^{36}Ca εp decay (102 ms) 1997Tr05,2001Lo11

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, John Cameron and Balraj Singh	NDS 112,2715 (2011)	20-Oct-2011

Parent: ^{36}Ca: E=0; $J^\pi=0^+$; $T_{1/2}$=102 ms *2*; Q(εp)=9307 *40*; %εp decay=58 *5*

^{36}Ca-Q(εp): From 2011AuZZ. Other: 9320 *40* (2003Au03).

^{36}Ca-J^π,$T_{1/2}$: From Adopted Levels of ^{36}Ca.

1997Tr05,1995Tr02: Secondary beam of ^{36}Ca produced by fragmentation of a 300 AMeV ^{40}Ca beam on a 1 g/cm^2 ^{9}Be target at GSI Darmstadt. Fragments identified by ΔE and time-of-flight (TOF) from a Multi Sampling Ionization Chamber (MUSIC) detector and two scintillators. Measured β-delayed Ep, Ip, Eγ, Iγ, βγp-coin. Deduced levels for ^{36}K.

2001Lo11: ^{36}Ca produced at the GANIL facility by fragmentation of a 95 AMeV ^{40}Ca beam at an average intensity of 400 enA on a rotating 560 μm natural Ni target and enhanced by a 550 μm wedge-shaped ^{9}Be degrader. ^{36}Ca beam implanted into a 500 μm silicon detector between two silicon counters of the same thickness for detecting β-rays; two additional silicon counters of 500 μm and 150 μm providing ΔE and time-of-flight (TOF); 3 large-volume (70%) germanium detectors for detecting γ-rays. Measured β-delayed Ep, Ip, Eγ. Deduced levels for ^{36}K.

1995Ga16: ^{36}Ca produced using a radioactive ion beam from ISOLDE online isotope separator with a Ti target at CERN, measured β-delayed Ep.

^{35}Ar Levels

E(level)	J^π†
0	$3/2^+$
1184.0 *3*	$1/2^+$

† From Adopted Levels.

γ(^{35}Ar)

E_γ†	E_i(level)	J^π_i	E_f	J^π_f
1185 *1*	1184.0	$1/2^+$	0	$3/2^+$

† From 2001Lo11.

Delayed Protons (^{35}Ar)

E(p)†‡	E(^{35}Ar)	I(p)#*b*	E(^{36}K)
1370	1184.0	1.7@ *4*	4286
1657	0	10.6 *10*	3370
2547	0	38 *1*	4286
2713	0	2.6*a* *9*	4457
2937	0	1.3 *2*	4687
3584&	0	0.6& *2*	5250
3980&	0	0.9& *2*	5761
4162	0	2.2*a* *5*	5947
4989	0	0.4 *2*	6798

† Deduced from the excitation energies in 1997Tr05 and 1995Tr02 by evaluator.

‡ From 1997Tr05 and 1995Tr02, unless otherwise noted.

From weighted average of 1997Tr05 and 2001Lo11, unless otherwise noted.

Continued on next page (footnotes at end of table)

^{36}Ca εp decay (102 ms) 1997Tr05,2001Lo11 (continued)

Delayed Protons (^{35}Ar) (continued)

[@] From Γ(p1)/Γ(p0)=0.03 in 1997Tr05.
[&] From 2001Lo11.
[a] From unweighted average of 1997Tr05 and 2001Lo11.
[b] Absolute intensity per 100 decays.

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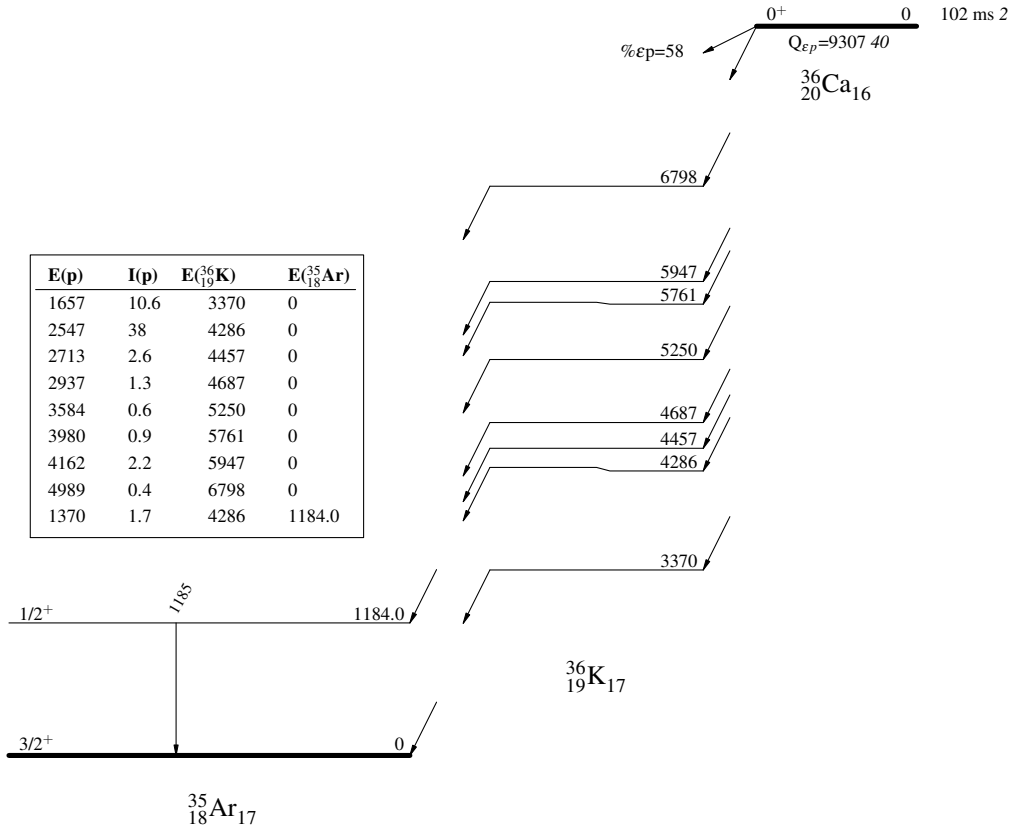
Decay Scheme

I(p) Intensities: I(p) per 100 parent decays



E(p)	I(p)	E($^{36}_{19}$K)	E($^{35}_{18}$Ar)
1657	10.6	3370	0
2547	38	4286	0
2713	2.6	4457	0
2937	1.3	4687	0
3584	0.6	5250	0
3980	0.9	5761	0
4162	2.2	5947	0
4989	0.4	6798	0
1370	1.7	4286	1184.0