

### 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).

<sup>289</sup>Fl has been reported as the product of the <sup>244</sup>Pu(<sup>48</sup>Ca,3n) reaction at JINR (2000OG05,2004OG07) and GSI

(2010DU06,2011GA19); as the  $\alpha$ -decay daughter of <sup>293</sup>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, <sup>289</sup>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 <sup>289</sup>Fl as <sup>288</sup>Fl, but this assignment was later revised.

Other: 1999OG10 reports one chain assigned to <sup>289</sup>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.

### <sup>289</sup>Fl Levels

#### Cross Reference (XREF) Flags

A <sup>293</sup>Lv  $\alpha$  decay (95 ms)

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