Adopted Levels

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

Q(β^-)=11140 *SY*; S(n)=5000 *SY*; S(p)=14170 *SY*; Q(α)=−10300 *SY* 2012Wa38
Estimated uncertainties: ΔQ(β^-))=710, ΔS(n)=500, ΔS(p)=640, ΔQ(α)=570 (2012Wa38).
Q(β^-n)=7620 *400*, S(2n)=8620 *450*, S(2p)=31610 *640* (syst,2012Wa38).
1997Be70 (also 1995CzZZ report): ^{117}Tc produced in Be(^{238}U,F), E=750 MeV/nucleon reaction and identification by time-of-flight at GSI. A total of three events were observed.
2008Be33: ^{117}Tc produced in ^{9}Be(^{136}Xe,X),E=1 GeV/nucleon, measured production σ at GSI.
2011Ni01: ^{117}Tc 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 ^{117}Tc 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 ^{117}Tc 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: ^{117}Tc 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 ^{117}Tc 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 ^{117}Tc 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 calculation of $T_{1/2}$ and %β^-n.

^{117}Tc Levels

E(level)	$T_{1/2}$	Comments
0	44.5 ms *30*	%β^-=100; %β^-n=?; %β^-2n=? Theoretical $T_{1/2}$=39.9 ms, %β^-n=25.2, %β^-2n=0.0 (2003Mo09). E(level): measured half-life is assumed to correspond to the ground state of ^{117}Tc. J^π: 3/2$^-$ from systematic trend (2012Au07), 5/2$^+$ in theoretical consideration (1997Mo25). $T_{1/2}$: measured by 2015Lo04 from (implanted ions)β correlated curves in time and position using maximum likelihood method. Other: 89 ms *+95−30* (2011Ni01, from the analysis of the (ion)β-correlated decay curve). See 2015Lo04 for comparison of their experimental value with theoretical values.