^{36}S(pol d,^{3}He) 1985Kh04

$J^{\pi}=0^{+}$ for ^{36}S ground state.

1985Kh04: 52-MeV unpolarized and vector-polarized deuteron beams of 100 nA were produced from the Karlsruhe cyclotron. The target was a 1 mg/cm^2 ^{208}Pb sulfide with 81.1% enriched ^{36}S on ^{12}C backing. Reaction products were detected with two 300 μm and 1500 μm-thick ΔE-E surface-barrier detector telescopes (FWHM≈90 keV). Measured σ(E(^{3}He),θ) and iT$_{11}$(θ). Deduced mass excess, levels, J, π, L-transfers, and spectroscopic factors from standard local, zero-range JULIE-DWBA analysis of the angular distributions of of the differential cross sections and the analyzing powers.

^{35}P Levels

Spectroscopic factor $C^2S=\sigma(\theta)_{exp}/\sigma(\theta)_{DWBA}/N$, where N=2.95 is a normalization factor adopted by 1985Kh04 from 1974Ma34, originally from 1966Ba54.

E(level)[†]	J^{π}	L[‡]	C^2S[‡]	Comments
0	$1/2^+$	0	1.63	
2386 *6*	$3/2^+$[#]	2	0.31[#]	
3857 *2*	$5/2^+$[@]	2	2.91[@]	
4474 *21*			<0.2	$1d_{5/2}$ proton transfer assumed in DWBA calculations, but 2016Mu03 proposed $1f_{7/2}$ (L=3) based on the measured parallel momentum distribution.
4665 *3*	$5/2^+$[@]	2	1.06[@]	
5189 *13*	$5/2^+$[@]	2	1.38[@]	
7520 *30*			<0.4	

[†] Deduced from ^{3}He spectra measured with unpolarized deuteron beam.

[‡] From DWBA analysis of measured $\sigma(\theta)$.

[#] L-1/2 transfer from analyzing power measurements; $1d_{3/2}$ proton transfer assumed in DWBA calculations.

[@] L+1/2 transfer from analyzing power measurements; $1d_{5/2}$ proton transfer assumed in DWBA calculations.