

$^{34}\text{S}(\text{p,d}),(\text{pol p,d})$ 1975Mo02

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh		NDS 199,1 (2025)	30-Sep-2024

(p,d):

1975Mo02: E=35 MeV proton beam of 300-800 nA was produced from the Michigan State University sector-focused cyclotron.Target was a 10 $\mu\text{g}/\text{cm}^2$ layer of enriched 85.5% ^{34}S sandwiched between carbon and Formvar foils. Reaction products were momentum-analyzed with an Enge split-pole magnetic spectrograph (FWHM=50 keV) and recorded with nuclear emulsions.Measured $\sigma(E_d, \theta)$, $\theta_{\text{c.m.}} \approx 0^\circ$ to 50° . Deduced levels, J, π , L, spectroscopic factors from DWBA analysis of the data. Comparisons with available data.

(pol p,d):

1971Ma58: E=20 MeV polarized proton beam was produced from the Saclay sector-focused cyclotron. Target was enriched ^{34}S .Reaction products were detected with sixteen ΔE -E telescopes with ΔE Si surface-barrier junctions of 150-250 μm and E-detector lithium-drifted Si junctions of 3.5-4 mm (FWHM=80-150 keV for deuterons). Measured $\sigma(E_p, \theta)$, $\theta \approx 10^\circ$ to 160° , analyzing powers. Deduced levels, J, π , L of g.s. and 842 level from DWBA analysis of the data.**1972Es04** (also **1973Go42,1975PI03,1977PI03**): E=24.5 MeV polarized proton beam was produced at the Kurchatov Atomic Energy Institute of the Academy of Sciences of the USSR. Target was 98% enriched ^{34}S . Reaction products were detected with sixteen Si(Li) ΔE -E telescopes (FWHM=150 keV). Measured $\sigma(E_p, \theta)$, $\theta_{\text{c.m.}} = 30^\circ$ to 160° , analyzing powers. Deduced levels, J, π , L of g.s. and 842 level from DWBA analysis of the data. ^{33}S LevelsSpectroscopic factor $C^2S = \sigma(\theta)_{\text{exp}}/\sigma(\theta)_{\text{DWBA}} \times (2j+1)/N$, where N is the normalization factor and $j=1/2$ the angular momentum of transferred particle (**1966Ba54**). N=2.29 in **1975Mo02**.

E(level) [†]	J π	L \ddagger	C ² S \ddagger	E(level) [†]	L \ddagger	C ² S \ddagger	E(level) [†]	L \ddagger	C ² S \ddagger
0	3/2 ⁺ #	2	1.87	4096 3			5401 4		
840 2	1/2 ⁺ #	0	0.80	4147 3			5482 4	0	0.46
1966 2		2	0.05	4211 3			5617 4	0	0.10
2313 2	3/2 ⁺ @	2	0.17	4380 3		0.03	5716 4		
2867 3	5/2 ⁺ @	2	1.27	4425 3			5726 4	(4)	
2934 3		3	0.02	4733 3			5916 4	0	0.01
2969 3		(4)		4747 3			6362 4	2	0.21
3220 3		1	0.02	4945 3	3	0.05	6905 4	2	0.35
3832 3		2	0.59	5179 4	(3,4)		6967 4		
3935 3		2	0.02	5273 4			7038 5		
4048 3		(4)		5288 4			7193 5		
4053 3		0	0.003	5343 4	2	0.03	7339 5	2	0.41

[†] From **1975Mo02**.[‡] From DWBA analysis of measured $\sigma(\theta)$ in **1975Mo02**.# From DWBA analysis of measured $\sigma(\theta)$ and analyzing powers in **1971Ma58**.@ From **1972Es04**. Measured analyzing powers of the 3/2⁺ and 5/2⁺ levels show strong j-dependence.