^{38}Ar(^{3}He,n) 1977Bo16

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 140, 1 (2017)	30-Sep-2015

1977Bo16: E=11.5 MeV ^{3}He beam was produced from the CN Van de Graaff accelerator at the Hahn-Meitner-Institut, incident on a gas target of enriched ^{38}Ar. Neutrons were detected with 16 liquid scintillators with energies determined by the time-of-flight method (flight path=17.5 m, FWHM=10 keV at E(n)=4 MeV and 50 keV at 12 MeV). Measured TOF spectrum, $\sigma(\theta)$. Deduced levels, J, π from DWBA analysis. Comparisons with available data and shell-model calculations.

1973Al23: E=15 MeV ^{3}He beam was produced from the Rochester MP Van de Graaff accelerator. Measured neutrons by TOF, $\sigma(\theta)$, θ=0°−40°, FWHM≈100 keV. Deduced levels, J, π from DWBA analysis. Report data for 7 $J^{\pi}=0^{+}$ states.

All data are from 1977Bo16, unless otherwise noted.

^{40}Ca Levels

E(level)	J^{π}	L[@]	dσ/dΩ (max) (mb/sr)[‡]	Comments
0	0^{+}	0	1.40	
3350 *50*		0	0.08	dσ/dΩ (max) (mb/sr): 0.08 also from 1973Al23.
3900 *50*		2	0.15[#]	
5.21×10^{3}[†] *10*		(0)[†]	<0.04[†]	
6950 *50*		1	0.20	dσ/dΩ (max) (mb/sr): at 10° (1977Bo16).
7800 *50*		0	0.10	
8050 *50*		2	0.16[#]	
8280 *50*		0	0.56	E(level): 8280 *100* from 1973Al23. dσ/dΩ (max) (mb/sr): 0.56 also from 1973Al23.
8470 *50*		0	0.53	
9380 *50*		0	0.40	E(level): 9380 *100* from 1973Al23. dσ/dΩ (max) (mb/sr): 0.36 from 1973Al23.
9600 *50*		2	0.24[#]	T=1
10.65×10^{3}[†] *10*		0[†]	0.14[†]	
11.98×10^{3}[†] *10*		0	0.28	dσ/dΩ (max) (mb/sr): 0.25 from 1973Al23.

[†] From 1973Al23.
[‡] At 0°, except where noted. 1973Al23 report relative values normalized to unity for the ground state and the evaluator have renormalized those data to absolute value of 1.40 (mb/sr) for the ground state from 1977Bo16.
[#] At 25° (1977Bo16).
[@] From DWBA fits to measured differential cross sections.