^{39}K(^{3}He,dγ)   1973Te04

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

1973Te04 (also 1971Te02,1970Te01): E=18 MeV ^{3}He beam was produced from the Van de Graaff Tandem accelerator at CEN Saclay. Charged particles were detected with solid state detector telescopes and γ rays were detected with NaI and Ge(Li) detectors. Measured Eγ, Iγ, dγ-coin. Deduced levels, γ-ray branching ratios.

1968Ba64: E=18 MeV. FWHM=60-80 keV for deuteron spectra. About 20 groups reported from (^{3}He,d) and 3 levels in (^{3}He,dγ).

^{40}Ca Levels

E(level)[†]	J$^{\pi}$ [@]	Comments
0	0$^+$	
3353.1[‡] 11	0$^+$	
3737.0 3	3$^-$	
3904.6[‡] 3	2$^+$	
4491.7 3	5$^-$	
5212.2[‡] 5	0$^+$	
5248.2[‡] 3	2$^+$	
5277.7[‡] 3	4$^+$	
5613.7 5	4$^-$	
5903.9 9	1$^-$	
6026.0 4	2$^-$	
6284.9 4	3$^-$	
6582.2 4	3$^-$	
6751.3 4	2$^-$	
6929.3[#] 5		
6952.9 12	1$^-$	
7115.3 4	4$^-$	
7531.4 11	2$^-$	
7658.8 11	4$^-$	
7694.7 6	3$^-$	
8267.9 12	(0$^-$)	J$^{\pi}$: from 1973Te04. Adopted J$^{\pi}$=($\leq$3)$^-$.
8358.1 13	(0$^-$)	J$^{\pi}$: from 1973Te04. Adopted J$^{\pi}$=(0,1,2)$^-$.
8425.5 16	2$^-$	E(level): according to 1973Te04 this level is strongly fed in (^{3}He,d); probably corresponds to 8435 9 from 1967Se10 in (^{3}He,d).
8552.8 16	5$^-$	

[†] From a least-squares fit to γ-ray energies.
[‡] Not observed in other (^{3}He,d) measurements, probably populated by (p,p$'\gamma$) in 1973Te04.
[#] Possibly a close doublet (2-3 keV apart) according to 1973Te04, since the Doppler shifts for the two γ's barely overlap. Level not reported in any other (^{3}He,d) experiment, probably populated by (p,p$'\gamma$) in 1973Te04.
[@] From Adopted Levels, unless otherwise noted.

γ(^{40}Ca)

E$_i$(level)	J$^{\pi}_i$	E$_{\gamma}$[†]	I$_{\gamma}$[†]	E$_f$	J$^{\pi}_f$
3737.0	3$^-$	3736.6 3	100	0	0$^+$
3904.6	2$^+$	3904.6[‡] 4	100	0	0$^+$
4491.7	5$^-$	754.7 2	100	3737.0	3$^-$
5212.2	0$^+$	1307.5[‡] 4	100	3904.6	2$^+$

$^{39}K(^3He,d\gamma)$ 1973Te04 (continued)

$\gamma(^{40}Ca)$ (continued)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π
5248.2	2+	1343.5‡ 10	17	3904.6	2+	6929.3		1651.7 4	50	5277.7	4+
		1895#	3	3353.1	0+			3190.0 15	50	3737.0	3−
		5247.9‡ 6	80	0	0+	6952.9	1−	6952.2 15	100	0	0+
5277.7	4+	1373.1 1	100	3904.6	2+	7115.3	4−	1502#	20	5613.7	4−
5613.7	4−	1123.0 8	30	4491.7	5−			2623.2 3	20	4491.7	5−
		1876.5 4	70	3737.0	3−			3378.5 3	60	3737.0	3−
5903.9	1−	5903.4 10	100	0	0+	7531.4	2−	1917.6 10	100	5613.7	4−
6026.0	2−	2121.0 6	20	3904.6	2+	7658.8	4−	2045.0 10	100	5613.7	4−
		2289.0 3	80	3737.0	3−	7694.7	3−	3957.5 5	100	3737.0	3−
6284.9	3−	1793.1 2	70	4491.7	5−	8267.9	(0−)	1315#	60	6952.9	1−
		2380.0 5	25	3904.6	2+			2364#	40	5903.9	1−
		6285#	5	0	0+	8358.1	(0−)	1405.2 5	>90	6952.9	1−
6582.2	3−	2845.1 3	100	3737.0	3−	8425.5	2−	4688.2 15	100	3737.0	3−
6751.3	2−	2848.4 10	15	3904.6	2+	8552.8	5−	4060.8 15	100	4491.7	5−
		3014.0 3	85	3737.0	3−						

† From 1973Te04. Values reported in 1973Te04 are combination of their results from both $(^3He,d\gamma)$ and $(p,p'\gamma)$ measurements and the authors didn't distinguish which values are from $(^3He,d\gamma)$ or $(p,p'\gamma)$. So the evaluator have used the same values in the two data sets but only consider values from $(p,p'\gamma)$ in Adopted Gammas to avoid duplication, unless comparable values are also available from $(^3He,d\gamma)$ measurements other than 1973Te04. Values given here are only for levels populated in $(^3He,d)$ dataset, unless otherwise noted. For complete data of 1973Te04, see $(p,p'\gamma)$ dataset.
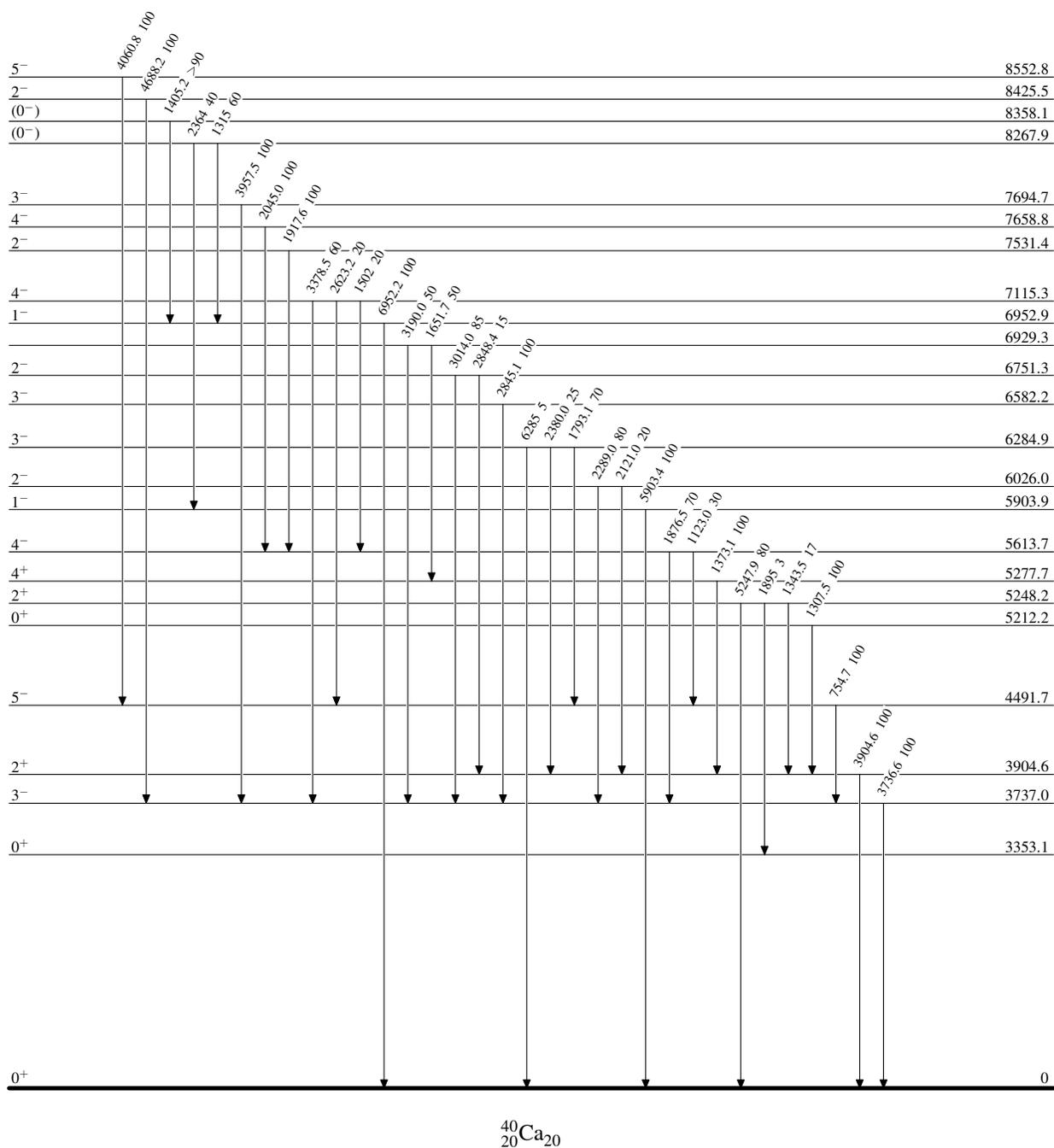
‡ Probably from $(p,p'\gamma)$ in 1973Te04, since the decaying level was not observed in $(^3He,d)$ measurements.

From figure 2 of 1973Te04; not given in authors' table I. Values are level-energy differences.

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Level Scheme

Intensities: % photon branching from each level

$^{40}_{20}$Ca$_{20}$