

Adopted Levels

Type	History		Literature Cutoff Date
	Author	Citation	
Full Evaluation	Balraj Singh	ENSDF	25-Mar-2022

$Q(\beta^-)=1201\times 10^1$ 36; $S(n)=293\times 10^1$ 30; $S(p)=21270$ SY; $Q(\alpha)=-14560$ SY [2021Wa16](#)

Estimated uncertainties ([2021Wa16](#)): 560 for S(p), 650 for Q(α).

$Q(\beta^-n)=9260$ 260, $S(2n)=4490$ 250, $S(2p)=40650$ 840 (syst) ([2021Wa16](#)).

$Q(\beta^-2n)=4785$ 250, $Q(\beta^-3n)=1046$ 250 deduced by evaluator from relevant mass excesses in [2021Wa16](#).

[1997Be70](#): ^{56}Ca identified in $^9\text{Be}(^{238}\text{U},\text{F})$, $E=750$ MeV/nucleon, fragments separator (FRS) at GSI facility, identification by time-of-flight. Measured production cross section.

[2008Ma01](#): ^{56}Ca isotope produced in $^9\text{Be}(^{76}\text{Ge},\text{X})$ reaction at $E=140$ MeV/nucleon ^{76}Ge beam provided by NSCL at Michigan State University. Isotopes separated with A1900 fragment separator. Time-of-flight technique. Measured β particles using Beta Counting System of three Si PIN detectors, a double-sided silicon strip detector and six single sided silicon strip detectors. Detected γ rays using 16 Ge detectors of the Segmented Germanium array. Measured half-life of ^{56}Ca by fitting the decay curves to a function which included decay of the parent, growth and decay of daughter and a constant background. No gamma rays were seen in correlation with β rays.

[2018Mi08](#): measured mass excess.

Theoretical structure calculations: 100 primary reference extracted from the NSR database (www.nndc.bnl.gov/nsr/) is listed under document records.

[Additional information 1](#).

No level-scheme information is available from β^- decay of ^{56}K .

 ^{56}Ca Levels

<u>E(level)</u>	<u>J$^\pi$</u>	<u>T$_{1/2}$</u>	<u>Comments</u>
0	0 ⁺	11 ms 2	$\% \beta^- = 100$; $\% \beta^- n = ?$; $\% \beta^- 2n = ?$; $\% \beta^- 3n = ?$ Theoretical $T_{1/2} = 24.2$ ms, $\% \beta^- n = 8$, $\% \beta^- 2n = 0$, $\% \beta^- 3n = 0$ (2019Mo01). Theoretical $T_{1/2} = 14.2$ ms, $\% \beta^- n = 3.1, 2.8$; $\% \beta^- 2n = 0.17, 0.18$; $\% \beta^- 3n = 0$ (2021Mi17). $T_{1/2}$: from (implants) β^- correlated decay curves (2008Ma01) using 18 β correlated events out of a total of 99 implantations of ^{56}Ca . Production cross section = 1 nb (1997Be70) corresponding to three counts assigned to ^{56}Ca in $^9\text{Be}(^{76}\text{Ge},\text{X})$ reaction.