^{36}S(d,^{3}He) 1984Th08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Lijie Sun and Jun Chen	NDS 211,1 (2026)	30-Sep-2025

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

1984Th08: A 30-MeV deuteron beam was produced from the BNL Double MP tandem facility. Targets were 20.1 and 23.0 μg/cm^2 sulphur with ^{36}S enriched to 81.1%. Reaction products were momentum-analyzed with the BNL Q3D magnetic spectrometer (FWHM≈32 keV) and detected with a multi-wire proportional counter backed by a topping plastic scintillator. Measured σ(E(^{3}He),θ). Deduced levels, J, π, L-transfers, spectroscopic factors from the finite-range DWUCK4-DWBA analysis of the angular distributions.

^{35}P Levels

Spectroscopic factor $C^2S=(2j+1)\times\sigma(\theta)_{exp}/\sigma(\theta)_{DWBA}/N$, where j denotes the total angular momentum of the transferred nucleon. N=29.5 is a normalization factor adopted by 1984Th08. The discrepancy from the original N=2.95 in 1966Ba54 likely arises from different units of cross sections.

E(level)[†]	L[‡]	C^2S[‡]
0	0	2.3 *12*
3864 *10*	2	1.45,1.10[#]
4664 *10*	2	0.53,0.41[#]
5202 *10*	2	0.40,0.30[#]

[†] From 1984Th08.
[‡] From DWBA analysis of measured $\sigma(\theta)$. The uncertainty of C^2S is estimated to be 50% by 1984Th08.
[#] Quoted values are for j=L−1/2 ($1d_{3/2}$) and L+1/2 ($1d_{5/2}$), respectively.