^{36}Ar(^{3}He,pγ) 1975Co09

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

1975Co09 (also thesis by 1974CoYC): E=8.34 MeV ^{3}He beam was produced from the University of Notre Dame FN tandem Van de Graaff accelerator. Target was ^{36}Ar gas. Protons were detected with annular silicon surface-barrier detectors and γ rays were detected with a Ge(Li) detector. Measured Eγ, Iγ, pγ-coin, p$\gamma(\theta)$. Deduced levels, J, π, γ-ray branching ratios. 1975Co09 also report data on ^{40}Ca(d,α) and ^{40}Ca(d,$\alpha\gamma$).

^{38}K Levels

E(level)[†]	J$^{\pi}$[‡]	Comments
0	3^+	
131.8 *10*	0^+	
459.4 *11*	1^+	
1699.0 *10*	1^+	
2403.2 *10*	2^+	
2612.4 *11*	3^-	
2648.3 *16*	$(4)^-$	
2828.7 *11*	1^-	
2870.1 *15*	2^-	
2991.8 *24*	0^-	
3317.6 *15*	$(1^+,2^-,3^+)$	
3342.5 *16*	1[#]	J$^{\pi}$: 1^+ in Adopted Levels.
3431.2 *15*	2[#]	J$^{\pi}$: 2^+ in Adopted Levels.
3615.3 *17*	(3,5)[#@]	J$^{\pi}$: $(3,5)^-$ in Adopted Levels.
3668.0 *12*	3^+	
3687.8 *10*	(3,5)[#@]	J$^{\pi}$: (3) in Adopted Levels.
3701.8 *20*	$(1^+,2,3^+)$	
3738.8 *15*		
3815.4 *11*	2^-	
3840 *3*		
3857.6 *21*	1^+	
3932.5 *14*	2^-	
3977.6 *14*	1^+	
4175.4 *18*	$(1)^+$	
4215.3 *18*	(1^-)	
4317 *3*		
4331.0 *15*		
4394.3 *24*		
4409.2 *13*		
4587 *3*		
4705.8 *19*	$(1^+,2^+)$	
4724.4 *19*		
4901.2 *13*		
4988.7 *15*	$1^+,2^+$	
5047.5 *14*		
5133.8 *15*		
5216.4 *16*		

[†] From 1975Co09, the values represent averages from their ^{36}Ar(^{3}He,pγ) and ^{40}Ca(d,$\alpha\gamma$) results.
[‡] From Adopted Levels, unless otherwise noted.
[#] From p$\gamma(\theta)$ in 1975Co09.
[@] Assuming J(2648)=4.

^{36}Ar(^{3}He,pγ) 1975Co09 (continued)

$\gamma(^{38}K)$

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π
459.4	1^+	327.4 *5*	100	131.8	0^+
1699.0	1^+	1566.4 *6*	100	131.8	0^+
2403.2	2^+	1942.6 *10*	94 *2*	459.4	1^+
		2270.3 *15*	6 *2*	131.8	0^+
2612.4	3^-	2612	‡	0	3^+
2648.3	$(4)^-$	2648	‡	0	3^+
2828.7	1^-	424.4 *13*	10 *3*	2403.2	2^+
		2696.5 *12*	90 *3*	131.8	0^+
2870.1	2^-	465.3 *10*	22 *5*	2403.2	2^+
		1170.6 *13*	15 *4*	1699.0	1^+
		2410.8 *17*	25 *7*	459.4	1^+
		2868.9 *15*	38 *5*	0	3^+
2991.8	0^-	2533	‡	459.4	1^+
3317.6	$(1^+,2^-,3^+)$	913.8 *8*	59 *4*	2403.2	2^+
		3316.3 *15*	41 *4*	0	3^+
3342.5	1	3210	‡	131.8	0^+
3431.2	2	1026.8 *7*	60 *3*	2403.2	2^+
		3430.2 *15*	40 *3*	0	3^+
3615.3	(3,5)	967	‡	2648.3	$(4)^-$
3668.0	3^+	1265	‡	2403.2	2^+
3687.8	(3,5)	1039.6 *7*	26 *5*	2648.3	$(4)^-$
		1073.3 *7*	52 *5*	2612.4	3^-
		3690 *3*	22 *6*	0	3^+
3701.8	$(1^+,2,3^+)$	1299	‡	2403.2	2^+
3738.8		3739	‡	0	3^+
3815.4	2^-	1412.3 *13*	51 *6*	2403.2	2^+
		3815.2 *15*	49 *6*	0	3^+
3840		1192	‡	2648.3	$(4)^-$
3857.6	1^+	3726	‡	131.8	0^+
3932.5	2^-	1321	‡	2612.4	3^-
3977.6	1^+	3516.4 *14*	26 *7*	459.4	1^+
		3847.6 *19*	74 *7*	131.8	0^+
4175.4	$(1)^+$	3716	‡	459.4	1^+
4215.3	(1^-)	1809.6 *27*	28 *6*	2403.2	2^+
		4085.9 *21*	72 *6*	131.8	0^+
4317		4317	‡	0	3^+
4331.0		398	‡	3932.5	2^-
4394.3		4394	‡	0	3^+
4409.2		2711	‡	1699.0	1^+
4587		4587	‡	0	3^+
4705.8	$(1^+,2^+)$	1091	‡	3615.3	(3,5)
4724.4		1382	‡	3342.5	1
4901.2		2498	‡	2403.2	2^+
4988.7	$1^+,2^+$	2585	‡	2403.2	2^+
5047.5		2435	‡	2612.4	3^-
5133.8		2731	‡	2403.2	2^+
5216.4		3518	‡	1699.0	1^+

[†] From 1975Co09 when quoted with uncertainties, others are from level-energy differences.
‡ Possibly 100% branch.

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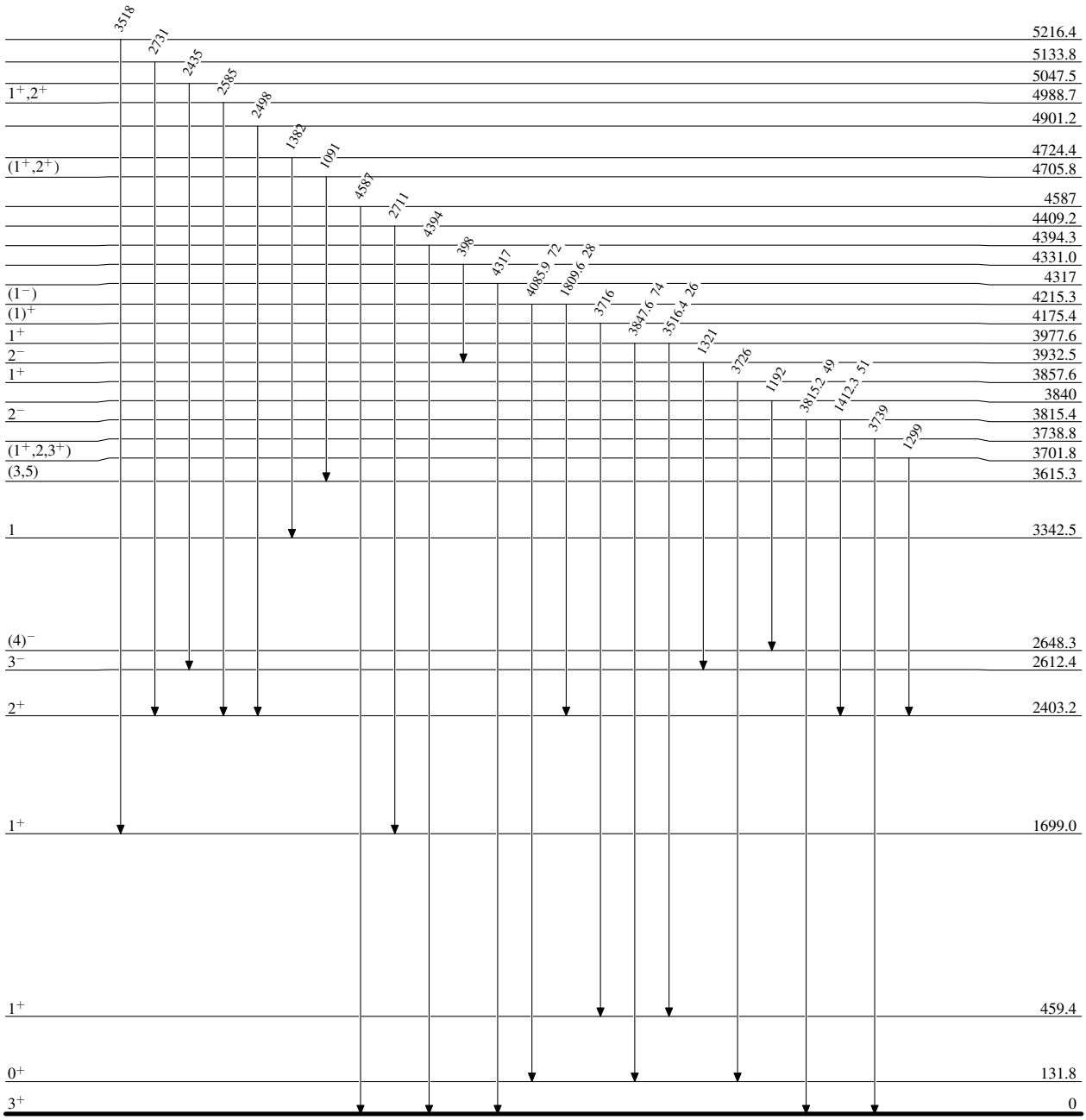
Level Scheme

Intensities: % photon branching from each level



$^{38}_{19}K_{19}$

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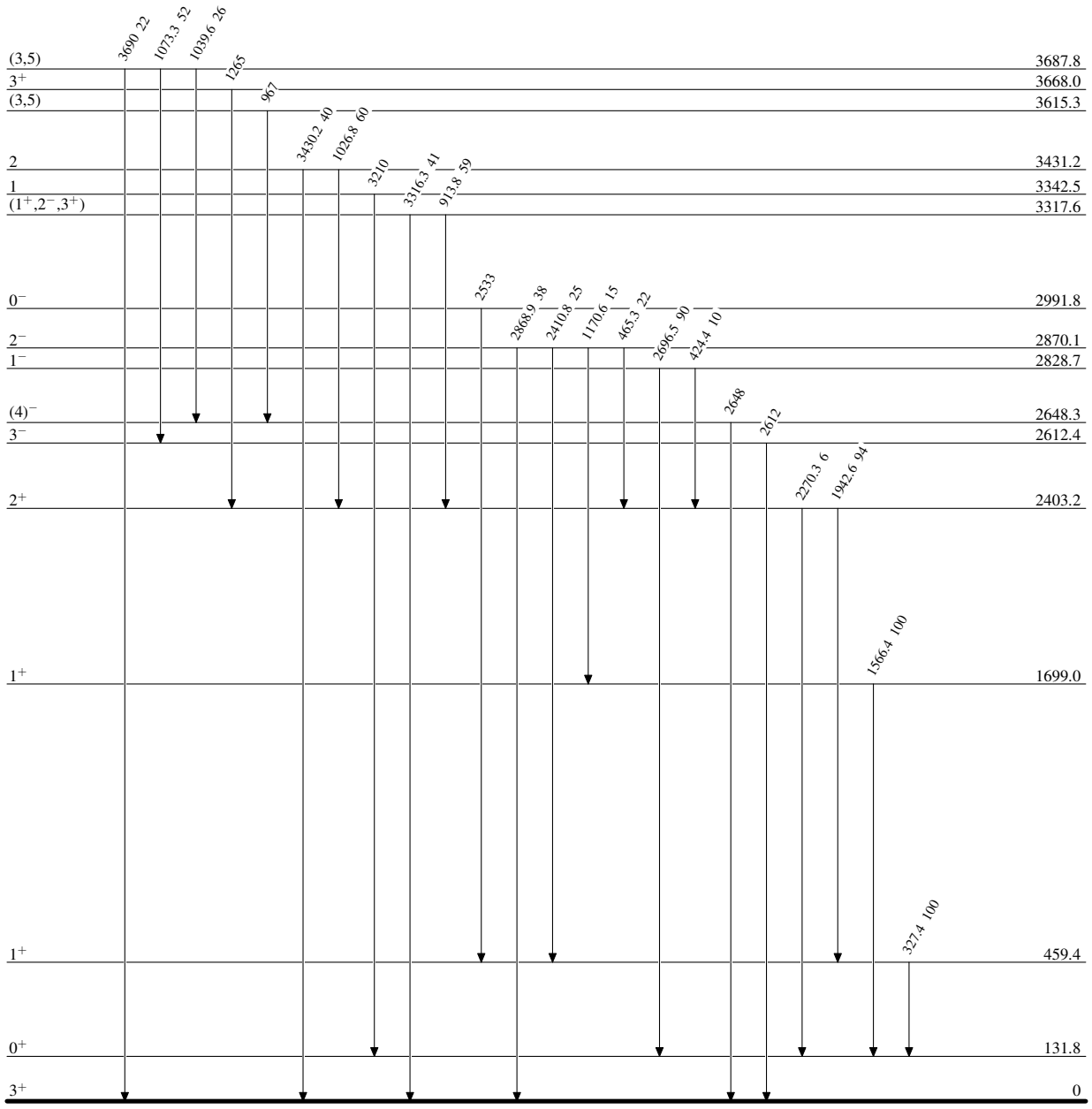
Level Scheme (continued)

Intensities: % photon branching from each level



$^{38}_{19}K_{19}$