^{28}Si(^{16}O,^{12}C) 1976Pe05,1979Be01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 201,1 (2025)	31-Oct-2024

1976Pe05,1978Pe15: E=36-53 MeV ^{16}O from Pittsburg three-stage Van de Graaff. Target was 99.8% enriched ^{28}Si with a thickness of about 50 μg/cm^2 on a 20 μg/cm^2 carbon backing. Reaction products were momentum-analyzed with an Enge split-pole magnetic spectrograph and detected with position sensitive detectors. Measured $\sigma(^{12}C,\theta)$, θ_{cm}=10° to 40°. Deduced levels, J, π, spectroscopic factors from DWBA analysis.

1972Ma36: E=42 MeV ^{16}O from the Pittsburgh three-stage tandem accelerator. Measured energy spectra, $\sigma(\theta)$. Deduced levels.

1979Be01: E=60 MeV ^{16}O from Saclay super FN tandem accelerator. Target was 99.91% enriched ^{28}Si with a thickness of 128 μg/cm^2 on a carbon backing. Reaction products were momentum analyzed with a Q3D magnetic spectrograph and detected with a gas proportional counter for particle ΔE-E. Measured $\sigma(^{14}C,\theta)$, θ_{cm}=5° to 25°. Deduced levels, J, π. EFR-DWBA calculations stated by author as not reproducing the data.

Others:

1983Me13,1984Me10: E=50, 60, 68, and 72 MeV ^{16}O from the Super-FN Tandem Van de Graaff of Saclay. Measured energy spectra, $\sigma(\theta)$.

1978Ge14: E=20-40 MeV (center of mass) ^{16}O from Brookhaven National Laboratory tandem Van de Graaff facility. Measured energy spectra, $\sigma(\theta)$.

^{32}S Levels

E(level)[†]	C^{2}S[†]	Comments
0	1.6	
2240	0.72	
3780	1.2	
4280	0.10	
4460	0.26	
4700	5.2[#]	
5010	0.50	E(level): not reported in 1972Ma36, but 1976Pe05 claim that this level was wrongly identified as 4700 level by 1972Ma36.
5500[‡]		
5800	2.4	
6220		
6400[‡]		
6850		E(level): other: 6900 from 1972Ma36 is likely the doublet of 6850+7000.
7000		
8000[‡]		
9800[‡]		E(level): Obscured by impurities (1972Ma36).

[†] From 1976Pe05, unless otherwise noted. Spectroscopic factors listed are from E(beam)=42 MeV without Coulomb term in the interaction potential. See 1976Pe05 for C^2 values at E(beam)=36, 48, and 53 MeV.

[‡] From 1972Ma36.

[#] 1p internal state assumed in DWBA calculation.