^{105}Te α decay (0.62 μs) 2006Li41,2006Se08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	15-Oct-2007

Parent: ^{105}Te: E=0.0; J^{π}=(5/2$^+$); $T_{1/2}$=0.62 μs *7*; Q(α)=4889 *6*; %α decay≈100.0

^{105}Te-$T_{1/2}$: from 2006Li41. Other: 0.70 μs *+25−17* (2006Se08) from 13 events in α spectrum.

^{105}Te-Q(α): deduced from Eα=4703 *5* (2006Li41). Other: 4900 *50* from Eα=4720 *50* (2006Se08). 2003Au03 give 4640 *590* from systematics.

^{105}Te-%α decay: α decay branching is not known, 2006Se08 assumed 100% α branch in the calculation of reduced α decay width.

2006Li41: ^{105}Te produced in α decay chain of ^{109}Xe. ^{109}Xe was produced and identified in ^{54}Fe(^{58}Ni,3n) reaction at E(^{58}Ni)=220,225 MeV in a fusion-evaporation reaction, followed by mass separation of A=109 products were using Recoil Mass Spectrometer at the Holifield Radioactive Ion Beam facility. The fragments were separated according to the ratio of atomic mass and ionic charge. The separated ion beam passed through the mylar film of a microchannel plate counter and then implanted into (at an energy of ≈60 MeV) into a double-sided silicon strip detector (DSSD). Sequence of α-α decay events with a certain time selection with the implanted events were recorded, from which ^{109}Xe was unambiguously identified. Measured isotopic half-life, Eα, Iα.

2006Se08: ^{105}Te isotope produced and identified in ^{50}Cr(^{58}Ni,3n) reaction at E=2224, 214 and 204 MeV. The reaction products were separated from the beam according to mass/charge ratio in the Fragment Mass Analyzer (FMA) at Argonne. The recoils were implanted in a double-sided Si strip detector (DSSD). Measured α decay spectrum and isotopic half-life. A total of 13 counts were observed in the α spectrum from A=105 just above 4500 keV. The corresponding cross section is ≈ 10 nb for beam energies of 204 and 214 MeV. No events were seen for beam energy of 224 MeV.

^{101}Sn Levels

E(level)	J^{π}	Comments
0	(5/2$^+$)	J^{π}: from 'Adopted Levels'.

α radiations

Eα	E(level)	Iα[†]	Comments
4703 *5*	0	≈100	Eα: from 2006Li41. Other: 4720 *50* (2006Se08). Reduced α-decay width: δ^2/(δ^2 for ^{212}Po)=2.0 *3* (2006Li41). Assuming 100% α branch for ^{105}Te, reduced width δ^2=0.23 MeV $^{10-14}$ (2006Se08).

[†] For absolute intensity per 100 decays, multiply by ≈1.