

$^{56}\text{Fe}(\text{d},\text{n})$ E=6, 8, 10 MeV 1976Ad05

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

1976Ad05: measured $\sigma(\theta)$; scintillator, TOF. Energy resolution (FWHM)=40–100 keV. $\theta=20^\circ$ – 100° , 5° steps; DWBA.

1997AiZZ: E(d)=25 MeV, FWHM=200–230 keV for the g.s.; measured $\sigma(\theta)$, $\theta(\text{lab})=0^\circ$ to 70° , DWBA analysis.

Other: 1977Au04.

$\Sigma\text{C}^2\text{S}'$ compared to theory are as follows:

subshell	theory	expt
-----	-----	-----
p3/2	3.60	2.00
p1/2	1.60	0.69
f5/2	4.80	4.32

 ^{57}Co Levels

E(level) [†]	J^π [‡]	L	$\text{C}^2\text{S}'$	Comments
0.0	$7/2^-$	3	1.90 57	
1377	$3/2^-$	1	1.07 32	
1504	$1/2^-$	1	0.45 14	
1759	$3/2^-$	1	0.20 6	
2134	$5/2^-$	3	1.18 35	
2312	$7/2^-$	3	0.35 11	
2881	$3/2^-$	1	0.14 4	
3109	$3/2^-$	1	0.09 3	
3179	$5/2^-$	3	0.84 25	
3272	$5/2^-, 7/2^-$	3	0.94, 0.55 28	
3359	$(3/2)^-$	1	(0.27) 9	
3463	$3/2^-$	1	0.23 8	
3722	$(1/2^+)$	(0)	(0.02) 1	
3920 [#]	$1/2^-, 3/2^-$	1	0.04, 0.04 1	
4000 [#]	$1/2^- \& 5/2^-$	1+3	0.03+0.17 6	
4200 [#]		(1)		
4250 [#]	$5/2^-, 7/2^-$	3	0.56, 0.41 17	
4295		(1+3)		
4390 [#]	$1/2^-, 3/2^-$	1	0.03, 0.02 1	
4467 [#]	$1/2^- \& 5/2^-$	1+3	0.03+0.23 8	
4600 [#]	$3/2^+ \& 9/2^+$	2+4	0.3+2.0 7	
4690 [#]	$3/2^+, 5/2^+$	2	1.08, 0.30 32	
4780 [#]	$5/2^-, 7/2^-$	3	0.28, 0.23 8	
5120				
5440				
5710				
6030	$(1/2^-), (3/2^-)$	1	0.13, 0.13	
6210	$(1/2^-), (3/2^-)$	1	0.15, 0.15	
6470				
6780	$(5/2^-), (7/2^-)$	3	0.48, 0.31	L: [4], and $J^\pi=(9/2^+)$, $\text{C}^2\text{S}'=0.56$.
7270	$(1/2^-), (3/2^-)$	1	0.45, 0.43	
7430	$(5/2^-), (7/2^-)$	3	0.83, 0.55	
7690	$(1/2^-), (3/2^-)$	1	0.25, 0.25	
8010	$(1/2^-), (3/2^-)$	1	0.16, 0.16	
8300				
8530	$(1/2^-), (3/2^-)$	1	0.38, 0.38	

Continued on next page (footnotes at end of table)

$^{56}\text{Fe}(\text{d,n})$ E=6, 8, 10 MeV [1976Ad05](#) (continued) ^{57}Co Levels (continued)

<u>E(level)[†]</u>	<u>J^π[‡]</u>	<u>L</u>	<u>$\text{C}^2\text{S}'$</u>	<u>Comments</u>
8780				
9110	(1/2 ⁻),(3/2 ⁻)	1	0.29,0.29	
9370				
9690	(1/2 ⁻),9/2 ⁺	(1)+4	0.31+1.03	J^π : [(3/2 ⁻)+9/2 ⁺] $\text{C}^2\text{S}'=0.31+1.03$. L: [(2)+4] and J=(5/2 ⁺)+9/2 ⁺ , $\text{C}^2\text{S}'=0.18+0.90$.
9910	(1/2 ⁻),(3/2 ⁻)	1	0.27,0.27	

[†] Energies above 5 MeV are from [1997AiZZ](#); energy uncertainties are not given by authors. Because of the poor resolution of this work, the results of their analysis are doubtful. See [1997AiZZ](#) for level energies, L and $\text{C}^2\text{S}'$ assignments below 5 MeV.

[‡] Value assumed for DWBA analysis. Some J^π assumed by [1976Ad05](#) were excluded by the adopted values.

Unresolved multiplet.