Adopted Levels

History						
Туре	Author	Citation	Literature Cutoff Date			
Full Evaluation	Balraj Singh	ENSDF	04-Dec-2019			

 $S(n)=17370 SY; S(p)=-1090 SY; Q(\alpha)=-3350 SY 2017Wa10$

Estimated uncertainties (2017Wa10): 640 for S(n), 570 for S(p) and Q(α).

S(2p)=2170 500, Q(\varepsilon p)=10030 410 (syst, 2017Wa10). S(2n)=32340, S(p)=-300 (theory, 2019Mo01).

2008KrZW, 2011StZV: production and identification of 97 In in 9 Be(124 Xe,X),E=1 GeV/nucleon. Measured yield using Fragment separator, SIMBA implantation detector system and RISING detector array for γ rays. Measured production σ from observed 25 counts assigned to 97 In.

2018Pa20: ⁹⁷In nuclide produced at RIBF-RIKEN facility in ⁹Be(¹²⁴Xe,X) reaction at E=345 MeV/nucleon with target thickness of 740 mg/cm². Identification of ⁹⁷In was made by determining atomic Z and mass-to-charge ratio A/Q, where Q=charge state of the ions. The selectivity of ions was based first on magnetic rigidity (B ρ), and energy loss (Δ E) using BigRIPS separator and, in the second stage by B ρ -tof- Δ E measurement in the later stages of BigRIPS separator and ZeroDegree spectrometer (ZDS) using position-sensitive parallel-plate avalanche counters, plastic scintillators, and a gas-filled ionization chamber. The flight time through the separation and identification systems ranged from 600 to 630 ns depending on A and Z. The separated nuclei were implanted in a wide range segmented silicon-strip stopper array for ion and β particle detection system WAS3ABi, consisting of three highly-segmented 1 mm thick double-sided silicon strip detectors (DSSSDs). Q(β) value was measured using ten single-sided segmented strip detectors (SSSSDs) placed farther downstream. Measured (implant) β correlated decay curve, with a time correlation window of 5 seconds before and after ion implantation. The EURICA array was used for gamma-ray detection in coincidence with β particles and implants. Events for proton emission were separated from the positron events by requiring a minimum of 1500 keV energy deposited in a single pixel of a DSSSD. Production of ⁹⁷In also shown in A/Q versus Z plot in Fig. 1 of 2019Pa16, where a large number of events are assigned to this isotope.

The β -decay correlation fraction was determined as the ratio of the integral of the parent β -decay fit components and the number of implanted ions which did not decay by β p events.

Nuclear structure theoretical calculations: consult the NSR database at www.nndc.bnl.gov.nsr/ for five primary references.

⁹⁷In Levels

E(level)	$J^{\pi \dagger}$	T _{1/2}	Comments
0	(9/2+)	36 ms <i>6</i>	

Adopted Levels (continued)

⁹⁷In Levels (continued)

E(level)	J^{π}	T _{1/2}	Comments
0.61×10 ³ ? <i>CA</i>	(1/2 ⁻)	0.12 ms <i>11</i>	%p=? Isomeric activity proposed by 2018Pa20 from observed β-decay correlation percentage of 50% 4, lower than the expected value of 66% 4, from values obtained from the decays of 91 Pd, 95 Cd, and 99 Sn. In beta-delayed gamma-ray spectrum, a peak at 421 keV was observed with 9 4 counts, with the decay curve giving a half-life of 1.7 s 7, consistent with the tentative assignment of 421γ as a (1 ⁺) to (2 ⁺) transition in 96 Ag from the decay of 96 Cd, as reported by 2011Na34. A strong 421-keV γ was also seen by 2017Da07, and assigned as a low-lying transition in 96 Ag. 2018Pa20 proposed that the isomer decayed by direct proton decay to 96 Cd. E(level): between 568 and 763 keV calculated by 2018Pa20 from shell-model and different interactions. T _{1/2} : 1.3 μs to 230 μs deduced by 2018Pa20, the upper limit from solution of the exponential decay equation with an elapsed time of 600 μs (dead time of WAS3ABi after implantation), and the lower limit from assumption of 2 σ reduction of 97m In counts during the 600-ns flight time through the separator.

 † From shell-model predictions (2018Pa20).