

Adopted Levels

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

$Q(\beta^-)=14060$  SY;  $S(n)=3000$  SY;  $S(p)=15690$  SY;  $Q(\alpha)=-11650$  CA [2012Wa38,1997Mo25](#)

$Q(\alpha)$  from [1997Mo25](#);  $Q(\beta^-)$ ,  $S(n)$ ,  $S(p)$  from [2012Wa38](#).

Estimated uncertainties ([2012Wa38](#)): 720 for  $Q(\beta^-)$ , 780 for  $S(n)$ ; 920 for  $S(p)$ , 640 for  $Q(\alpha)$ .

$S(2n)=7390$  780,  $Q(\beta^-n)=8900$  670 (syst,[2012Wa38](#)).  $S(2p)=33620$  (theory,[1997Mo25](#)).

[2010Oh02](#):  $^{108}\text{Y}$  nuclide identified in  $\text{Be}(^{238}\text{U},\text{F})$  and  $\text{Pb}(^{238}\text{U},\text{F})$  reactions with a  $^{238}\text{U}^{86+}$  beam energy of 345 MeV/nucleon produced by the cascade operation of the RBIF accelerator complex of the linear accelerator RILAC and four cyclotrons RRC, fRC, IRC and SRC. Identification of  $^{109}\text{Y}$  nuclei was made on the basis of magnetic rigidity, time-of-flight and energy loss of the fragments using BigRIPS fragment separator. Experiments performed at RIKEN facility. Based on A/Q spectrum and Z versus A/Q plot, 122 counts in one setting and 10 counts in another were assigned to  $^{108}\text{Y}$  isotope. (Q=charge state).

[2011Ni01](#):  $^{108}\text{Y}$  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/cm<sup>2</sup>. Identification of  $^{105}\text{Y}$  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  $\beta$  rays. The half-life of  $^{108}\text{Y}$  isotope was measured from the correlated ion- $\beta$  decay curves and maximum likelihood analysis technique. In the analysis of the decay curve,  $\beta$ -detection efficiency, background rate, daughter and granddaughter (including those populated in delayed neutron decays) half-lives, and  $\beta$ -delayed neutron emission probabilities were considered. Comparison of measured half-lives with FRDM+QRPA and KTUY+GT2 calculations.

[2015Lo04](#):  $^{108}\text{Y}$  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  $6 \times 10^{10}$  ions/s. Identification of  $^{108}\text{Y}$  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 on magnetic rigidity, time-of-flight and energy loss. The separated nuclei were implanted at a rate of 50 ions/s in a stack of eight double-sided silicon-strip detector (WAS3ABi), surrounded by EURICA array of 84 HPGe detectors. Correlations were recorded between the implanted ions and  $\beta$  rays. The half-life of  $^{108}\text{Y}$  isotope was measured from the correlated ion- $\beta$  decay curves and maximum likelihood analysis technique as described in [2014Xu07](#). Comparison of measured half-lives with FRDM+QRPA, KTUY+GT2 and DF3+CQRPA theoretical calculations.

Other:

[1995CzZZ](#): preliminary report suggesting formation of  $^{108}\text{Y}$  (figure 2 in [1995CzZZ](#)) produced in  $^{208}\text{Pb}(\text{U},\text{F})$  reaction at  $E=750$  MeV/nucleon; on-line fragment separator at GSI; time of flight and energy loss technique. However, this isotope was not listed in authors' later publications of the same or similar studies: [1997Be70](#) and [1997Be12](#). This would suggest that identification of  $^{108}\text{Y}$  was probably uncertain in this study.

[2013Fa05](#): calculated half-life, delayed neutron emission probability.

 $^{108}\text{Y}$  Levels

E(level)	$T_{1/2}$	Comments
0	30 ms 5	$\% \beta^- = 100$ ; $\% \beta^- n = ?$ ; $\% \beta^- 2n = ?$ Theoretical $\% \beta^- n = 34.8$ , $\% \beta^- 2n = 2.4$ ( <a href="#">2003Mo09</a> ). E(level): measured half-life is assumed to correspond to the ground state of $^{108}\text{Y}$ . $J^\pi$ : $5/2^+$ proton and $7/2^-$ neutron orbital from theoretical considerations ( <a href="#">1997Mo25</a> ). $T_{1/2}$ : from <a href="#">2015Lo04</a> (ion- $\beta$ correlated curve). Other: 25 ms +66-10 ( <a href="#">2011Ni01</a> , ion- $\beta$ -correlated curve). Measured $\sigma = 97$ pb ( <a href="#">2010Oh02</a> ), systematic uncertainty $\approx 40\%$ .