Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. Morse	NDS 182, 130 (2022).	14-Sep-2021

Q(β^-)=−2697 *SY*; S(n)=5298 *SY*; S(p)=4032 *SY*; Q(α)=10107 *SY* 2021Wa16
ΔQ(β^-)=737, ΔS(n)=791, ΔS(p)=837, ΔQ(α)=117 (2021WA16).
S(2n)=12211 SY *721*, S(2p)=6929 SY *752* (2021WA16).

^{279}Ds has been observed as the α-decay daughter of ^{283}Cn at JINR (2004OG07,2004OG12,2006OG05), GSI (2007HO18), LBNL (2009ST21), and RIKEN (2017KA31); and in gas-phase chemistry experiments at JINR (2007EI03,2008EI03,2010EI01). Events were identified by the observation of chains of α decaying nuclei correlated in time and position, and terminated by spontaneous fission. The observed decay properties of the chains were compared to those known in the literature in order to assign specific decays to known nuclei.

Two events were observed in 2004OG12 where ^{283}Cn decays with α-particle energies which are consistent with each other but inconsistent with the average of all other events. These events are suggested to populated an excited state in ^{279}Ds, and this interpretation is adopted here. A third event from this work having even lower α-particle energy is suggested to populate an additional excited state, but this interpretation is not adopted without a second event to confirm it.

2016HO09 revises the assignment of chain #1 in 2012HO12 to have ^{291}Lv as its progenitor, which decays through ^{283}Cn. 2016HO09 also suggests that the "missing α" events in 2004OG12 are actually spontaneous fission of ^{283}Cn. This revision is adopted here except for the third entry in Table III of 2004OG12.

Half-lives, branching ratios, and α-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 α-decay energies, which is added in quadrature to the averaged statistical uncertainty.

^{279}Ds Levels

Cross Reference (XREF) Flags

A ^{283}Cn α decay (4.6 s)

E(level)	$T_{1/2}$	XREF	Comments
0	0.216 s *+47−33*	A	%α=12.5; %SF=88.5 E(level): Assumed ground state. $T_{1/2}$: From 31 events. Note that this excludes the 4-second decay time in the reassigned chain from 2016HO09.
1.9×10^2 *5*	0.17 s *+30−7*	A	%SF=100; %$\alpha\leq$33.3 E(level): From difference between two groups of α decays (28 events and 2 events). $T_{1/2}$: From two events.