^{39}K(d,pγ)   **1970Fr10,1973We01**

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

1970Fr10: E=3.5, 3.7 MeV deuteron beams. Target was 1 mg/cm^2 KI. Protons were detected by a semiconductor counter and γ rays were detected with a Ge(Li) detector. Measured Eγ, Iγ, pγ-coin. Deduced levels, γ-ray branching ratios.

1973We01, 1970Se10: E=3.5 MeV deuteron beam was produced from the Argonne Dynamitron accelerator. Target were 1300 μg/cm^2 or 30 μg/cm^2 KI on gold backings. Protons were detected by two proton detectors and γ rays by a Ge(Li) detector. Measured Eγ, Iγ, Doppler shift attenuation. Deduced levels, half-lives, transition strengths.

2000El08: E=0.7-3.4 MeV. Measured thick target yields.

^{40}K Levels

E(level)[†]	J$^{\pi}$[#]	T$_{1/2}$[@]	E(level)[†]	J$^{\pi}$[#]	T$_{1/2}$[@]
0	4$^-$		2397 *3*	4$^-$	
29.6	3$^-$		2419[‡]	2$^-$	0.28 ps +28−11
799.9 *8*	2$^-$	0.40 ps *5*	2575[‡]	2$^+$	0.14 ps +8−4
891.6 *2*	5$^-$	1.07 ps *17*	2625.7 *10*	0$^-$	0.22 ps +14−8
1644	0$^+$		2731[‡]	1	<83 fs
1958.8 *9*	2$^+$	0.42 ps +28−14	2787[‡]	3$^+$	<0.69 ps
2047.1 *10*	2$^-$	0.31 ps *5*	2808 *2*	(1,2)$^-$	
2069.9 *13*	3$^-$	0.26 ps +14−9	3110 *3*	1$^+$,2$^+$	<97 fs
2103.5 *9*	1$^-$	0.36 ps *7*	3228 *3*	2$^-$	28 fs *21*
2261[‡]	3$^+$	49 fs +55−28	3370 *5*	(2,3)$^-$	
2290[‡]	1$^+$	0.23 ps +24−12	3629 *3*	2$^-$,3$^-$	<69 fs
2291[‡]	3$^-$	0.22 ps +13−8	3870 *5*	2$^-$	

[†] From 1970Fr10, unless otherwise noted.
[‡] From 1973We01 only.
[#] From Adopted Levels.
[@] From 1973We01 using DSAM. The uncertainties are statistical only; 15% systematic uncertainty due to slowing-down estimated in the evaluation of 1978En02 are added where used in Adopted Levels.

γ(^{40}K)

E$_i$(level)	J$^{\pi}_i$	E$_{\gamma}$[†]	I$_{\gamma}$[#]	E$_f$	J$^{\pi}_f$	E$_i$(level)	J$^{\pi}_i$	E$_{\gamma}$[†]	I$_{\gamma}$[#]	E$_f$	J$^{\pi}_f$
29.6	3$^-$	30		0	4$^-$	2261	3$^+$	2231[‡]		29.6	3$^-$
799.9	2$^-$	770.32 *10*	100	29.6	3$^-$			2261[‡]		0	4$^-$
		800	<3	0	4$^-$	2290	1$^+$	646[‡]		1644	0$^+$
891.6	5$^-$	92[@]	<4	799.9	2$^-$	2291	3$^-$	2291[‡]		0	4$^-$
		891.60 *20*	100	0	4$^-$	2397	4$^-$	2367[‡]		29.6	3$^-$
1958.8	2$^+$	1158.95 *30*		799.9	2$^-$	2419	2$^-$	1619[‡]		799.9	2$^-$
2047.1	2$^-$	1247.15 *30*	43 *4*	799.9	2$^-$			2389[‡]		29.6	3$^-$
		2017.3 *15*	29 *3*	29.6	3$^-$	2575	2$^+$	2545[‡]		29.6	3$^-$
		2047.1 *10*	28 *3*	0	4$^-$	2625.7	0$^-$	522.2 *4*	70 *5*	2103.5	1$^-$
2069.9	3$^-$	1178	7 *2*	891.6	5$^-$			1826	30 *5*	799.9	2$^-$
		1270	7 *2*	799.9	2$^-$	2731	1	1087[‡]		1644	0$^+$
		2040.2 *10*	54 *5*	29.6	3$^-$	2787	3$^+$	828[‡]		1958.8	2$^+$
		2070.2 *20*	32 *5*	0	4$^-$	2808	(1,2)$^-$	2008 *2*		799.9	2$^-$
2103.5	1$^-$	460	<3	1644	0$^+$	3110	1$^+$,2$^+$	1151	50 *15*	1958.8	2$^+$
		1303.6 *4*	27 *5*	799.9	2$^-$			1466	50 *15*	1644	0$^+$
		2074.0 *10*	73 *5*	29.6	3$^-$	3228	2$^-$	2428	20 *7*	799.9	2$^-$

Continued on next page (footnotes at end of table)

^{39}K(d,pγ)   **1970Fr10,1973We01 (continued)**

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

E_i(level)	J^π_i	E_γ†	I_γ#	E_f	J^π_f	E_i(level)	J^π_i	E_γ†	I_γ#	E_f	J^π_f
3228	2$^-$	3198	55 *10*	29.6	3$^-$	3629	2$^-$,3$^-$	1559	10 *5*	2069.9	3$^-$
		3228	25 *7*	0	4$^-$			3599	20 *7*	29.6	3$^-$
3370	(2,3)$^-$	3340	100	29.6	3$^-$			3629	45 *10*	0	4$^-$
3629	2$^-$,3$^-$	1232	25 *7*	2397	4$^-$	3870	2$^-$	3840	100	29.6	3$^-$

† From 1970Fr10 where $\Delta E\gamma$ is quoted, otherwise level-energy differences.
‡ Reported in 1973We01 only.
# From 1970Fr10. Values are % branching from each level.
@ Placement of transition in the level scheme is uncertain.

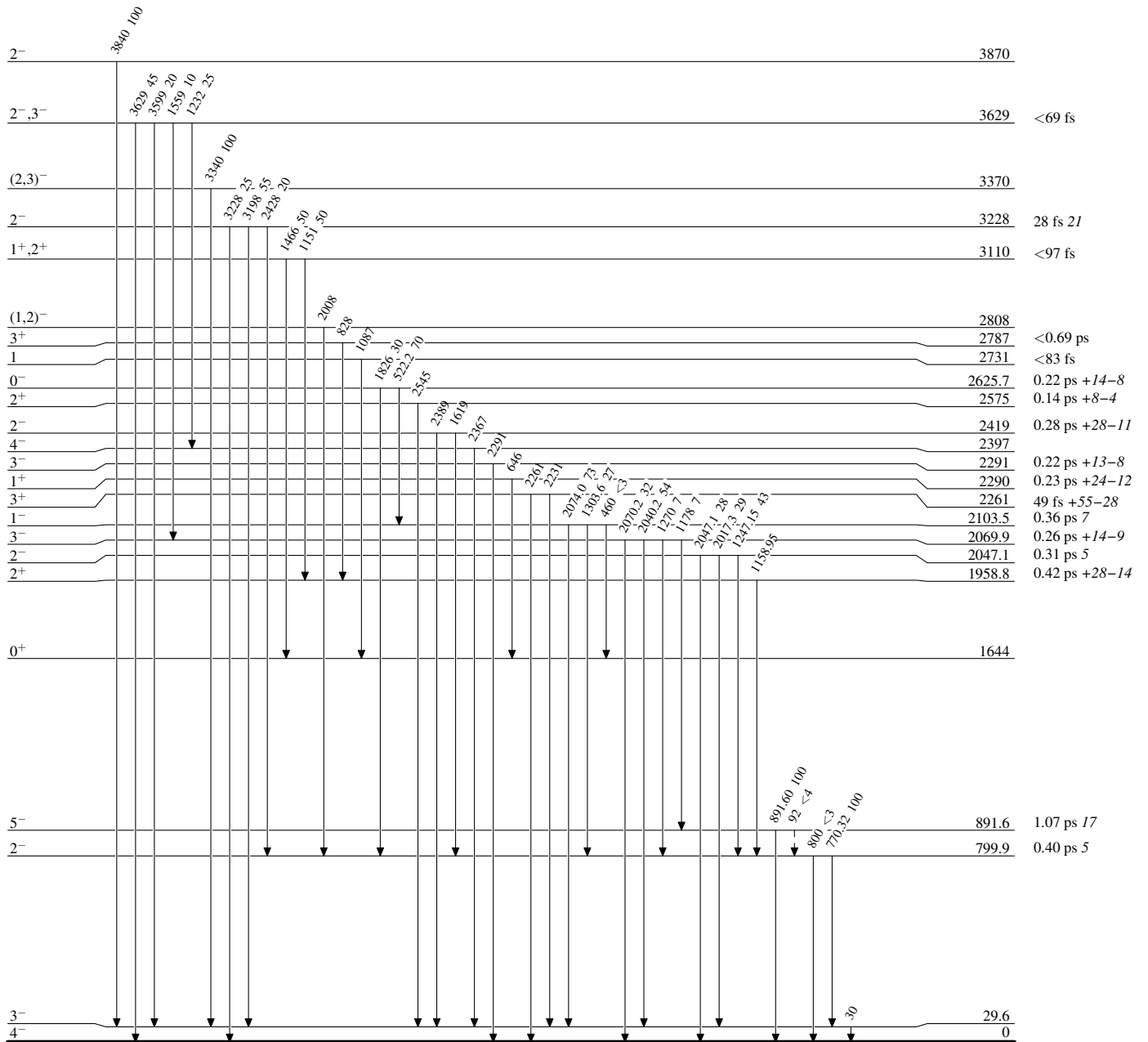## $^{39}K(d,p\gamma)$ 1970Fr10,1973We01   Legend

Level Scheme

Intensities: % photon branching from each level

- - - - - - ▶   γ Decay (Uncertain)

2⁻	3840 100	3870
2⁻,3⁻	3629 45 3599 20 1559 10 1232 25	3629 <69 fs
(2,3)⁻	3340 100	3370
2⁻	3228 25 3198 55 2428 20	3228 28 fs 21
1⁺,2⁺	1466 50 1151 50	3110 <97 fs
(1,2)⁻	2008	2808
3⁺	828	2787 <0.69 ps
1	1087	2731 <83 fs
0⁻	1826 30 522.2 70	2625.7 0.22 ps +14−8
2⁺	2545	2575 0.14 ps +8−4
2⁻	2389 1619	2419 0.28 ps +28−11
4⁻	2367	2397
3⁻	2291	2291 0.22 ps +13−8
1⁺	646 261 231	2290 0.23 ps +24−12
3⁺	2074.0 73 1305.6 27 460 <3	2261 49 fs +55−28
1⁻	2070.2 32 2040.2 54 1270 7 1178 7	2103.5 0.36 ps 7
3⁻	2047.1 28 2017.3 29 1247.15 43	2069.9 0.26 ps +14−9
2⁻	1158.95	2047.1 0.31 ps 5
2⁺		1958.8 0.42 ps +28−14
0⁺		1644
5⁻	891.60 100 92 <4 800 <3 770.32 100	891.6 1.07 ps 17
2⁻		799.9 0.40 ps 5
3⁻	<30	29.6
4⁻		0

$^{40}_{19}K_{21}$