

$^{108}\text{Y} \beta^-$ decay (30 ms) 2011Su11

Type	History		Literature Cutoff Date
	Author	Citation	
Full Evaluation	Balraj Singh	ENSDF	10-Jun-2015

Parent: ^{108}Y : $E=0$; $T_{1/2}=30$ ms 5; $Q(\beta^-)=14060$ SY; $\% \beta^-$ decay=100.0

^{108}Y - $T_{1/2}$: From ^{108}Y Adopted Levels.

^{108}Y - $Q(\beta^-)$: 14060 720 (syst,2012Wa38).

^{108}Y - $\% \beta^-$ decay: β^- decay mode is expected to be 100%, with the possibility of delayed neutron decay (theoretical $\% \beta^- n=1.5$ (1997Mo25)).

2011Ni01: ^{108}Y nuclide produced in $\text{Be}(^{238}\text{U},\text{F})$ reactions at $E=345$ MeV/nucleon produced by the cascade operation of the RBIF complex of accelerators at RIKEN. Target=550 mg/cm². Identification of ^{108}Y 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 ^{108}Y 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.

2011Su11: Produced at the radioactive isotope beam factory (RIBF) of the RIKEN Nishina Center via the in-flight fission of ^{238}U beams having an energy of 345 MeV/nucleon. Used 3 mm thick Be production target and BigRIPS Iy-beam separator to separate the fission fragments. Beam particles identified using the magnetic rigidity, $B\rho$, time-of-flight, and energy loss which was determined by the focal plane detectors of BigRIPS and the ZeroDegree spectrometer. Identified particles were implanted in nine stacked double-sided silicon strip detectors (DSSD) surrounded by two LaBr_3 detectors and four Compton-suppressed clover-type Ge detectors each having a plastic scintillation detector in front to eliminate background in γ -ray spectrum caused by β -ray events by taking an anticoincidence. β -decay events selected using position and time correlations between implantation and β -ray events.

2015Lo04: ^{108}Y nuclide produced at RIBF-RIKEN facility in $^9\text{Be}(^{238}\text{U},\text{F})$ reaction at $E=345$ MeV/nucleon with an average intensity of 6×10^{10} ions/s. Measured half-life of ^{108}Y .

 ^{108}Zr Levels

<u>E(level)</u>	<u>J^π†</u>
0	0 ⁺
173.7	(2 ⁺)
521.6	(4 ⁺)

† From Adopted Levels.

 $\gamma(^{108}\text{Zr})$

<u>E_γ</u>	<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>
173.7 [†]	173.7	(2 ⁺)	0	0 ⁺
347.9 [†]	521.6	(4 ⁺)	173.7	(2 ⁺)

† Assignment based on detection of 174- and 348-keV gamma ray peaks and the observed smooth transition in relevant energy levels from ^{100}Zr to ^{106}Zr (2011Su11).

$^{108}\text{Y} \beta^-$ decay (30 ms) 2011Su11Decay Scheme