

Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	20-Jul-2015

$Q(\beta^-)=14420$ SY; $S(n)=2950$ SY; $S(p)=15000$ CA; $Q(\alpha)=-9360$ CA [2012Wa38,1997Mo25](#)

Estimated uncertainties ([2012Wa38](#)): 590 for $Q(\beta^-)$, 640 for $S(n)$.

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

$S(2n)=7260$ 590, $Q(\beta^-n)=9310$ 590 (syst,[2012Wa38](#)). $S(2p)=33010$ ([1997Mo25](#),calculated).

[2010Oh02](#): ^{114}Nb nuclide identified in $\text{Be}(^{238}\text{U},\text{F})$ and $\text{Pb}(^{238}\text{U},\text{F})$ reactions with a $^{238}\text{U}^{86+}$ beam energy of 345 MeV/nucleon produced by the cascade operation of the RBIF accelerator complex of the linear accelerator RILAC and four cyclotrons RRC, fRC, IRC and SRC. Identification of ^{114}Nb nuclei was made on the basis of magnetic rigidity, time-of-flight and energy loss of the fragments using BigRIPS fragment separator. Experiments performed at RIKEN facility. Based on A/Q spectrum and Z versus A/Q plot, 15 counts were assigned to ^{114}Nb isotope. (Q =charge state).

[2015Lo04](#): ^{114}Nb nuclide produced at RIBF-RIKEN facility in $^9\text{Be}(^{238}\text{U},\text{F})$ reaction at $E=345$ MeV/nucleon with an average intensity of 6×10^{10} ions/s. Identification of ^{114}Nb 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 β rays. The half-life of ^{114}Nb isotope was measured from the correlated ion- β 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.

[2014Mi23](#), [2013Fa05](#): theoretical values of $T_{1/2}$ and $\% \beta^-n$.

 ^{114}Nb Levels

E(level)	$T_{1/2}$	Comments
0	17 ms 5	$\% \beta^- = 100$; $\% \beta^-n = ?$; $\% \beta^-2n = ?$ Theoretical $T_{1/2}=21.0$ ms, $\% \beta^-n=38.3$, $\% \beta^-2n=12.5$ (2003Mo09). E(level): measured half-life is assumed to correspond to the ground state of ^{114}Nb . J^π : 0^+ in 2012Au07 seems a misprint. $T_{1/2}$: measured by 2015Lo04 from (implanted ions) β correlated curves in time and position using maximum likelihood method. See 2015Lo04 for comparison of their experimental value with theoretical values. Measured $\sigma=11$ pb (2010Oh02), systematic uncertainty $\approx 40\%$. Probability of misidentification of ^{114}Nb isotope $<0.001\%$ (2010Oh02).