigma(\text{E})$, γ , $\gamma(\theta)$.

1974Ke11: E=2.5, 3.0 MeV; γ , $\gamma(\theta)$, $\gamma(\theta, \text{H})$.

1966Go21: E=3.15, 3.25 MeV; γ , $\gamma(\theta)$, $\gamma\gamma(\theta)$, plane polarization of γ .

1971Wi21: E=2.4-5.9 MeV; γ , $\gamma(\theta)$, yield, $\sigma(\text{E(p)})$, tof.

 ^{53}Mn Levels

E(level) [#]	J π [†]	T _{1/2} [‡]	Comments
0.0	7/2 ⁻		
377.64 22	5/2 ⁻	117 ps 6	$\mu=2.89$ 43 (1974Ke11) T _{1/2} : from 1966Go19.
1288.36 23	3/2 ⁻	>0.13 ps	
1440.1 3	11/2 ⁻	0.14 ps +21-7	
1619.1 3	9/2 ⁻	0.21 ps +70-14	
2271.7 10	5/2 ⁻	0.22 ps +34-11	
2405.0 6	3/2 ⁻	0.08 ps +10-4	
2571.9 8	7/2 ⁻	0.029 ps +42-25	
2670.0 8	1/2 ⁻	0.07 ps +9-5	
2687.0 6	7/2 ⁻	0.05 ps +4-2	
2705.4 11	1/2 ⁺		
2872? 2			
2875.9 8	3/2 ⁻	0.046 ps +63-30	
2913.7 11	3/2 ⁻		
2947.1 8	(9/2) ⁻		
3005.1 6	(5/2) ⁺		
3095.0 6	3/2 ⁻		
3124.7 11	(5/2) ⁻		
3182.9 8	3/2 ⁻ , 5/2 ⁻		
3202.1 6			
3250.1 10	(9/2) ⁻		
3382 5	5/2 ⁻ , 7/2 ⁻		
3467 5			
3482 5			
3534 6			
3557 6	(11/2) ⁻		
3597 6			
3627 6			
3670 6	5/2 ⁻		
3713 6	(5/2 ⁻ , 7/2 ⁻)		
3729 6			
3787 6			
3856 6			
3901 7	1/2 ⁻		
3961 7	(5/2 ⁻ , 7/2 ⁻)		
4005 7			
4071 7	3/2 ⁺ , 5/2 ⁺		
4087 7			

[†] Adopted values.

[‡] From 1973Ch25 by DSAM, except as noted.

[#] E<1700 (1970Mc14), <3300 (1973Ch25), >3300 (1970Ta01).

$^{53}\text{Cr}(\text{p,n}), (\text{p,n}\gamma)$ **1973Ch25,1970Ta01,1970Mc14** (continued)

$\gamma(^{53}\text{Mn})$								
E_γ^\dagger	$I_\gamma \&$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. ‡	δ^\dagger	Comments
377.5@ 3	100	377.64	5/2 ⁻	0.0	7/2 ⁻	D+E2	+0.6 3	Additional information 1. δ : from 1970Mc14. Other: +0.47 11 (1966Go21).
910.8@ 3	43	1288.36	3/2 ⁻	377.64	5/2 ⁻	D+Q	+0.22 8	Additional information 2. δ : from 1966Go21, maybe -1.7 2 (1966Go21).
1117	57	2405.0	3/2 ⁻	1288.36	3/2 ⁻	D,E2		δ : ≤ -0.5 (1971Wi21).
1241.7@ 10	10	1619.1	9/2 ⁻	377.64	5/2 ⁻	E2 [#]		δ : 0 (1970Mc14).
1288.4@ 3	57	1288.36	3/2 ⁻	0.0	7/2 ⁻	E2 [#]		Additional information 3.
1382	52	2670.0	1/2 ⁻	1288.36	3/2 ⁻	D,E2		Additional information 12.
1399	22	2687.0	7/2 ⁻	1288.36	3/2 ⁻	E2 [#]		
1417	100	2705.4	1/2 ⁺	1288.36	3/2 ⁻			
1440.1@ 3	100	1440.1	11/2 ⁻	0.0	7/2 ⁻	E2 [#]		Additional information 4. δ : 0 (1970Mc14), -0.03 7 (1971Wi21).
1476	16 ^a 2	3095.0	3/2 ⁻	1619.1	9/2 ⁻			
1507	<5	2947.1	(9/2) ⁻	1440.1	11/2 ⁻			
1619.1@ 3	90	1619.1	9/2 ⁻	0.0	7/2 ⁻	D+E2	+3.2 8	Additional information 5. δ : from 1970Mc14. Others: +3.2 -15+5 or +0.6 -1+2 (1973Ch25); +3.7 -5+14 (1971Wi21).
1717	61	3005.1	(5/2) ⁺	1288.36	3/2 ⁻	D+Q	-0.7 +4-7	Additional information 20.
1894	22	2271.7	5/2 ⁻	377.64	5/2 ⁻	D,E2		Additional information 6. δ : -0.09 1 or -3.4 13 (1971Wi21).
1914	37	3202.1		1288.36	3/2 ⁻			
2027	11	2405.0	3/2 ⁻	377.64	5/2 ⁻	D,E2		Additional information 8. δ : ≤ -0.4 (1971Wi21).
2194	66	2571.9	7/2 ⁻	377.64	5/2 ⁻	D+E2	+1.2 +12-5	Additional information 10. δ : other: +0.9 -3+20 (1971Wi21).
2272 2	78	2271.7	5/2 ⁻	0.0	7/2 ⁻	D,E2		Additional information 7. δ : $\leq +0.2$ or ≥ -0.9 (1971Wi21).
2292	48	2670.0	1/2 ⁻	377.64	5/2 ⁻	E2 [#]		Additional information 13.
2309	26	2687.0	7/2 ⁻	377.64	5/2 ⁻	D,E2		Additional information 14. δ : -0.3 -28+2 or -1.6 15 (1973Ch25); -1.5 15 (1971Wi21).
2405	32	2405.0	3/2 ⁻	0.0	7/2 ⁻	E2 [#]		Additional information 9.
2498	87	2875.9	3/2 ⁻	377.64	5/2 ⁻	D,E2		Additional information 16.
2536	100	2913.7	3/2 ⁻	377.64	5/2 ⁻			Additional information 18.
2572	34	2571.9	7/2 ⁻	0.0	7/2 ⁻	D+E2	+0.5 -5+7	Additional information 11. δ : other: +0.6 7 (1971Wi21).
2627	23	3005.1	(5/2) ⁺	377.64	5/2 ⁻			
2687	52	2687.0	7/2 ⁻	0.0	7/2 ⁻	D,E2		Additional information 15. δ : +1.3 -3+5 or -0.14 12 (1973Ch25); +2.1 -4+8 or -0.32 11 (1971Wi21).
2717	48 ^a 2	3095.0	3/2 ⁻	377.64	5/2 ⁻			

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$^{53}\text{Cr}(\text{p,n}), (\text{p,n}\gamma)$ 1973Ch25,1970Ta01,1970Mc14 (continued) $\gamma(^{53}\text{Mn})$ (continued)

E_γ^\dagger	$I_\gamma\&$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. ‡	δ^\dagger	Comments
2747	100	3124.7	(5/2 ⁻)	377.64	5/2 ⁻			
2805	89	3182.9	3/2 ⁻ ,5/2 ⁻	377.64	5/2 ⁻			
2824	31	3202.1		377.64	5/2 ⁻			
2872 ^b	100	2872?		0.0	7/2 ⁻			
2876	13	2875.9	3/2 ⁻	0.0	7/2 ⁻	E2 [#]		Additional information 17.
2947	>95	2947.1	(9/2 ⁻)	0.0	7/2 ⁻	D+Q	+1.0 +11-3	Additional information 19. δ : from 1973Ch25. Other: +1.6 8 (1971Wi21).
3005	16	3005.1	(5/2 ⁺)	0.0	7/2 ⁻			Additional information 21.
3095	36 ^a 2	3095.0	3/2 ⁻	0.0	7/2 ⁻			Additional information 22.
3183	11	3182.9	3/2 ⁻ ,5/2 ⁻	0.0	7/2 ⁻			
3202	32	3202.1		0.0	7/2 ⁻			Additional information 23.
3250	100	3250.1	(9/2 ⁻)	0.0	7/2 ⁻	D+E2	+4.5 +31-19	Additional information 24. δ : from 1971Wi21.

[†] From 1973Ch25, except as noted.

[‡] From $\gamma(\theta)$ and comparison to RUL, except as noted.

[#] From 1973Ch25.

[@] From 1970Mc14.

[&] % photon branching from each level, see 1973Ch25, except as noted.

^a % photon branching from each level, see 1971Wi21.

^b Placement of transition in the level scheme is uncertain.

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Legend

Level Scheme
Intensities: Relative I_γ

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

