Adopted Levels

| | | History | |
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 110, 1239 (2009)	1-Feb-2008

$Q(\beta^-)=1.11\times10^4$ *SY*; $S(n)=4.8\times10^3$ *SY*; $S(p)=1.33\times10^4$ *SY*; $Q(\alpha)=-8.9\times10^3$ *SY*   2012Wa38

Estimated uncertainties (2012Wa38): 500 for $Q(\beta^-)$ and $S(n)$, 810 for $S(p)$ and $Q(\alpha)$.

$S(2n)=7780$ *500*, $Q(\beta^-n)=8880$ *450* (syst,2012Wa38). $S(2p)=6640$ (theory,1997Mo25).

1997Be70, 1997Be12: ^{111}Nb produced and identified in Pb,Be(^{238}U,F), E=750 MeV/nucleon, followed by on-line fragment separator and time of flight method at GSI facility.

Additional information 1.

2011Ni01: ^{111}Nb nuclide produced in Be(^{238}U,F) reactions at E=345 MeV/nucleon produced by the cascade operation of the RBIF complex of accelerators at RIKEN. Target=550 mg/cm^2. Identification of ^{111}Nb made on the basis of magnetic rigidity, time-of-flight and energy loss. The separated nuclei were implanted in a nine-layer double-sided silicon-strip detector (DSSSD). Correlations were recorded between the heavy ions and β rays. The half-life of ^{111}Nb isotope was measured from the correlated ion-β decay curves and maximum likelihood analysis technique. In the analysis of the decay curve, β-detection efficiency, background rate, daughter and granddaughter (including those populated in delayed neutron decays) half-lives, and β-delayed neutron emission probabilities were considered. Comparison of measured half-lives with FRDM+QRPA and KTUY+GT2 calculations.

2015Lo04: ^{111}Nb nuclide produced at RIBF-RIKEN facility in ^{9}Be(^{238}U,F) reaction at E=345 MeV/nucleon with an average intensity of 6×10^{10} ions/s. Identification of ^{111}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 ^{111}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.

2013Fa05: theoretical calculations of $T_{1/2}$ and %β^-n.

^{111}Nb Levels

E(level)	$T_{1/2}$	Comments
0	54 ms *2*	%β^-=100; %β^-n=?; %β^-2n=?
		Theoretical $T_{1/2}$=151 ms, %β^-n=55.6, %β^-2n=0.0 (2003Mo09).
		E(level): measured half-life is assumed to correspond to the ground state of ^{111}Nb.
		J^π: 5/2$^+$ from syst (2012Au07); 5/2$^-$ from theoretical predictions (1997Mo25).
		$T_{1/2}$: measured by 2015Lo04 from (implanted ions)β correlated curves in time and position using maximum likelihood method. Other: 51 ms +6−5 from ion-β correlations (2011Ni01). See 2015Lo04 for comparison of their experimental value with theoretical values.