^{36}Ar(^{3}He,nγ) 1975HaYU,1970Sh04

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

1975HaYU (also 1974HaZL): E=9.0, 10.0, 10.5 MeV beams were produced from the TUNL model FN Tandem Van de Graaff accelerator. Target was 99.9% enriched ^{36}Ar gas. γ rays were detected with three Ge(Li) detectors and neutrons were detected with a liquid scintillator. Measured Eγ, E(n), nγ-coin, Doppler-shift attenuation. Deduced levels, J, π, lifetimes, transition strengths. Comparisons with shell-model calculations.

Additional information 1.

1970Sh04: E=9.0-10.0 MeV ^{3}He beam. Target was ^{36}Ar gas of 99.6% isotopic purity. γ rays were detected with a Ge(Li) counter and neutrons were detected with a neutron spectrometer. Measured Eγ, nγ-coin. Deduced levels, γ-ray branching ratios.

^{38}Ca Levels

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$[#]
0	0$^+$	
2213.0 *8*	2$^+$	68 fs *+30−28*
3083.6 *9*	0$^+$	19 ps *+10−7*
3683.9 *5*	2$^+$	<5.5 fs
3703.3 *8*	(3$^-$)	0.16 ps *+7−6*
4193.3 *13*		
4383.7 *9*	2$^+$	24 fs *+12−8*

† From a least-squares fit to γ-ray energies.
‡ From Adopted Levels.
# From DSAM in 1975HaYU.

γ(^{38}Ca)

E$_\gamma$[†]	E$_i$(level)	J$_i^{\pi}$	E$_f$	J$_f^{\pi}$	Comments
490	4193.3		3703.3	(3$^-$)	
870.5 *5*	3083.6	0$^+$	2213.0	2$^+$	
1471[‡]	3683.9	2$^+$	2213.0	2$^+$	
1490.22 *11*	3703.3	(3$^-$)	2213.0	2$^+$	E$_\gamma$,I$_\gamma$: 1970Sh04 suggested a doublet in the range 1480-1500 with the intensity ratio: Iγ(1471+1490)/Iγ(3684+3703)=48/52; 1471γ from 3684 level and 3703γ as a g.s. transition. It is resolved in 1975HaYU.
2170.6 *5*	4383.7	2$^+$	2213.0	2$^+$	
2213.13	2213.0	2$^+$	0	0$^+$	
3683.7 *5*	3683.9	2$^+$	0	0$^+$	
3703[‡#]	3703.3	(3$^-$)	0	0$^+$	

† From 1975HaYU, unless otherwise stated.
‡ From 1970Sh04.
# Placement of transition in the level scheme is uncertain.

Legend

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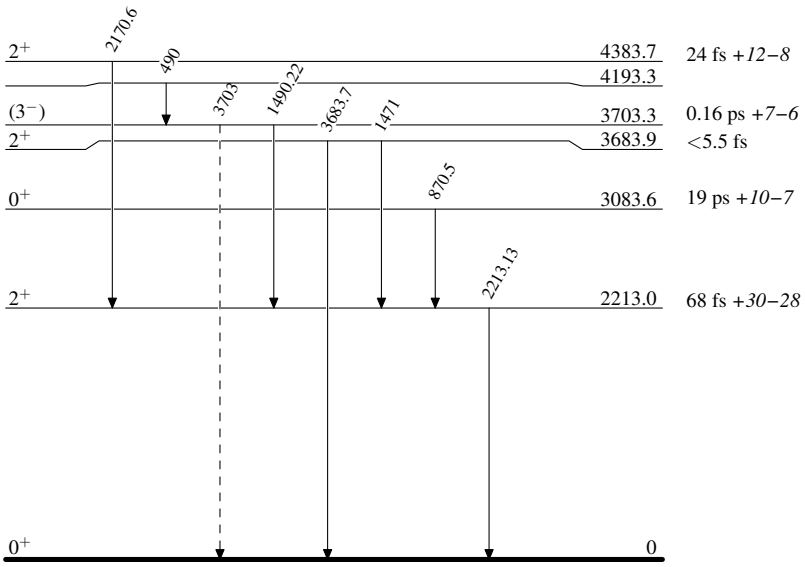
Level Scheme

γ Decay (Uncertain)



$^{38}_{20}Ca_{18}$