

¹⁵⁹Pm β⁻ decay (1.634 s) 2005Ic02

Type	History		Literature Cutoff Date
	Author	Citation	
Full Evaluation	Balraj Singh	ENSDF	07-June-2023

Parent: ¹⁵⁹Pm: E=0; J^π=(5/2⁻); T_{1/2}=1.634 s 42; Q(β⁻)=5653 12; %β⁻ decay=100

¹⁵⁹Pm-J^π,T_{1/2}: From ¹⁵⁹Pm Adopted Levels.

¹⁵⁹Pm-Q(β⁻): From 2021Wa16.

2005Ic02 (also 2001AsZY,2000IcZZ,1998IcZZ): ¹⁵⁹Pm produced in ²³⁸U(p,F),E(p)=15.5 MeV reaction at the JAERI-ISOL facility, and identified through mass separation and the genetic relationship to ¹⁵⁹Sm. 2007Ha57 (also 2003ShZU) from the same experimental group measured Q(β⁻) value for the decay of ¹⁵⁹Pm using total-absorption γ-ray spectroscopy.

Half-life of the g.s. of ¹⁵⁹Pm has also been measured by 2017Wu04 and 2022Ki23; see ¹⁵⁹Pm Adopted Levels.

¹⁵⁹Sm Levels

E(level)	J ^π †	T _{1/2} †	Comments
0.0	5/2 ⁻	11.37 s 15	Bandhead of ν5/2[523] band, as in the Adopted Levels.
71.8	(7/2 ⁻)		Level, deexciting by a 71.8γ, proposed by 2001AsZY, based on predicted energy of 70 keV for the 7/2 ⁻ member of ν5/2[523] band. Note that in the follow-up primary article by 2005Ic02 by the same group as 2001AsZY, this level was not reported. This level has not been seen in ¹⁵⁹ Sm IT decay (2017Pa25), and in ²⁵² Cf SF decay (2009Ur04 and 2008Hw03), perhaps, due to weak population of unfavored signature partner of the ν5/2[523] band.

† From the Adopted Levels.

γ(¹⁵⁹Sm)

E _γ	E _i (level)	J _i ^π	E _f	J _f ^π	Comments
71.8	71.8	(7/2 ⁻)	0.0	5/2 ⁻	This γ in coin with Sm x-rays (2005Ic02). See comment for the 71.8 level.
^x 261.3					This γ in coin with Sm x-rays (2005Ic02).

^x γ ray not placed in level scheme.

 $^{159}\text{Pm} \beta^- \text{ decay (1.634 s)} \quad 2005\text{Ic}02$ Decay Scheme