Adopted Levels

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson and W. D. Kulp(a)	NDS 129, 1 (2015)	27-Jul-2015

Q(β^-)=10808 *4*; S(n)=4727 *5*; S(p)=1.31×10^4 *SY*; Q(α)=−8786 *4* 2012Wa38
Q(β^-n)=6814 *4* 2012Wa38.
The uncertainty of the proton separation energy value is *300* keV.
2008Ha23: U(p,F), E=25 MeV; measured cyclotron frequency, determined mass excess; IGISOL facility.
1993Ru01: ^{235}U(n,F) E=thermal; measured n, β, n(t), β(t); OSIRIS facility.
1978Cr03: ^{235}U(n,F) E=thermal] measured n, β, n(t), β(t); LOHENGRIN facility.

^{87}As Levels

E(level)	J$^\pi$	T$_{1/2}$	Comments
0.0	(3/2$^-$)	484 ms *40*	%β^-=100; %β^-n=15.4 *22* J$^\pi$: from systematics of the odd-mass arsenic isotopes, see the nuclear-data evaluations for α=77 (1997Fa12), 79 (2002Si13), and 81 (2008Ba34). T$_{1/2}$: There have been several measurements of the half life. In 2013Ma22 a proton beam was provided by the Oak Ridge Isochronous Cyclotron (ORIC) at the HRIBF-ORNL facility with a ^{238}UC$_x$ target. Fission fragment were ionized to charge state +1 then purified using H_2S gas, a mass pre-separator and electromagnetic separation. The purified beams were then sent to the Low-energy Radioactive Ion Beam Spectroscopy Station (LeRIBSS) and implanted in a moving tape collector. Measured Eγ, Iγ, Eβ, $\beta\gamma$-coin, and half-life of the ^{87}As g.s. using two plastic scintillation counters and four HPGe detectors. Comparison with the Gross theory of βeta decay, the finite-range droplet model and the continuum quasiparticle random-phase approximation. The half life was measured from a β-gated time distribution of γ rays in ^{87}Se and ^{86}Se. In 2012Qu01, a ^{136}Xe primary beam, E=120 MeV/nucleon, impinged on a 235 mg/cm^2 Be target. Experiment performed at the NSCL Coupled Cyclotron Facility. Fragments were separated by the A1900 fragment separator using the $\beta\rho$-ΔE-$\beta\rho$ technique. Beta decays measured in the NSCL BETA Counting System (BCS) consisting of four silicon pin detectors, a double sided silicon strip detector and a single sided silicon strip detector. Measured energy loss total kinetic energy, time of flight, and isotopic isotopic half-life. a total of 27 implantions were observed with 12 correlated decay sequences. The value listed in Table I of 2012Qu01 is 1450 ms *550* (systematic) *+3900=1100* (statistical) and used the maximum liklihoood method for the T$_{1/2\ 1/2}$ analysis. However, due to the large uncertainties, this was not included in the weighted average. Finally, the Adopted Value is taken from a weighted average of 0.485 s *40* (1993Ru01), neutron counting measurements, both values, 0.478 s *44* and 0.495 *60* from 2013Ma22 and adopting the smallest uncertainty from that set. Others: ≤ 1.5 s (1967De01), 0.6 s *3*(1970Kr05), ≈ 0.3 s (1973Kr06) 0.73 s *6* (1978Cr03), and 1.5 s *39-12* from maximum-likelihood method (2012Qu01). %β^-n: from 1993Ru01; others: 44% (14) (1978Cr03) which was re-evaluated to 51% (35) in 1993Ru01.