^{40}Ar(^{3}He,n) 1977Bo16,1974Pe03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen[#] and Balraj Singh	NDS 135, 1 (2016)	31-May-2016

Target ^{40}Ar g.s. $J^{\pi}=0^{+}$.

1977Bo16: E=11.5 MeV ^{3}He beam was produced at the CN Van de Graaff accelerator at the Hahn-Meitner Institute. Target of enriched ^{40}Ar gas. Neutrons were detected with 16 liquid scintillators and energies were determined by the time-of-flight (TOF) method with a flight path of 17.5 m. FWHM=40-350 keV. Measured $\sigma(\theta)$. Deduced levels J^{π}, L-tranfers from DWBA analysis.

1974Pe03: E=18.65 MeV ^{3}He beam was produced at the University of Michigan. A natural argon gas target. Neutrons were measured using a time-of-flight spectrometer, FWHM=320 keV. Measured cross sections at 0° and 15°. Deduced levels. DWBA calculations.

Other:

1964Br13: E=25 MeV. Measured cross section at 0°. No levels identified.

^{42}Ca Levels

E(level)[†]	L[‡]	dσ/dΩ (mb/sr)[#]	Comments
0	0	0.81 *17*	σ(exp)/σ(dw)=0.0027 (1977Bo16) for $d^2_{3/2}$. dσ/dΩ=0.78 mb/Sr (1977Bo16).
1520		<0.020	dσ/dΩ=0.04 mb/Sr (1974Pe03) at 15°.
1840		0.04 *3*	dσ/dΩ<0.03 mb/Sr (1977Bo16).
2420		0.03 *2*	
3300?		<0.05	
3400		0.05 *3*	
3700		0.03 *2*	E(level): 1977Bo16 assign this group to ^{40}Ca g.s. from ^{38}Ar(^{3}He,n).
9270[‡]			
10200[‡]			
14700[‡] *50*	0	0.12[@]	σ(exp)/σ(dw)=0.00017 (1977Bo16) for $f^2_{7/2}$.

[†] From 1974Pe03, unless otherwise stated.
[‡] From 1977Bo16.
[#] From 1974Pe03 at 0°.
[@] From 1977Bo16 at 0°.