

^{99}Sn ϵp decay (24 ms) 2018Pa20

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, Balraj Singh		NDS 164, 1 (2020)	15-Feb-2020

Parent: ^{99}Sn : $E=0$; $T_{1/2}=24$ ms 4; $Q(\epsilon\text{p})=4400$ SY; $\% \epsilon\text{p}$ decay=3.9 26

^{99}Sn - $T_{1/2}$: Measured by 2018Pa20, using maximum likelihood method (MLH) for (implant)(positron)-correlated decay curve, where the fit function contained the parent, β -daughter, and βp -daughter decay components with half-lives and $\% \beta\text{p}$ branching ratios, and a constant background for random correlations.

^{99}Sn - $Q(\epsilon\text{p})$: 4400 300 (syst,2017Wa10).

^{99}Sn - $\% \epsilon\text{p}$ decay: Measured $\% \beta^+ \text{p}=3.9 +34-17$ for ^{99}Sn decay (2018Pa20).

2018Pa20: ^{99}Sn nuclide produced at RIBF-RIKEN facility in $^9\text{Be}(^{124}\text{Xe},\text{X})$ reaction at $E=345$ MeV/nucleon with target thickness of 740 mg/cm². Identification of ^{99}Sn 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 first on magnetic rigidity ($B\rho$), and energy loss (ΔE) using BigRIPS separator and, in the second stage by $B\rho$ -tof- ΔE measurement in the later stages of BigRIPS separator and ZeroDegree spectrometer (ZDS) using position-sensitive parallel-plate avalanche counters, plastic scintillators, and a gas-filled ionization chamber. The flight time through the separation and identification systems ranged from 600 to 630 ns depending on A and Z . The separated nuclei were implanted in a wide range segmented silicon-strip stopper array for ion and β particle detection system WAS3ABi, consisting of three highly-segmented 1 mm thick double-sided silicon strip detectors (DSSSDs). $Q(\beta)$ value was measured using ten single-sided segmented strip detectors (SSSSDs) placed farther downstream. Measured (implant) β correlated decay curve, with a time correlation window of 5 seconds before and after ion implantation. The EURICA array was used for gamma-ray detection in coincidence with β particles and implants. No beta-delayed γ rays were observed in the decay of ^{99}Sn . Events for proton emission were separated from the positron events by requiring a minimum of 1500 keV energy deposited in a single pixel of a DSSSD. Details of the decay scheme are not available.