^{56}Fe(pol d,α), (d,α), (p,^{3}He) 1980Pi04,1973Ma25,1971Ga25

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yang Dong, Huo Junde	NDS 121, 1 (2014)	20-Jun-2014

Additional information 1.

1980Pi04: E(pol d)=7.5, 8.0, 8.5, 9.0, and 9.5 MeV, M=0 and M=1 tensor-polarized deuterons beams. Measured T20(4°), E(pol d)=9.0 MeV, measured σ(Eα,θ), deduced $J^\pi=(0^+)$.

1975Gu18: E(p)=40.2 MeV, measured σ(E(^{3}He),θ) from 6° to 58°, DWBA analysis.

1973Ma25: E(d)=12 MeV, enriched target, multigap magnetic spectrograph, nuclear emulsions, energy resolution≈25 keV. Measured σ(Eα,θ), DWBA analysis. deduced J^π, L.

1971Ga25: E(d)=12 MeV, energy resolution≈50 keV.

1967Hj01: E(d)=1.5 MeV, energy resolution≈50 keV.

1964Bj01: E(d)=3-4.3 MeV. Measured g.s. transition Q=5656 keV *12*.

1994Su18: ^{57}Fe(p,α), E(p) up to 14.12 MeV, ^{56}Fe(d,α), E(d) up to 13.4 MeV, measured excitation functions.

S-values are reported by 1967Hj01, while 1971Ga25 give σ(30.8°) and 1973Ma25 give $\sigma(\theta)$ max. 1971Ga25 and 1973Ma25 gave a DWBA analysis based on the Glendenning formalism.

^{54}Mn Levels

E(level)[†]	J^π[a]	L[#]	Comments
0	3^+	2	
56 *12*	2^+	2	
156 *12*	4^+	4[b]	
365 *12*	5^+	4	E(level): from 1978Ve02.
405 *12*	3^+	4[b]	
837 *12*	4^+	4[b]	
1008 *12*	3^+	2	
1074 *12*	6^+	6[b]	
1137 *12*	5^+	4	
1376 *12*		2	
1390[&] *15*	1^+		
1455 *12*	1^+	2	
1511 *12*	2^+	2[b]	
1543 *12*	3^+	2	L: L=4 for 1553-keV state in (p,^{3}He) from 1975Gu18.
1634 *18*	1^+	0+2	
1680[&] *15*	(0^+)		J^π: from angular distribution measurement and rapidly decreasing cross section at forward angles.
1784[&] *12*	7^+	4	L: L=6 in (p,^{3}He) from 1975Gu18, possible doublet, $J^\pi=7^+$.
1859 *12*	3^+,$(4,5)^+$	4	L: Other: L=(0+2) in (p,^{3}He) from 1975Gu18.
1924 *12*	3^+	4	L: Other: L=2 in (p,^{3}He) from 1975Gu18.
2046 *18*	4^+	4	
2113[@] *20*	1^+	0+2	
2137 *12*		2	
2276[@] *20*	4^+	4	
2320 *18*	(5^+)	(4+6)[b]	
2501 *18*	1^+,3^+	2[b]	
2562[@] *20*	3^+	4	
2682[@] *20*	1^+,$(3)^+$	2	
2712[#] *30*	1^+,$(3)^+$	2	L: L=(1+3) in (p,^{3}He) from 1975Gu18, $J^\pi=2^-$. Discrepancies exist.
2765[#] *30*	$(3)^-$	3	
2905 *18*	1^+	0+2	
3012[#] *18*		3	

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^{56}Fe(pol d,α), (d,α), (p,^{3}He) 1980Pi04,1973Ma25,1971Ga25 (continued)

^{54}Mn Levels (continued)

E(level)[†]	Jπ[a]	L[#]	Comments
3059 *18*		4[b]	
3116[#] *18*		3	
3192[#] *18*		4	L: L=(0+2), (1+3) in (p,^{3}He) from 1975Gu18.
3295 *18*		(2,3)	
3332[#] *18*	4$^-$	5	L: L=(3) in (p,^{3}He) from 1975Gu18.
3440 *18*			
3523[#] *18*	(3$^+$)	2	L: L=(4) in (p,^{3}He) from 1975Gu18.
3607[#] *18*		3	
3646 *18*		(4)[b]	
3668[#] *18*		(4)[b]	
3711 *18*		4	
3730[‡] *18*		4	
3760 *18*		(6)[b]	
3807[#] *18*		(5)	
3850 *18*			L: L=(4+6),(3+5) in (p,^{3}He) from 1975Gu18.
3911 *18*		4[b]	
3950[‡] *18*		4	L: L=(6) in (p,^{3}He) from 1975Gu18.
4032 *18*	(3$^+$)	(2+4)	
4075 *18*			
4105 *18*	(2$^-$)	(1+3)[b]	
4153[#] *18*		4	
4189[#] *18*			
4222 *18*		(2)[b]	
4256[#] *18*		(3)	
4294[#] *18*		3	
4305 *18*		4	
4376 *18*		2[b]	
4425 *18*		2[b]	
4550 *18*	1$^+$	0+2[b]	
4615 *18*	(1$^+$)	(0+2)[b]	
4736 *18*	1$^+$	0+2[b]	
4795 *18*		4[b]	
4853 *18*	1$^+$	0+2[b]	
4907 *18*		4[b]	
4971 *18*		4[b]	
5030 *18*	(3$^+$)	(2+4)[b]	
5077 *18*			
5130 *18*			
5195 *18*			
5233 *18*	3$^+$	2+4[b]	
5331 *18*		3[b]	
5385 *18*	(1$^+$)	(0+2)[b]	
5491 *18*		(2,3)[b]	
5530 *18*	(3$^+$)	(2+4)[b]	
5584 *18*		3[b]	
5630 *18*			
5670 *18*	1$^+$	0+2[b]	

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^{56}Fe(pol d,α), (d,α), (p,^{3}He) 1980Pi04,1973Ma25,1971Ga25 (continued)

^{54}Mn Levels (continued)

E(level)†	L#	E(level)†	L#	E(level)†	L#
5705 *18*	2*b*	5875 *18*	(2)*b*	6010 *18*	2*b*
5792 *18*	2*b*	5960 *18*		6080 *18*	
				6162 *18*	0*b*

† E(level) below 2.2 MeV from 1964Bj01; others from 1975Gu18, except as noted. ΔE=12 keV from 1964Bj01, ΔE=20 keV from 1971Ga25, ΔE=15 and 30 keV from 1980Pi04, ΔE=18 keV given by evaluator from 1975Gu18 and 1973Ma25.
‡ Probable multiplet.
# From 1973Ma25.
@ From 1971Ga25.
& From 1980Pi04.
a From tensor-analyzing power in (pol d,α) L values.
b From 1975Gu18.