Adopted Levels

History Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Michael Birch	ENSDF	30-Sep-2013

Q(β^-)=5580 *SY*; S(n)=4720 *SY*; S(p)=8550 *SY*; Q(α)=−850 *SY* 2012Wa38
Estimated uncertainties in 2012Wa38: 400 for Q(β^-), 500 for S(n), 640 for S(p), 500 for Q(α).
S(2n)=10890 *410* (syst,2012Wa38), S(2p)=19560 (1997Mo25, theory).
2009St16, 2008StZY thesis: ^{178}Tm nuclide identified in the reaction ^{9}Be(^{208}Pb,X) with a beam energy of 1 GeV/nucleon produced by the SIS-18 accelerator at GSI facility. Target thickness=2.5 g/cm^2. Fragments identified in flight by the Fragment Separator (FRS) operated in achromatic mode based on time of flight, Bρ and energy loss. Data collected on six FRS magnetic rigidity settings centered on: ^{206}Hg, ^{203}Ir, ^{202}Os,^{199}Os, ^{192}W, and ^{185}Lu. Nuclides halted in a passive stopper surrounded by the RISING array in "Stopped Beam" configuration.
2012Ku26: ^{178}Tm produced and identified in ^{9}Be(^{238}U,F), E=1 GeV/nucleon reaction using SIS-18 synchrotron facility at GSI. Target=1.6 g/cm^2 ^{9}Be placed at the entrance of projectile Fragment Separator (FRS). Particle identification was achieved by event-by-event in-flight analysis of time-of-flight, energy loss measurement, and magnetic rigidity (TOF-ΔE′-Bρ). Time-of-flight measured using two plastic scintillation detectors, energy loss or deposit by ionization chambers (MUSIC), and magnetic rigidity by four time-projection chambers (TPC), which also provided energy deposit information. Isomer tagging method for known μs isomers was used to verify event-by-event identification and in-flight separation of new isotopes. Gamma rays from the known isomers were recorded in coincidence with the incoming ions using either the RISING array of Ge detectors at GSI or only two Ge detectors, a stopper foil and a scintillator for veto signal. Measured production cross section. Comparison of measured σ with predictions from ABRABLA model and EPAX-3 model.
Earlier secondary report:
2000PoZY: ^{178}Tm produced in ^{9}Be(^{208}Pb,X) at 1 GeV/nucleon at GSI facility. Many of the authors are the same as in 2009St16 and 2012Ku26.

^{178}Tm Levels

E(level)	$T_{1/2}$	Comments
0	>300 ns	%β^-=? The β^- decay is the only decay mode expected. Approximate number of nuclei implanted in the plastic stopper reported to be 140 *10* (2009St16,2008StZY)). E(level): the observed fragments are assumed to be in the ground state of ^{178}Tm nuclei. $T_{1/2}$: lower limit from approximate time-of-flight as given in 2008StZY, which also noted it was <<3.4 μs. Actual half-life is expected to be much longer as suggested by the calculated value of 61.4 s for β decay (1997Mo25), and the systematic value of 30 s (2012Au07). J^π: $1/2^+$ for proton and $1/2^-$ neutron configuration predicted in 1997Mo25 calculations. Production σ=24 nb *3* (2012Ku26).