^{38}Ar(t,p) 1975Fl08

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

Target ^{38}Ar J^{π}(g.s.)=0^+.

1975Fl08,1973Ca13: E=20 MeV triton beam was produced from the Los Alamos three-stage Van de Graaff facility with a typical current of 300 nA. Target was enriched argon gas (95% in ^{38}Ar) with an effective thickness of ≈60 μg/cm^2. Reaction products were momentum analyzed with a broad-range spectrograph (FHWM≈35 keV) and detected in nuclear emulsions. Measured $\sigma(E_p,\theta)$. Deduced levels, J, π, enhancement factors, L-transfer from DWBA analysis.

All data are from 1975Fl08, unless otherwise noted.

Measured absolute cross sections (uncertainty=15%) (1975Fl08)

Level	dσ/dΩ (max) mb/sr	θ	Level	dσ/dΩ (max) mb/sr	θ
0	0.28	20.0	5298	0.086	12.5
1461	0.54	12.5	5393	0.040	35.0
2121	0.014	12.5	5454	0.074	12.5
2524	0.006	12.5	5500	0.040	20.0
2892	0.33	20.0	5671	0.056	20.0
3207	0.32	12.5	5835	0.18	20.0
3468	0.068	42.5	5883	0.42	12.5
3507	0.077	12.5	6140	0.032	27.5
3681	0.18	12.5	6305	0.092	12.5
3926	0.18	12.5	6470	0.10	12.5
4053	0.015	27.5	6670	0.018	35.0
4092	weak		6760	0.20	20.0
4310	0.17	12.5	6835	0.077	12.5
4430	0.39	20.0	7070	0.015	35.0
4495	0.021	20.0	7160	0.061	12.5
4665	0.015	27.5	7300	0.089	12.5
4798	0.071	12.5	7495	0.17	12.5
4870	0.024	20.0	7640	0.13	12.5
4968	0.012	27.5	7730	0.12	12.5
5117	0.022	20.0	7890	0.088	12.5
5191	0.024	20.0	7980	0.085	12.5

^{40}Ar Levels

E(level)	L[&]	ε[@&]	E(level)	L[&]	ε[@&]	E(level)	L[&]	ε[@&]
0[‡]	0	3.5	4495 *10*	(5)	0.02	6140 *15*	(5)	0.03
1461 *5*	2	2	4665 *10*			6305 *15*		
2121[†] *5*		≈0.1[c]	4798 *10*	3,4		6470 *15*	(2)	
2524 *5*	(2)	0.03	4870 *10*	3,4	0.2[b]	6670 *15*		
2892 *5*	(3,4)	1.5[a]	4968 *10*			6760 *15*	3,4	
3207 *5*	2	1	5117 *15*	(5)	0.02	6835 *15*	3,4	
3468 *5*	(6)	0.4	5191 *15*			7070 *15*		
3507 *5*	(2)	0.05	5298 *15*	2	0.4	7160 *15*		
3681 *5*	3,4	0.9[b]	5393 *15*			7300 *15*		
3926 *5*	2	0.8	5454 *15*	3,4	0.05[b]	7495 *15*		
4053 *5*		0.06[a]	5500 *15*	3,4	0.04[b]	7640 *15*	2	
4092[#] *10*			5671 *15*	3,4	0.2[a]	7730 *15*		
4310 *10*	2	0.7	5835 *15*	3,4	1.3,0.6	7890 *15*		
4430 *5*	3,4	3,1.5	5883 *15*	2	2	7980 *15*		

Continued on next page (footnotes at end of table)

^{38}Ar(t,p) 1975Fl08 (continued)

^{40}Ar Levels (continued)

† Summed absolute cross section=0.02 mb/sr (1973Ca13).
‡ Summed absolute cross section=0.73 mb/sr (1973Ca13).
# Weak group (1975Fl08).
@ Enhancement factor (ε) is defined by $\varepsilon=(d\sigma/d\Omega)exp/218\sigma_{DWUCK}$. Form factors used were $f^2_{7/2}$ for most of the levels and $f_{7/2}\ d_{3/2}$ for levels with L=3 or L=5 transfer.
& From comparisons of measured differential cross sections with DWBA predictions (1975Fl08).
a For L=4.
b For L=3.
c For L=0. $\sigma(\theta)$ is uncharacteristic of L=0 distribution (1975Fl08).