

Adopted Levels

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

$Q(\beta^-)=-4807$  SY;  $S(n)=6546$  SY;  $S(p)=3502$  SY;  $Q(\alpha)=9274$  SY [2021Wa16](#)

$\Delta Q(\beta^-)=338$ ,  $\Delta S(n)=327$ ,  $\Delta S(p)=404$ ,  $\Delta Q(\alpha)=167$  ([2021WA16](#)).

$S(2n)=14307$  SY [162](#),  $S(2p)=5891$  SY [292](#),  $Q(\epsilon p)=405$  SY [487](#) ([2021WA16](#)).

$^{269}\text{Hs}$  has been observed as the  $\alpha$ -decay daughter of  $^{273}\text{Ds}$  at GSI ([1996HO13,2002HO11](#)) and RIKEN ([2007MO09,2013SU04](#));

and in gas-phase chemistry experiments at GSI ([2002DU21,2004VO24,2006DV01,2008DV02](#)). Chains of  $\alpha$ -decaying nuclei were observed, and comparison of the decay properties of the chains with those in the literature allowed individual decays to be assigned to specific nuclei.

[1996HO13](#) reports two decay chains, but a reanalysis of the data in [2002HO11](#) showed that one of the chains was reported in error.

[2006DV01](#) suggests that all studies prior to that work that identify  $^{270}\text{Hs}$  have actually observed  $^{269}\text{Hs}$ , based on a previously unknown isomer in  $^{261}\text{Rf}$ .

[1996LA12](#) claims observation of several chains that should decay through  $^{269}\text{Hs}$ , but the decay properties do not seem to agree with other 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.

 $^{269}\text{Hs}$  LevelsCross Reference (XREF) Flags

**A**  $^{273}\text{Ds}$   $\alpha$  decay (0.19 ms)

<u>E(level)</u>	<u><math>T_{1/2}</math></u>	<u>XREF</u>	<u>Comments</u>
0	13 s $+10^{-4}$	<b>A</b>	$\% \alpha=100$ ; $\% \text{SF}<5$ E(level): Assumed ground state. $T_{1/2}$ : From five events.