^{106}Y β^- decay (79 ms) 2011Su11,2011Ni01

History

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

Parent: ^{106}Y: E=0; $T_{1/2}$=79 ms *+10−5*; Q(β^-)=12860 *SY*; %β^- decay=100.0

^{106}Y-E: It is assumed that the observed activity corresponds to the g.s. of ^{106}Y.

^{106}Y-J$^\pi$: 2^+,3^+ proposed in 2011Su11 based on comparison with J^π of ^{108}Nb g.s.

^{106}Y-$T_{1/2}$: From ^{106}Y Adopted Levels.

^{106}Y-Q(β^-): 12860 *540* (syst,2012Wa38).

^{106}Y-%β^- decay: β^- decay mode is expected to be 100%, with the possibility of delayed neutron decay (theoretical %β^-n=0.7 (1997Mo25)).

1997Be70: ^{106}Y first produced in Pb(^{238}U,F), E=750 MeV/nucleon. Identification by time-of-flight, FRS at GSI facility. No other properties of this decay were determined in this work.

2011Ni01: ^{106}Y nuclide produced in Be(^{238}U,F) reactions at E=345 MeV/nucleon produced by the cascade operation of the RIBF complex of accelerators at RIKEN. Target=550 mg/cm^2. Identification of ^{106}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 ^{106}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 (also 2013Su08): same experimental arrangement as in 2011Ni01. β-decay events selected using position and time correlations between implantation and β-ray events. Measured Eγ, Iγ, $\gamma\gamma$, $\beta\gamma$ coin.

2015Lo04: ^{106}Y nuclide produced at RIBF-RIKEN facility in ^{9}Be(^{238}U,F) reaction at E=345 MeV/nucleon with an average intensity of 6×10^{10} ions/s. Measured half-life of ^{106}Y.

^{106}Zr Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
0.0	0^+	191 ms *19*	$T_{1/2}$: from Adopted Levels.
152.1 *5*	(2^+)		
476.5 *7*	(4^+)		
607.0 *5*	(2^+)		Transition from this level to the first 2^+ state is expected, but no γ-ray peak was observed at 455 keV due to low statistics (2011Su11).

[†] From Eγ data, assuming ΔEγ=0.5 keV.

[‡] From systematics of yrast levels in even-even Zr nuclei (2011Su11).

$\gamma(^{106}Zr)$

E$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
152.1	152.1	(2^+)	0.0	0^+
324.4	476.5	(4^+)	152.1	(2^+)
607.0	607.0	(2^+)	0.0	0^+

[†] Assignment of γ rays based on $\beta\gamma$ and $\gamma\gamma$ coin data (2011Su11).

^{106}Y β^- decay (79 ms) 2011Su11,2011Ni01

Decay Scheme