

$^{39}\text{K}(\text{p},\text{n})$ 1984Ra22,1985Wa24

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

$J^\pi(^{39}\text{K g.s.})=3/2^+$.

1984Ra22: E=120 and 160 MeV proton beams were produced from the Indiana University Cyclotron. Targets were 34.6 mg/cm² ^{nat}KF for E=120 MeV experiment and 28.7 mg/cm² ³⁹KF (99.96% in ³⁹K) for E=160 MeV run. Neutrons were detected with three large-volume time-compensated plastic scintillators (FWHM=400 keV at 120 MeV and 600 keV at 160 MeV). Measured $\sigma(E_n, \theta)$. Deduced levels, L-transfers, B(GT) from DWBA analysis.

1985Wa24: E=135 MeV proton beam was produced from the Indiana University Cyclotron. Neutrons were detected with large-volume, mean-timed neutron counters (FWHM \approx 320 keV at \approx 120 MeV). Measured $\sigma(E_n, \theta)$. Deduced levels, L-transfers, B(GT) from DWIA analysis.

Others:

1987Ra23: (p, $\text{n}\gamma$): measured absolute thick target γ yields.

1985Ki07: (p, $\text{n}\gamma$): measured relative thick target γ yields.

1978Ra15, 1970Ke08: threshold measurement. Deduced mass excess.

[Additional information 1.](#)

 ^{39}Ca Levels

E(level) [†]	L [‡]	$d\sigma/d\Omega(\text{mb/sr})$ ^{&}	Comments
0	0	3.6 2	L: 0 also from 1984Ra22 . B(GT)=0.27 (normalized value to β -decay) (1984Ra22).
5150 [#]	0 [#]	1.7 1	E(level): other: 5300 for the 5100+5500 doublet (1984Ra22). L: 0 for the 5100+5500 doublet (1984Ra22). B(GT)=0.19 2 (1984Ra22).
5500 [#]	0 [#]		L: see comment for 5150 level.
6200	0	2.8 2	E(level): from 1984Ra22 . L: other:(0+1) from 1984Ra22 . B(GT)=0.31 3 (1984Ra22).
7250 [@]	0 [@]		
7450 [@]	0 [@]		
7900 [@]	0 [@]		
8000	0	1.70 15	E(level): other: 8100 (1984Ra22). L: other: (0+1) (1984Ra22). B(GT)=0.20 3 (1984Ra22).
8200 [@]	0 [@]		
8450 [@]	0 [@]		
8750 [@]	0 [@]	0.9 1	E(level): other: 9000 (1984Ra22). L: other: (0+1) (1984Ra22). B(GT)=0.10 2 (1984Ra22).
10100	0		

[†] Read from Figure 1 of [1985Wa24](#), unless otherwise noted. Uncertainty is probably 50-100 keV.

[‡] From [1985Wa24](#); but no $\sigma(\theta)$ data are shown. Levels above 5 MeV are expected to be $d_{5/2}$ hole states with L=0 and S=1.

[#] Unresolved doublet in [1984Ra22](#).

[@] Levels are not resolved but indicated by arrows in Figure 1 of [1985Wa24](#).

[&] From [1984Ra22](#), at 0°, uncertainties are statistical only. For absolute uncertainties, add 20% in quadrature ([1984Ra22](#)).