

Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. Morse	NDS 182, 167 (2022)	14-Sep-2021

$Q(\beta^-)=-3217$  SY;  $S(n)=5523$  SY;  $S(p)=3793$  SY;  $Q(\alpha)=9.95 \times 10^3$  7    [2021Wa16](#)

$\Delta Q(\beta^-)=929$ ,  $\Delta S(n)=918$ ,  $\Delta S(p)=866$  ([2021WA16](#)).

$S(2n)=12606$  SY 801,  $S(2p)=6482$  SY 866 ([2021WA16](#)).

$^{289}\text{Fl}$  has been reported as the product of the  $^{244}\text{Pu}(^{48}\text{Ca},3n)$  reaction at JINR ([2000OG05](#),[2004OG07](#)) and GSI

([2010DU06](#),[2011GA19](#)); as the  $\alpha$ -decay daughter of  $^{293}\text{Lv}$  at JINR ([2017KA66](#)), at GSI ([2012HO12](#)), and at RIKEN ([2017KA66](#)); and in a chemistry experiment using a gas chromatography system at GSI ([2014YA33](#)). In all cases,  $^{289}\text{Fl}$  was identified as a member of a chain of  $\alpha$ -decaying nuclei terminated by spontaneous fission. Identification of the isotopes in the chains was based on the comparison of the observed decay properties with those of previously known nuclei.

Note: [2000OG05](#), [2001OG01](#), and [2002OG09](#) identify  $^{289}\text{Fl}$  as  $^{288}\text{Fl}$ , but this assignment was later revised.

Other: [1999OG10](#) reports one chain assigned to  $^{289}\text{Fl}$ , but the decay properties of this chain have not been reproduced in subsequent publications.

Half-lives, branching ratios, and  $\alpha$ -decay energies in this evaluation have been computed from the individual events listed in the references above. Half-life uncertainties have been computed according to the method of [1984SC13](#). An additional 10 keV systematic uncertainty is assumed for the  $\alpha$ -decay energies, which is added in quadrature to the averaged statistical uncertainty.

 $^{289}\text{Fl}$  LevelsCross Reference (XREF) Flags

**A**     $^{293}\text{Lv}$   $\alpha$  decay (95 ms)

E(level)	T <sub>1/2</sub>	XREF	Comments
0	2.4 s +8-5	<b>A</b>	% $\alpha$ =100; %SF<6 E(level): Assumed ground state. T <sub>1/2</sub> : From 15 events.