^{39}K(n,n′γ) 1968Ni01,1989Ge09

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 149, 1 (2018)	1-Jan-2018

1989Ge09, 1984El12, 1984El06: E=fast neutrons were from the reactor IRT-2000 in Sofia. Two ^{39}K targets for simultaneous measurements. γ rays were detected with a 28 cm^3 Ge(Li) detector. Measured Eγ, Doppler-shift attenuation. Deduced $T_{1/2}$.

1968Ni01: E=1.82-3.96 MeV neutrons were produced via t(p,n) with proton beams from the University of Kentucky 5.5-MeV accelerator. γ rays were detected with a NaI(Tl) detector or a Ge(Li) detector. Measured Eγ, σ(Eγ), γ(θ). Deduced levels, γ-ray multipolarities.

1961Li04: E=0.2 to 3.5 MeV. Measured Eγ. Four levels populated at 2519, 2817, 3021 and 3603 with γ to g.s. from each of the levels.

^{39}K Levels

E(level)†	Jπ‡	$T_{1/2}$#	E(level)†	Jπ‡	$T_{1/2}$#	E(level)†	$T_{1/2}$#
0	$3/2^+$		3603	$9/2^{(-)}$		4127	59 fs *35*
2519 *3*	$1/2^+$	64 fs *6*	3883		18 fs *7*	4478	243 fs *21*
2817	$7/2^{(-)}$		4083		50 fs *30*	4520	76 fs *17*
3021	$3/2^{(-)}$		4095		62 fs *50*		

† From Eγ.
‡ From 1968Ni01; in agreement with those from Adopted Levels.
# From DSAM of 1989Ge09 (see also 1984El12, 1984El06).

γ(^{39}K)

E_γ†	σ(mb)‡	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	Comments
923		4520		3603	$9/2^{(-)}$		
1313		4127		2817	$7/2^{(-)}$		
1572		4095		2519	$1/2^+$		
1955		4478		2519	$1/2^+$		
2519 *3*	107 *10*	2519	$1/2^+$	0	$3/2^+$		A_2=0.00 *2* (1968Ni01).
2817	125 *13*	2817	$7/2^{(-)}$	0	$3/2^+$	Q	A_2=+0.30 *7* (1968Ni01).
3021	70 *7*	3021	$3/2^{(-)}$	0	$3/2^+$		A_2≈0 (1968Ni01).
3603	17 *2*	3603	$9/2^{(-)}$	0	$3/2^+$	O	A_2=+0.72 *12*, A_4=+0.15 *12* (1968Ni01).
3883		3883		0	$3/2^+$		
4083		4083		0	$3/2^+$		

† From 1968Ni01 up to 3603, from 1989Ge09 above this energy.
‡ From 1968Ni01 at E_n=3.96 MeV.
# From γ(θ) in 1968Ni01.

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Level Scheme

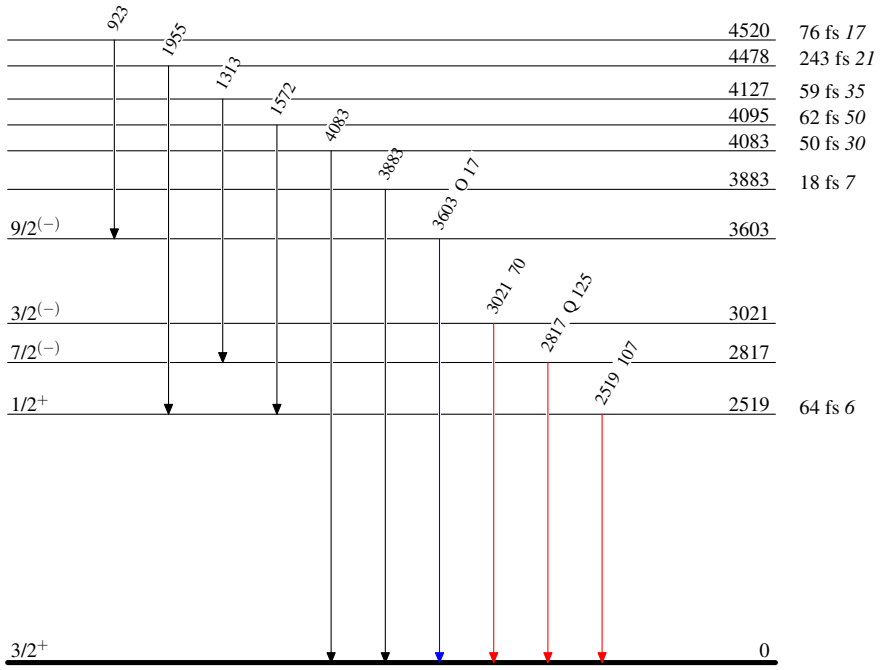
Intensities: γ-ray production cross section

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{39}_{19}K_{20}$