Adopted Levels:tentative

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	31-Jan-2021

S(n)=14890 *CA*; S(p)=80 *CA*; Q(α)=5720 *CA* 2019Mo01

S(2n)=27660, S(2p)=−2130, Q(ε)=9890 (theory, 2019Mo01).

Q(α)=5075 keV *166* from measured Eα=4880 MeV *160*.

2018Au04: ^{104}Te nuclide from ^{108}Xe α decay, the latter produced and identified through ^{108}Xe → ^{104}Te → ^{100}Sn α-decay chain observed in the study of ^{54}Fe(^{58}Ni,4n)^{108}Xe, E=245 MeV reaction at the ATLAS-ANL facility. Measured two recoil-α correlated events, Eα emitted by ^{108}Xe and ^{104}Te, and α-decay half-lives of both the isotopes.

2019Xi06: ^{104}Te nuclide from ^{108}Xe α decay, the latter produced and identified through ^{108}Xe → ^{104}Te → ^{100}Sn α-decay chain observed in the study of ^{54}Fe(^{58}Ni,4n)^{108}Xe, E=250 MeV reaction at the Japan Atomic Energy Agency (JAEA) facility. Two correlated events were observed, but with ambiguous assignment to ^{108}Xe → ^{104}Te → ^{100}Sn α-decay chain. Authors measured energy spectra, implant-decay energy and time correlations, and tentative half-lives of the decays of ^{108}Xe and ^{104}Te. However, no conclusive evidence was found by the authors for the decay chain ^{108}Xe → ^{104}Te → ^{100}Sn within three days of experiment run.

Theoretical calculations: 31 primary reference in the NSR database (available at www.nndc.bnl.gov/nsr/), 21 for nuclear structure and ten for radioactive decay half-lives and other properties.

^{104}Te Levels

Cross Reference (XREF) Flags

A ^{108}Xe α decay (54 μs)

E(level)	J$^\pi$	T$_{1/2}$	XREF	Comments
0?	0$^+$	<18 ns	A	%α≈100 (2018Au04); %2p=? %α decay assumed as 100% in 2018Au04. From theoretical β-decay half-life of 378.2 ms and α-decay half-life of 1.4 ps (2019Mo01), ε+β^+ decay is expected to be negligible. However, 2p decay mode is possible from theoretical S(2p)(^{104}Te)=−2130 keV (2019Mo01). 2018Au04 reported observation of two recoil-α correlated events, which were assigned to ^{108}Xe → ^{104}Te → ^{100}Sn α-decay chain, and on this basis half-lives of decays of ^{108}Xe and ^{104}Te were deduced. 2019Xi06 also reported observation of two recoil-α correlated events, but with inconclusive assignment to ^{108}Xe → ^{104}Te → ^{100}Sn α-decay chain, as according to the authors the two events could also be due to β-delayed proton emission from more abundant radioactive isotopes. T$_{1/2}$: from analysis of second derivative of DSSD traces of the two events, corresponding to ^{108}Xe – ^{104}Te pileup events (2018Au04). Other: T$_{1/2}$<4 ns (2019Xi06, analysis of the second derivative of either trace of the two events, but no pileup was observed). Eα=4880 keV *160*, weighted average of measured Eα=4.73 MeV *24* for the first event, and 5.06 MeV *25* for the second event in 2018Au04; and 4872 keV *160* in 2019Xi06.