^{34}S(d,p) 1969Mo12,1971Va18,1984Pi03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, John Cameron and Balraj Singh	NDS 112,2715 (2011)	20-Oct-2011

1969Mo12: E=6.495 MeV deuterons produced from the ONR-CIT tandem accelerator. Target: a enriched target of 450 *25* μg/cm^2 Cds (85% ^{34}S) evaporated onto a 301 *15* μg/cm^2 gold foil and a natural target of 289 *30* μg/cm^2 Sb^2S^3 evaporated onto a 289 *30* μg/cm^2 gold foil. Detectors: an array of 16 Au-Si surface-barrier detectors for detecting protons, FWHM=30 keV. Measured $\theta(E_p,\theta)$. Deduced levels.

1971Va18: E=10 MeV deuterons produced from the Utrecht 6 MV tandem accelerator. Targets: a 100 μg/cm^2 PbS on carbon plus formva foils and a 5 μg/cm^2 pure ^{34}S embedded in aluminum foil. Detector: one 15 mm long and seven 30 mm long, 0.6 mm thick position-sensitive detectors (PSD) in the focal plane of the Utrecht split-pole magnetic spectrograph. Measured $\theta(E_p,\theta)$. Deduced levels, J^π, L, spectroscopic factors from the DWBA analysis. Deduced Q.

1984Pi03: E=12.3 MeV deuterons produced from a cyclotron. Target: CdS (61.9% in ^{36}S, 37.7% in ^{34}S), 100μg/cm^2 on a 20 μg/cm^2 carbon backing. Proton analyzed by a multi-angle magnetic spectrograph and detected by a 700 mm long nuclear emulsion plated Ilford L4. Measured $\sigma(E_p,\theta)$. Deduced levels, J^π, L and spectroscopic factors from DWBA analysis.

1958En51: E_d=6.006 and 6.542 MeV deuteron produced from the MIT-ONR electro-static generator. Targets: prepared by evaporating natural sulfur onto Formvar films (4.2% ^{34}S, mainly ^{32}S). Detectors:a high-resolution, broad-range magnetic spectrograph for measuring proton energies. Measured $\sigma(E_p, \theta)$, Q-value (6413 *6*). Deduced levels.

1966Sc09: E=9 and 12 MeV deuterons produced the Argonne tandem accelerator at the Argonne National Laboratory. Target of PbS. Detector: silicon surface-barrier detectors. Measured $\sigma(E_p,\theta)$. Deduced J, L for 0 and 1990 keV levels.

1971Ko33: E=6.6 MeV deuterons. Targets: GeS film of 70-80 μg/cm^2 (98% enrichment in ^{34}S) evaporated onto a 20 μg/cm^2 carbon substrate. Detector: an 800 μ Si(Li). Measured $\sigma(E_p,\theta)$. Deduced levels, J^π, L and spectroscopic factors from DWBA analysis.

1971Me12: E=18 MeV deuterons produced from the Yale MP tandem Van tandem Van de Graaff accelerator. Target: H^2S gas (95.06% ^{32}S, containing ^{34}S). Detectors: a ΔE-E telescope of silicon surface-barrier detectors for detecting protons. Measured $\sigma(E_p,\theta)$. Deduced levels, J^π, L and spectroscopic factors mainly for ^{33}S from DWBA analysis.

1979So01: E=3.55 MeV deuterons produced from a Van de Graaff electrostatic generator. Target: 18 μg/cm^2 GeS (80% ^{36}S, 20% ^{34}S) on a 25 μg/cm^2 carbon backing. Proton analyzed by a magnetic spectrograph and recorded by a spark chamber, FWHM=10-15 keV. Measured $\sigma(E_p,\theta)$. Deduced levels.

Others: 1973Co25, 1976We29.
Target ^{34}S $J^\pi=0^+$.

^{35}S Levels

Spectroscopic factor C^2S: $N*(2J_f+1)/(2J_i+1)*C^2S=\sigma(\theta)^{exp}/\sigma(\theta)^{DWBA}$, where N is the normalization factor. N=1.58 (1971Me12), N=1.53 (1971Va18), N*g=1.53 (1984Pi03).

E(level)	L[a]	C^2S[b]	Comments
0	2	0.43 *11*	C^2S: Others: 0.33 (1971Ko33), 0.46 (1971Me12).
1572.92[#] *19*	0	0.34 *9*	
1991.08[#] *16*	3	0.68 *18*	C^2S: Others: 0.38 (1971Ko33), 0.63 (1971Me12).
2347.59[#] *15*	1	0.52 *13*	C^2S: Others: 0.33 (1971Ko33), 0.5 (1971Me12), 0.505 (1984Pi03).
2724[@] *8*	2		L: 0 in 1971Ko33. C^2S: 0.3/(2J+1) (1971Ko33).
2941[@] *10*			
3420[@] *8*	(0,1)		L: from 1971Ko33. C^2S: 0.2/(2J+1) (1971Ko33).
3559[@] *8*			
3596[@] *8*			
3675[‡] *10*	(1)		L: from 1971Va18.

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^{34}S(d,p) 1969Mo12,1971Va18,1984Pi03 (continued)

^{35}S Levels (continued)

E(level)	L[a]	C^{2}S[b]	Comments
			C^{2}S: <0.005/(2J+1) (1971Va18).
3801.9# *3*	1		L: from 1971Va18. C^{2}S: (0.37 *9*)/(2J+1) (1971Va18).
3866?‡ *10*			
3896@ *11*			
4025@ *10*			
4109@ *10*			
4189.87# *26*	1		C^{2}S: (0.24 *6*)/(2J+1) (1971Va18).
4305@ *8*			
4481† *8*			
4575† *8*			
4837 *8*			
4903.28# *16*	1	0.776	L,C^{2}S: from 1984Pi03.
4963.12# *16*	1	0.218	L,C^{2}S: from 1984Pi03.
5058† *8*			
5126† *11*			
5344& *4*			
5475?† *10*			
5980† *10*			
6078.6# *13*	1	0.086,0.04 *2*	L,C^{2}S: from 1984Pi03.
6292† *8*			
6334† *8*			
6344† *8*			
6446† *8*			
6496† *8*			
6537.7# *14*			
6545.1# *13*			
6584† *10*			
6635.2# *13*			
6677† *8*			
6891.3# *14*			
7022† *10*			
7482.7# *13*			

† From 1969Mo12.
‡ From 1971Va18.
# From 1984Pi03.
@ Weighted average from 1969Mo12 and 1971Va18.
& Weighted average from 1969Mo12 and 1979So01.
[a] From the comparison of DWBA predictions with the experimental data.
[b] From 1971Va18, unless otherwise noted.