^{56}Fe(pol d,p) E=10 MeV 1974Th03

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

Telescopes (FWHM= 50 keV, typical). θ=15°−80° in 5° steps. Vector polarization=0.50 *3*, typical. Measured analyzing power and $\sigma(\theta)$. DWBA.

^{57}Fe Levels

J(B),L(B) From empirical rule of 1972Ko41 L(n)=2 transitions in the 2d shell show a definite J-dependence in p(θ) near θ=45°.

E(level)	J^π‡	L‡	S#	Comments
0	1/2−	1	0.143	
14	3/2−	1	0.415	
136	5/2−	3	0.594	
366†	3/2−	1	0.253	
1264	1/2−	1	0.371	
1356	(7/2−)	3	0.049	
1630	3/2−	1	0.025	
1725	3/2−	1	0.044	
2117	5/2−	3	0.039	
2207	5/2−	3	0.066	
2454		4	0.447	L: no L=0 strength observed in σ; however, if data had been taken at more forward angles, such strength may have been observed.
2506	5/2+	2	0.114	
2565	3/2−	1	0.028	
2687†	1/2−	1	0.378	Probably corresponds to resonance assigned J^π=3/2− observed in ^{56}Fe(p,p′) by 1970Br20.
2910				J^π,L: no L could be determined. If L=1 is assumed, the data are not consistent with either J^π=1/2− or 3/2−.
3372	3/2−	1	0.023	S: data not analyzed at θ<20°.
3425	3/2−	1	0.024	S: data not analyzed at θ<20°.
3974	3/2−	1	0.022	
4141†	5/2+	2	0.091	
4382	(1/2+)&(7/2−)	(0)+(3)	0.065+0.237	L: inconsistent with results from (d,p). Least-squares adjustment procedures to obtain L and σ(L).
4492	5/2+	2	0.026	S: data not analyzed at θ<25°.
4594	5/2+	2	0.035	
4824	(1/2+)&(3/2+)	(0)+(2)	0.096+0.051	J^π,L: data clearly indicated a mixed transition in disagreement results from (d,p).
4914	5/2+	2	0.059	May include two unresolved groups with L=2 observed by 1971Se01.
5049	(1/2+)&(7/2−)	(0)+(3)	0.011+0.042	
5139	1/2−	1	0.033	J^π,L: p(θ) clearly indicates J^π=1/2−,L=1, in disagreement with L=0 in (d,p).
5289	5/2+	2	0.018	
5360†	5/2+	2	0.064	

† Calibration points. The position of other groups agreed within 15 keV to the data from 1971Se01.

‡ From DWBA calculations and empirical arguments.

If dσ/dΩ(exp)=1.53 s dσ/dΩ(DWUCK). These are larger than those extracted by 1971Se01. When the DWBA calculations of 1971Se01 were reproduced, the calculated cross sections were 20% lower than those measured by 1974Th03.