^{40}Ar(^{3}He,α) 1972Wi07

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 149, 1 (2018)	1-Jan-2018

1972Wi07: E=16.5 MeV ^{3}He beam was produced from the University of Pennsylvania Tandem Accelerator. Target was natural argon gas. Reaction products were momentum-analyzed with the Penn multi-angle spectrograph and detected in nuclear track plates. Measured $\sigma(E_\alpha,\theta)$. Deduced levels, L-transfers, spectroscopic factors from DWBA analysis with different sets of optical-model parameters. Comparisons with available data.

1967Gr01: E=6.00 MeV ^{3}He beam was from the University of Iowa Van de Graaff accelerator. Target was natural Ar gas. Reaction products were detected with a surface barrier detector. Measured $\sigma(E_\alpha)$, yield at 169.5° for likely T=5/2 levels.

All data are from 1972Wi07, unless otherwise noted.

^{39}Ar Levels

Spectroscopic factors are given under comments as N×C^{2}S, where N=normalization factor for (^{3}He,α) reaction.

E(level)	L	Comments
0	3	N×C^{2}S=42 or 34 for T=3/2, J^π=7/2$^-$.
1266 *10*	(1)	N×C^{2}S≤2.7 for T=3/2, J^π=3/2$^-$.
1516 *10*	2	N×C^{2}S=65 or 55 for T=3/2, J^π=3/2$^+$.
2087 *10*		
2360 *10*	0	N×C^{2}S=18.4 or 21 for T=3/2.
2484 *10*		
2504 *10*		
2748 *10*		
2813? *20*		
2836? *20*		
2893? *20*		
2945 *10*		
3061 *10*		
3160 *10*		
3284 *10*		
3367 *10*		
3385 *10*		
3440 *10*		
3570? *20*		
3633 *10*		
3851 *10*		
3895 *10*		
3977? *20*		
4178 *10*		
4260 *10*		
4481 *10*		
4495 *15*		
4537 *10*		
4588? *10*		
4822 *10*		
4925 *15*		
5008 *10*		
5189 *10*		
5263? *15*		
5328? *15*		
5431 *10*		
5526 *10*		
5596 *10*		

Continued on next page (footnotes at end of table)

^{40}Ar(^{3}He,α) 1972Wi07 (continued)

^{39}Ar Levels (continued)

E(level)	L	Comments
5675 *10*		
5742 *10*		
5826 *10*		
5926 *10*		
5946 *10*		
6117 *10*		
6317 *10*		
6490 *10*		
6591 *10*		
6721? *10*		
6817? *15*		
6873 *10*		
7076 *10*		
7288 *10*		
7361 *10*		
7457 *10*		
7561 *10*		
7645 *15*		
7729 *10*		
7741 *15*		
7806 *10*		
7925 *10*		
8042 *10*		
8147 *10*		
8174 *10*		
8276 *15*		
8300 *20*		
8395 *15*		
8532 *20*		
8638 *10*		
8820 *15*		
8902 *15*		
9002 *10*		
9075 *10*	2	E(level): 9089 *20* (1967Gr01) T=5/2 analog of ^{39}Cl g.s. N×C^{2}S=2.8, 15, 16, or 27.
9239 *10*		
9463 *10*	0	E(level): 9461 *20* (1967Gr01) T=5/2 analog of 390 level in ^{39}Cl. N×C^{2}S=1.1-5.4, or 8.1.
9858 *15*		
10455?		E(level): this group is about 300 keV wide; probably an unresolved multiplet.
10755 *10*		
10857 *10*		
10947 *10*		
11148 *10*		
11312 *10*	0	N×C^{2}S=0.10-1.1 for T=5/2 state.