^{38}Ar(p,n) 1996An09,1992An09

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 152, 1 (2018)	30-Sep-2017

1996An09: E=135 MeV proton beam was produced from the Indiana University Cyclotron Facility (IUCF). Target was argon gas (95% enriched in ^{38}Ar). Neutrons were detected with fast plastic scintillators and neutron energies are measured using tof method (FWHM≈280-450 keV). Measured $\sigma(E_n,\theta)$, θ=0° to 30° (center of mass). Deduced levels, B(GT) for low-spin states from DWIA analysis. Comparisons with shell-model calculations.

1992An09 (same group as 1996An09): E=135 MeV; tof method, FWHM≈320-450 keV. Measured $\sigma(\theta)$ from 0° to 63°, deduced stretched high-spin states; DWIA analysis.

Others:

2002Or05: E=35 MeV. Measured $\sigma(\theta)$.

Threshold measurements for Q value determination of decay of 130-keV isomer of ^{38}K: 1998Ha36, 1992Ta07, 1979Bu13, 1978Ja06.

^{38}K Levels

E(level)[†]	J$^\pi$[a]	dσ/dΩ mb/sr[b]	Comments
0[‡]	3$^+$	1.5[‡]	
130[‡]	0$^+$	[‡]	
460[&]	1$^+$	0.2	B(GT)$_{pn}$=0.010 *5* (1996An09). dσ/dΩ mb/sr: at 12°, 0.05 at 0°. DWIA fit is poor for 1$^+$ mainly due to the weakness of 460 peak.
170×10^1 *10*	1$^+$	10	B(GT)$_{pn}$=1.73 *25* (1996An09), 1.63 *9* (2002Or05). dσ/dΩ=0.91 mb/sr (2002Or05).
340×10^1[#] *10*	1$^+$	1.2[#]	B(GT)$_{pn}$=0.23 *4* (1996An09).
350×10^1 *10*	(7)$^+$	5.0[c]	E(level): this peak will be unresolved from 3400 and 3900 structure reported by 1996An09, thus its existence is considered as suspect by the evaluator.
390×10^1[#] *10*	1$^+$	2.3[#]	B(GT)$_{pn}$=0.43 *7* (1996An09). E(level): quadruplet, mostly 1$^+$ states with some higher spin states.
530×10^1 *10*	(6$^-$)	0.13[c]	
590×10^1 *10*	(6$^-$)	0.02[c]	
670×10^1[&] *10*	1$^+$	0.4	B(GT)$_{pn}$=0.07 *2* (1996An09).
970×10^1[@&] *10*			B(GT)$_{pn}$=0.03 *1* (1996An09).
990×10^1[@] *10*	1$^+$	1.0	B(GT)$_{pn}$=0.17 *3* (1996An09).
1020×10^1[@] *10*	1$^+$	0.7	B(GT)$_{pn}$=0.13 *2* (1996An09).

[†] From 1996An09 for J=0$^+$ and 1$^+$ states; from 1992An09 for 6$^-$ and 7$^+$ levels.

[‡] g.s. and 130 level are unresolved, $\sigma(\theta)$ is fitted with 0$^+$ and 3$^+$.

[#] 3400 and 3900 levels are unresolved.

[@] 9700, 9900 and 10200 are not fully resolved.

[&] Weak peak.

[a] From Adopted Levels for levels up to 3500, above this energy the assignments are from 1996An09 based on cross section in (p,n) and identification of transition as GT transition.

[b] Read from $\sigma(\theta)$ figures 2 and 3 of 1996An09, values correspond to θ=0°, unless otherwise stated.

[c] Read from $\sigma(\theta)$ figure 3 of 1992An09, values correspond to θ=12°.