

Adopted Levels, Gammas

Type	History		Literature Cutoff Date
	Author	Citation	
Full Evaluation	Balraj Singh	ENSDF	04-Jun-2021

$Q(\beta^-)=4381$ 8; $S(n)=6202$ 7; $S(p)=9384$ 7; $Q(\alpha)=-3154$ 14 [2021Wa16](#)

$S(2n)=11500$ 8, $S(2p)=21460$ 19 ([2021Wa16](#)).

[1987Gr12](#), [1987An03](#): ^{157}Pm nuclide identified as a fission fragment from ^{252}Cf SF decay at the INEL-ISOL facility, Idaho Falls.

Measured half-life of the decay of the g.s. of ^{157}Pm , γ and β radiations. Later studies of the decay of ^{157}Pm by the same experimental group at Idaho Falls: [1990An31](#), [1996Gr20](#), [1997Gr09](#).

[Additional information 1](#).

Mass measurement: [2012Va02](#).

Theoretical structure calculations: [2020Ra13](#), [2019Li55](#), [2018Bu13](#), [2017Sa02](#).

All data for excited states are from $^9\text{Be}(^{238}\text{U}, F\gamma)$ ([2018Bh07](#)).

 ^{157}Pm LevelsCross Reference (XREF) Flags

A $^9\text{Be}(^{238}\text{U}, F\gamma)$

E(level)	$J^\pi^\dagger$	$T_{1/2}$	XREF	Comments
0.0 ‡	(5/2 $^-$)	10.56 s 12	A	$\% \beta^- = 100$ J^π : assigned as the $\pi 5/2[532]$ state in analogy to the ground state of ^{153}Pm (1990Ja11). This assignment is consistent with the log ft values of ≈ 5.5 to a (3/2 $^-$) level and ≈ 6.0 to a (5/2 $^-$) level in the daughter nucleus ^{157}Sm . $T_{1/2}$: weighted average of 10.50 s 12 (1990An31 , earlier half-life of 10.90 s 20 in 1987Gr12 from K x-ray and γ decay curves) and 10.66 s 16 (1992Sh32). Note that 1992Sh32 is a secondary reference (an annual laboratory research report).
66.0 $^\#$ 2	(7/2 $^-$)		A	
151.0 ‡ 3	(9/2 $^-$)		A	
254.0 $^\#$ 3	(11/2 $^-$)		A	
379.0 ‡ 3	(13/2 $^-$)		A	
518.0 $^\#$ 4	(15/2 $^-$)		A	
683.0 ‡ 4	(17/2 $^-$)		A	
855.0 $^\#$ 4	(19/2 $^-$)		A	
1062.0 ‡ 5	(21/2 $^-$)		A	
1263.0 $^\#$ 5	(23/2 $^-$)		A	
1515.0 ‡ 6	(25/2 $^-$)		A	
1739.0 $^\#$ 7	(27/2 $^-$)		A	

† As given in [2018Bh07](#), based on band assignment in analogy with similar structure in neighboring odd-A Pm nuclei.

‡ Band(A): $\pi 5/2[532], \alpha = +1/2$.

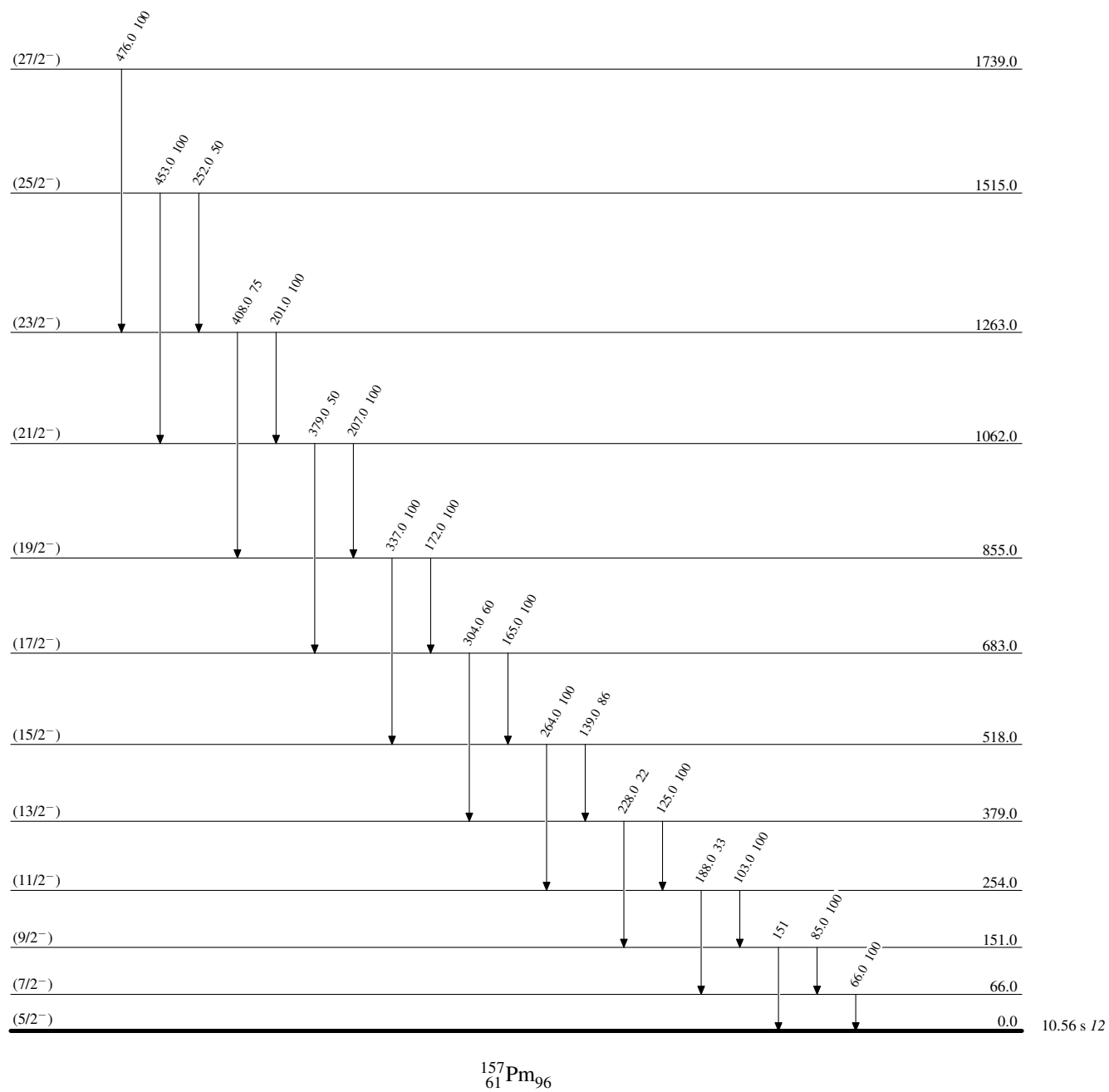
$^\#$ Band(a): $\pi 5/2[532], \alpha = -1/2$.

Adopted Levels, Gammas (continued)

$\gamma(^{157}\text{Pm})$						Comments
$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	
66.0	(7/2 ⁻)	66.0 2	100	0.0	(5/2 ⁻)	Weak γ ray.
151.0	(9/2 ⁻)	85.0 2	100 40	66.0	(7/2 ⁻)	
		151		0.0	(5/2 ⁻)	
254.0	(11/2 ⁻)	103.0 2	100 17	151.0	(9/2 ⁻)	
		188.0 2	33 17	66.0	(7/2 ⁻)	
379.0	(13/2 ⁻)	125.0 2	100 11	254.0	(11/2 ⁻)	
		228.0 2	22 11	151.0	(9/2 ⁻)	
518.0	(15/2 ⁻)	139.0 2	86 29	379.0	(13/2 ⁻)	
		264.0 5	100 29	254.0	(11/2 ⁻)	
683.0	(17/2 ⁻)	165.0 2	100 10	518.0	(15/2 ⁻)	
		304.0 5	60 10	379.0	(13/2 ⁻)	
855.0	(19/2 ⁻)	172.0 2	100 17	683.0	(17/2 ⁻)	
		337.0 5	100 17	518.0	(15/2 ⁻)	
1062.0	(21/2 ⁻)	207.0 2	100 25	855.0	(19/2 ⁻)	
		379.0 5	50 25	683.0	(17/2 ⁻)	
1263.0	(23/2 ⁻)	201.0 2	100 25	1062.0	(21/2 ⁻)	
		408.0 5	75 25	855.0	(19/2 ⁻)	
1515.0	(25/2 ⁻)	252.0 5	50 25	1263.0	(23/2 ⁻)	
		453.0 5	100 50	1062.0	(21/2 ⁻)	
1739.0	(27/2 ⁻)	476.0 5	100	1263.0	(23/2 ⁻)	

Adopted Levels, Gammas**Level Scheme**

Intensities: Relative photon branching from each level



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