$^{38}\text{Ar(pol d,}^3\text{He),(d,}^3\text{He)}$ 1993Ma50

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	John Cameron, Jun Chen and Balraj Singh, Ninel Nica	NDS 113, 365 (2012)	15-Jan-2012

1993Ma50: E=52 MeV polarized deuteron beam of 15 nA produced from the Karlsruhe isochronous cyclotron at the
Max-Plank-Institut fur Kernphysik. A isotropically enriched (96.70%) ^{36}Ar gas target. A detector telescope consisting of a 250 μm
ΔE-strip detector and a 1.5 mm E-surface-barrier counter for detecting ^{3}He particles, FWHM=130 keV. Measured $\sigma(E_{^3\text{He}}, \theta)$,
analyzing power iT$_{11}(\theta)$. Deduced levels, J^π, L, spectroscopic factors from DWBA analysis.

1974Do12: E=52 MeV deuteron beam produced from the Karlsruhe isochronous cyclotron at the Max-Plank-Institut fur Kernphysik.
A isotopically enriched ^{38}Ar gas target. A detector telescope consisting of a 200 μm ΔE and a 2mm E-surface-barrier counter for
detecting ^{3}He particles. Measured $\sigma(E_{^3\text{He}},\theta)$. Deduced levels, J^π, L, spectroscopic factors from DWBA analysis.

Other: 1975Wa17.

^{37}Cl Levels

Spectroscopic factor C^{2}S: N*C^{2}S=$\sigma(\theta)^{\text{exp}}/\sigma(\theta)^{\text{DWBA}}$, where N is the normalization factor (1966Ba54), N=2.95 (1974Do12,
1993Ma50).
Target ^{38}Ar J^π=0$^+$.

E(level)[†]	J^π[@]	L[#]	C^{2}S	Comments
0	3/2$^+$[&]	2	1.81[&]	C^{2}S: 2.32 in 1974Do12.
1725 6	1/2$^+$	0	0.99	L: 2s$_{1/2}$ proton transfer (1993Ma50).
				C^{2}S: 1.19 in 1974Do12.
3101 8	7/2$^-$	3	0.19	L: 1d$_{5/2}$ or 1f$_{7/2}$ proton transfer in 1993Ma50 and L=3 in 1974Do12.
				C^{2}S: For L=3, 0.12 for L=2 (1993Ma50); 0.31 for L=3 in 1974Do12.
3603 40	3/2$^+$[&]	2	0.03[&]	
4013 14		2	0.13	C^{2}S: 0.08 in 1974Do12.
4262 12	5/2$^+$	2	0.02	J^π: 2s$_{1/2}$ or 1d$_{5/2}$ proton transfer in 1993Ma50 and L=2 in 1974Do12.
				C^{2}S: For L=2, 0.07 for L=2 (1993Ma50); 0.17 in 1974Do12.
4813 7	5/2$^+$[a]	2	1.26[a]	C^{2}S: 1.40 in 1974Do12.
5516 28	5/2$^+$[a]	2	0.30[a]	C^{2}S: 0.24 in 1974Do12.
5967 15	5/2$^+$[a]	2	0.73[a]	C^{2}S: 0.59 in 1974Do12.
6369 11	5/2$^+$[a]	2	0.89[a]	C^{2}S: 0.92 in 1974Do12.
6670 20		2	0.51	E(level),L,C^{2}S: from 1974Do12.
6714 10	5/2$^+$[a]	2	0.75[a]	
7070 40	5/2$^+$	2	0.20	L: 1p$_{1/2}$ or 1d$_{5/2}$ proton transfer in 1993Ma50 and L=2 in 1974Do12.
				C^{2}S: for L=2, 0.17 for L=1 (1993Ma50); 0.19 in 1974Do12.
7323 19	5/2$^+$[a]	2	0.32[a]	E(level): weighted average of 7339 17 in 1993Ma50 and 7330 20 in 1974Do12.
7924 20	1/2$^-$	1	0.18	E(level): weighted average of 7933 31 in 1993Ma50 and 7920 20 in 1974Do12.
				L: 1p$_{1/2}$ proton transfer (1993Ma50).
8169 60	5/2$^+$[a]	2	0.10[a]	
9264 38	5/2$^+$[a]	2	0.18[a]	
9465 71	5/2$^+$[a]	2	0.10[a]	
1.12×10^4?[‡] 5	5/2$^+$[a]	2	0.28[a]	E(level): energy range: 10700-11700 keV.
1.22×10^4?[‡] 5	5/2$^+$[a]	2	0.16[a]	E(level): energy range: 11700-12700 keV.
1.32×10^4?[‡] 5	5/2$^+$[a]	2	0.16[a]	E(level): energy range: 12700-13700 keV.

[†] From 1993Ma50, unless otherwise noted.
[‡] Pseudo levels.
[#] From the comparison of the DWBA prediction of the angular distribution with the experimental data.
[@] L+1/2 or L-1/2 choice from vector analyzing powers.

Continued on next page (footnotes at end of table)

^{38}**Ar(pol d,^{3}He),(d,^{3}He)** **1993Ma50 (continued)**

$\underline{^{37}\text{Cl Levels (continued)}}$

$^{\&}$ L-1/2 from analyzing power measurement; $1d_{3/2}$ neutron transfer assumed in DWBA calculations.
^{a} L+1/2 from analyzing power measurement; $1d_{5/2}$ neutron transfer assumed in DWBA calculations.