

Adopted Levels

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	John Cameron, Jun Chen and Balraj Singh, Ninel Nica		NDS 113,365 (2012)	15-Jan-2012

$Q(\beta^-)=2.49\times 10^4$ *syst*; $S(n)=8.4\times 10^2$ *syst* [2012Wa38](#)

Note: Current evaluation has used the following Q record \$ 24853 *syst* 840 *syst* 23670 *calc* -22040 *calc* [2011AuZZ,1997Mo25](#).

$Q(\beta^-)$ and $S(n)$ from [2011AuZZ](#); $S(p)$ and $Q(\alpha)$ from [1997Mo25](#).

Estimated $\Delta Q(\beta^-)=786$, $\Delta S(n)=180$ ([2011AuZZ](#)).

$Q(\beta^-n)=24691$ 760, $S(2n)=840$ 150 (*syst*,[2011AuZZ](#)). $S(2p)=55290$ ([1997Mo25](#),calculated).

Values in [2003Au03](#) (from *syst*): $Q(\beta^-)=26030$ 1320, $S(n)=750$ 180, $S(2n)=450$ 150, $Q(\beta^-n)=25780$ 1080.

[2004Lu19](#), [2003Lu11](#), [2002Lu19](#), [2002Lu09](#): RIKEN-GANIL-Dubna collaboration. ^{37}Na confirmed in reaction: $\text{Ta}(^{48}\text{Ca},X)$ $E=58.9$ MeV/nucleon. Fragmentation of ^{48}Ca primary beam. Reaction fragments analyzed by RIPS recoil fragment separator at RIKEN facility and LISE-2000 spectrometer at GANIL. Isotopic identification by measurements of energy loss, total kinetic energy, time-of-flight and magnetic rigidity for each fragment. One event seen in [2002Lu09](#) (also [2004Lu19,2003Lu11,2002Lu19](#)), three events seen by [2002No11](#) (see figure 1b of [2002Lu19](#) or figure 1a in [2002No11](#)). Measured $\sigma=0.06$ pb for yield of ^{37}Na in the above reaction corresponding to one event seen by [2002Lu09](#).

[2002No11](#) (also [2002Lu19](#)): ^{37}Na seen in reaction: $\text{Ta}(^{48}\text{Ca},X)$ $E=64$ MeV/nucleon. Reaction fragments analyzed by RIPS recoil fragment separator at RIKEN facility. Identification by measurements of energy loss, total kinetic energy, time-of-flight and magnetic rigidity for each fragment. Three events were observed. Measured $\sigma\approx 0.1$ pb for yield of ^{37}Na in the above reaction corresponding to three events seen in [2002No11](#) (also [2002Lu19](#)) e.g. see figure 1a in [2002No11](#) or figure 1b in [2002Lu19](#).

[2009Ly01](#): calculated neutron single particle levels as a function of deformation.

[2004Lu10](#): Calculated levels in ^{37}Na .

[Additional information 1](#).

 ^{37}Na Levels

E(level)	$T_{1/2}$	Comments
0	>60 ns	$\% \beta^- = ?$; $\% \beta^- n = ?$ E(level): the observed ^{37}Na nuclei are assumed to correspond to the ^{37}Na g.s. $T_{1/2}$: limiting value from time-of-flight in 2002No11 . Actual half-life is expected to be much longer as suggested by systematics value of 1 ms (systematics, 2011AuZY) and calculated value of 2.2 ms (1997Mo25). J^π : $3/2^+$ proposed from <i>syst</i> (2011AuZY) and in calculations of 1997Mo25 .