

Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	15-Aug-2015

$Q(\beta^-)=15610$  SY;  $S(n)=1780$  SY;  $S(p)=14810$  CA;  $Q(\alpha)=-10580$  SY [2012Wa38,1997Mo25](#)

Estimated uncertainties ([2012Wa38](#)): 370 for  $Q(\beta^-)$ , 450 for  $S(n)$ , 600 for  $Q(\alpha)$ .

$Q(\beta^-)$ ,  $S(n)$ ,  $Q(\alpha)$  from [2012Wa38](#);  $S(p)$  from [1997Mo25](#).

$S(2n)=7160$  150,  $Q(\beta^-n)=9520$  390 (syst,[2012Wa38](#)).  $S(2p)=32700$  (theory,[1997Mo25](#)).

[2000Ka48](#):  $^{130}\text{Ag}$  isotope tentatively identified in  $^{238}\text{U}(p,F)$   $E=1$  GeV, followed by separation with a chemically selective LASER ion source. Also [2004KaZR](#) thesis related to the same experiment. A 957-keV  $\gamma$  ray tentatively assigned to the decay of  $^{130}\text{Ag}$  and first  $2^+$  to g.s. transition in  $^{130}\text{Cd}$  is not confirmed in the study of the decay of a 220-ns isomer ([2007Ju05](#)), where the first  $2^+$  state is identified at 1325 keV.

[2005Kr20](#): half-life measurements at ISOLDE-CERN facility, value quoted from diploma thesis by O. Arndt, University of Mainz (2003).

[2013Wa13](#):  $^{130}\text{Ag}$  produced at RIBF-RIKEN facility by fragmentation of 230-MeV  $^{134}\text{Sn}$  beam on a  $^9\text{Be}$  target; the  $^{134}\text{Sn}$  beam produced in  $W(^{238}\text{U},X)$  at 345 MeV/nucleon.

[2015Lo04](#):  $^{130}\text{Ag}$  nuclide produced at RIBF-RIKEN facility in  $^9\text{Be}(^{238}\text{U},F)$  reaction at  $E=345$  MeV/nucleon with an average intensity of  $6 \times 10^{10}$  ions/s. Identification of  $^{130}\text{Ag}$  was made by determining atomic  $Z$  and mass-to-charge ratio  $A/Q$ , where  $Q$ =charge state of the ions. The selectivity of ions was based on magnetic rigidity, time-of-flight and energy loss. The separated nuclei were implanted at a rate of 50 ions/s in a stack of eight double-sided silicon-strip detector (WAS3ABi), surrounded by EURICA array of 84 HPGe detectors. Correlations were recorded between the implanted ions and  $\beta$  rays. The half-life of  $^{130}\text{Ag}$  isotope was measured from the correlated ion- $\beta$  decay curves and maximum likelihood analysis technique as described in [2014Xu07](#). Comparison of measured half-lives with FRDM+QRPA, KTUY+GT2 and DF3+CQRPA theoretical calculations.

[Additional information 1](#).

 $^{130}\text{Ag}$  Levels

E(level)	$T_{1/2}$	Comments
0	42 ms 5	$\% \beta^- = 100$ ; $\% \beta^- n = ?$ ; $\% \beta^- 2n = ?$ Theoretical $T_{1/2} = 31.8$ ms, $\% \beta^- n = 64.4$ , $\% \beta^- 2n = 2.5$ ( <a href="#">2003Mo09</a> ). E(level): measured half-life is assumed to correspond to the ground state of $^{130}\text{Ag}$ . $J^\pi$ : $2^-$ to $5^-$ from theoretical considerations with neutron in $3/2^+$ orbital and proton in $7/2^-$ orbital ( <a href="#">1997Mo25</a> ). $J^\pi = 0^+$ in <a href="#">2012Au07</a> is a misprint. $T_{1/2}$ : measured by <a href="#">2015Lo04</a> , from (implanted ions) $\beta$ correlated curves in time and position using maximum likelihood method. Others: 35 ms 10 ( <a href="#">2005Kr20</a> ), $\approx 50$ ms (estimated value, <a href="#">2000Ka48</a> ). See <a href="#">2015Lo04</a> for comparison of their experimental value with theoretical values.