^{35}Ca ε2p decay (25.7 ms) 1999Tr04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	NDS 199,1 (2025)	30-Sep-2024

Parent: ^{35}Ca: E=0; J^π=(1/2$^+$); $T_{1/2}$=25.7 ms *2*; Q(ε2p)=11610 *syst*; %ε2p decay=4.2 *3*

^{35}Ca-J^π,$T_{1/2}$: From the Adopted Levels of ^{35}Ca in ENSDF database (October 2011 update), where $T_{1/2}$ is adopted from 1999Tr04. Other: 50 ms *30* (1985Ay01).

^{35}Ca-Q(ε2p): 11610 *200* (syst) deduced from Q(ε)=16360 *200* (syst) of ^{35}Ca and S(2p)=4747.5 *6* of ^{35}K in 2021Wa16.

^{35}Ca-%ε2p decay: %ε2p=4.2 *3* for the decay of ^{35}Ca (1999Tr04, based on measured β-correlated proton intensities).

1999Tr04: ^{35}Ca ions were produced by fragmentation of a 95 MeV/nucleon ^{40}Ca primary beam on a rotating natural Ni target and separated by the SISSI-Alpha and LISE3 spectrometers at GANIL. Separated ions were implanted into a 500 μm thick silicon detector for βp and β2p decays. Two silicon detectors for β-rays and two other silicon counters for ΔE and time-of-flight. Three germanium detectors and two NaI(Tl) detectors for γ-rays. Measured E(p), I(p), βpγ-coin, implant-decay time correlation. Deduced parent $T_{1/2}$, decay branching ratios.

Other: 1985Ay01.

No sign for the 2p decay of the ^{35}K IAS into the first excited state in ^{33}Cl was found (1999Tr04).

^{33}Cl Levels

E(level)	J^π	$T_{1/2}$	Comments
0	3/2$^+$	2.5059 s *23*	J^π,$T_{1/2}$: from the Adopted Levels.

Delayed Protons (^{33}Cl)

E(p)	E(^{33}Cl)	I(p)[†]	E(^{35}K)	Comments
4305 *26*	0	100	9163	E(p),E(^{35}K): from 1999Tr04. E(Level)=9163 *26* of the IAS in ^{35}K is from weighted average of 9181 *32* ($2p_0$), 9139 *91* (p_0), 9152 *30* (p1) deduced from measured proton energies of three different decay modes of the IAS.

[†] For absolute intensity per 100 decays, multiply by 0.042 *3*.

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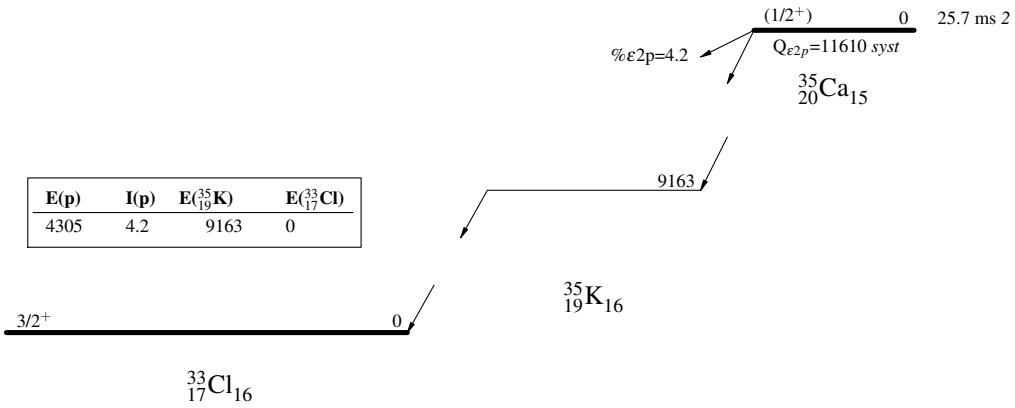
Decay Scheme

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



E(p)	I(p)	E($^{35}_{19}$K)	E($^{33}_{17}$Cl)
4305	4.2	9163	0