Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Ninel Nica, John Cameron and Balraj Singh	NDS 113,1 (2012)	31-Dec-2011

Q(β^-)=−1.097×10^4 *4*; S(n)=14315.5 *7*; S(p)=1658.6 *9*; Q(α)=−6507.3 *7* 2012Wa38
Note: Current evaluation has used the following Q record −10966 40 *14315*.8 *6* 1658.9 *8* −6507.1 *9* 2011AuZZ.
Q(εp)=4307.21 *35*, S(2n)=32340 *298* (syst), S(2p)=7555.3 *4* (2011AuZZ).
Additional information 1.
Values in 2003Au03: Q(β^-)=−10990 *40*, S(n)=14329 *21*, S(p)=1668 *8*, Q(α)=−6521 *10*, S(2n)=32090 *300* (syst), S(2p)=7564 *8*.
Mass measurement: 35.98130226 u *42* (2007Ya08) using ISOLTRAP at ISOLDE-CERN facility.
See also ^{35}Ar(p,γ):res:deduced dataset for proton resonances deduced from ^{36}Ar(^{3}He,t) experiment.
1967Be11: ^{36}K produced and identified in ^{36}Ar(p,n) reaction at 23 MeV, measured half-life and γ radiation.
1971Ja09: ^{36}Ar(p,n) E=13.8-14.1 MeV, deduced Q value and half-life of ^{36}K g.s.
1972Mi13, 1971Ja09 (also 1971MiZS): decay of ^{36}K formed in ^{36}Ar(p,n) reaction, measured Eγ, Iγ.
1972Mo08, 1971Jo08: measured $T_{1/2}$ of ^{36}K.
1976Fr03: decay of ^{36}K.
Later studies of ^{36}K decay: 1996Il02 (also 1997Il03), 1995Yo04, 1980Es01 and 1980Ew01.

^{36}K Levels

Cross Reference (XREF) Flags

- A ^{36}Ca ε decay (101.2 ms)
- B ^{9}Be(^{37}Ca,Xγ)
- C C(^{37}K,nγ),H(^{37}K,nγ)
- D ^{36}Ar(^{3}He,t)

E(level)	J$^\pi$	$T_{1/2}$	XREF	Comments
0	2$^+$	341 ms *3*	ABCD	%ε+%β^+=100; %εp=0.048 *14*; %$\varepsilon\alpha$=0.0034 *13* μ=(+)0.548 *1* (1975Sc20,1989Ra17,2011StZZ) %εp,%$\varepsilon\alpha$: from 1980Es01. J$^\pi$: spin from β-radiation detected optical pumping from polarized nuclei (1975Sc20), parity from log *ft*=4.78 to 2$^+$ state in ^{36}Ar. μ: optical pumping (1975Sc20). $T_{1/2}$: weighted average of 336 ms *4* (1971Go18), 341 ms *6* (1972Mi13), and 344 ms *3* (1976Fr03). Others: 345 ms *5* (1971Ja09) from the same group as 1972Mi13, 342 ms *28* (1972Mo08), 265 ms *25* (1967Be11).
810 *2*	(3$^+$)	19 ps *4*	B D	J$^\pi$: mirror state of 788, 3$^+$ level in ^{36}Cl. $T_{1/2}$: from plunger method in ^{48}Ca(^{37}Ca,Xγ) (2010Be01).
1112.4 *4*	1$^+$	7 ps *+3−2*	AB D	J$^\pi$: log *ft*=4.52 from 0$^+$. $T_{1/2}$: from ^{9}Be(^{37}Ca,Xγ) by peak shifts (2007DoZV).
1618.7 *6*	1$^+$		A CD	J$^\pi$: log *ft*=4.06 from 0$^+$.
1706.8 *6*	(2$^-$)		CD	E(level): weighted average of 1706.8 *6* (^{36}Ar(^{3}He,t)) and 1706 *3* (^{9}Be(^{40}Ca,Xγ)). J$^\pi$: possible mirror state of 1951, 2$^-$ level in ^{36}Cl.
1917.9 *6*	(2$^+$)		BCD	T=1 E(level): weighted average of: 1918.3 *7* (^{36}Ar(^{3}He,t)), 1916.4 *14* (^{9}Be(^{40}Ca,Xγ)), and 1914 *5* (^{9}Be(^{37}Ca,Xγ)). J$^\pi$: possible mirror state of 1959, 2$^+$ level in ^{36}Cl.
2196.9 *7*	(3$^-$)		D	J$^\pi$: possible mirror state of 2468, 3$^-$ level in ^{36}Cl.
2281.8 *7*	(2$^+$)		D	J$^\pi$: possible mirror state of 2492, 2$^+$ level in ^{36}Cl.
2446.2 *6*			D	
2578.7 *17*			D	
2628.4? *30*			D	
2869.4 *20*			D	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{36}K Levels (continued)

E(level)	J^π	XREF	Comments
3383† *3*	1^+	A D	%p=100 XREF: A(3357). J^π: log *ft*=4.06 from 0^+.
3627? *6*		D	
3653.2 *21*		D	
4281.9† *8*	0^+	A	%p=100 T=2 J^π: superallowed β transition, log *ft*=3.18 from 0^+.
4450† *22*	1^+	A	%p=100 J^π: log *ft*=4.29 from 0^+.
4658† *36*	1^+	A	%p=100 J^π: log *ft*=4.55 from 0^+.
5243† *22*	1^+	A	%p=100 J^π: log *ft*=4.61 from 0^+.
5754† *69*	1^+	A	%p=100 J^π: log *ft*=4.21 from 0^+.
5926† *45*	1^+	A	%p=100 J^π: log *ft*=3.73 from 0^+.
6787† *69*	1^+	A	%p=100 J^π: log *ft*=3.90 from 0^+.

† For this level from ^{36}Ca ε decay (101.2 ms) dataset see comment on top of the ^{36}K Levels table in the dataset that explain the the origin of $E(level)_{recalculated}$ values given in comment in this table.

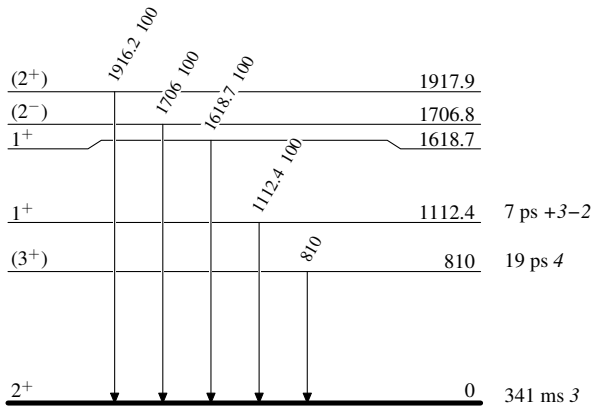
$\gamma(^{36}K)$

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Comments
810	(3^+)	810 *2*		0	2^+	E_γ: from ^{9}Be(^{37}Ca,Xγ).
1112.4	1^+	1112.4 *4*	100	0	2^+	E_γ: from ^{36}Ca ε decay.
1618.7	1^+	1618.7 *6*	100	0	2^+	E_γ: weighted average of: 1618.6 *7* (^{36}Ca ε decay) and 1618.9 *14* (^{9}Be(^{40}Ca,Xγ)).
1706.8	(2^-)	1706 *3*	100	0	2^+	E_γ: from ^{9}Be(^{40}Ca,Xγ).
1917.9	(2^+)	1916.2 *13*	100	0	2^+	E_γ: weighted average of: 1916.4 *14* (^{9}Be(^{40}Ca,Xγ)) and 1914 *5* (^{9}Be(^{37}Ca,Xγ)).

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{36}_{19}K_{17}$