Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 130, 183 (2015)	30-Sep-2015

Q(β^-)=1300 *70*; S(n)=6130 *70*; S(p)=5740 *70*; Q(α)=4310 *70* 2012Wa38

Experimental Studies:

1981Pa20: ^{241}Np produced via ^{238}U(α,p) with Eα=32 MeV and ^{244}Pu(n,p3n) with En=30-160 MeV at the Brookhaven MEIN facility. Irradiation was followed by chemical separation. Decay of ^{241}Np was studied by γ spectroscopy, using a high resolution Ge(Li) detector, and by β emission by a 4π proportional counter. Measured $T_{1/2}$ for ^{241}Np from least squares decay analyses.

1966Qa02: ^{241}Np produced via ^{238}U(α,p) at Nuffield Cyclotron at Birmingham University with Eα=40 MeV. Irradiation was followed by chemical separation. A Geiger counter, anthrracene crystal scintillation β spectrometer, Xe proportional counter, NaI(Tl) detector, and a ZnS-Ag scintillation α counter were used to measure γ and β radiations. The half-life from decay curves for ^{241}Np was 16.0 min *2* with an end-point energy of 1.25 MeV. The 3.4 hour activity reported by 1960Le03 was not detected.

1960Le03:^{241}Np produced via ^{238}U(α,p) at Crocker Laboratory cyclotron with Eα=35 MeV and 48 MeV. Irradiation was followed by chemical and time of flight separation. $\gamma\gamma$ and $\beta\gamma$ coincidences measured with NaI detector. Decay curves identified the 16 min half-life with strong evidence for an isomer with 3.4 hour half-life.

1959Va32: ^{241}Np produced via ^{238}U(α,p) at Argonne cyclotron followed by chemical separation and measured with a 2π and end-window proportional counters. β and γ spectrum were measured with the anthracene crystal and a NaI(Tl) detectors. The beta spectrum end- point energy of the 16 minute component was 1.36 MeV *10* with log*ft* of 5.8.

Theoretical/Systematical Studies:

2004Pa40: Calculated deformation parameters and the proton one quasiparticle states of heaviest nuclei using the macroscopic-microscopic approach. Systematics as function of of neutron number for odd A isotopes in Np were also calculated.

^{241}Np Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	$5/2^+$	13.9 min *2*	%β^-=100 %α<1×10^{-6} given by 1966Qa02, however no α branch was observed in their study. Using the ALPHAD program, evaluator estimated %α <1.7×10^{-14} with the assumption HF ≥4 for a non-favored transition. $T_{1/2}$: From 1981Pa20. Others: 16.0 min *2* (1966Qa02), 16 min (1960Le03,1959Va32). J^π: ^{235}Np, ^{237}Np, and ^{239}Np have the ground-state configuration 5/2[642]. The only other orbital lying within 100 keV of the g.s. configuration for these nuclides is the 5/2[523] orbital, which is the probable configuration for the ^{243}Np g.s. Log*ft* =5.87 *9* for the branch to the 5/2[622] ^{241}Pu g.s. rules out the negative-parity alternative.