Adopted Levels

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	18-Dec-2015

Q(β^-)=−5360 *SY*; S(n)=6520 *SY*; S(p)=3020 *SY*; Q(α)=9840 *SY* 2012Wa38

Estimated uncertainties (2012Wa38): 220 for Q(β^-), 140 for S(n), 120 for S(p), 100 for Q(α).

S(2n)=14950 *110*, S(2p)=4570 *110*, Q(εp)=2530 *110* (2012Wa38); all values from systematic trend.

2015Kh09: ^{221}U produced in ^{176}Yb(^{50}Ti,5n),E(^{50}Ti^{12+}= 231-255 MeV reaction. The ^{50}Ti^{12+} pulsed beam produced by the UNILAC at GSI. Target=0.45 mg/cm^2 *5* thick $^{176}YbF_3$ mounted on a rotating wheel, synchronized with the beam pulses. Evaporation residues (ER), separated by using gas-filled TransActinide Separator and Chemistry Apparatus (TASCA) with flight time of 0.53 μs *6* through the separator, were implanted in a double-sided silicon strip detector. The events due to radioactive decays of implanted residues were selected from the events related to beam using a multiwire proportional counter (MWPC). Measured Eα, Iα, ER-α correlated events from subsequent α-decay chains, half-lives of parent nuclei corresponding to the evaporation residues, and successive α-decay daughters, the latter identified by their known characteristics in literature. The identification of ^{221}U was made based on observed ER-α, two- or three-signal correlated events using a fast data acquisition and combined analog and digital (CANDI) readout system. A total of 26 ER traces were recorded for ^{221}U and analyzed with subsequent α decay chain: ^{221}U -> ^{217}Th -> ^{213}Ra. FWHM≈40 keV for 8.7 MeV α particles, recorded as single events, ≈110 keV and ≈180 keV for multiple α events stored in a single trace with time differences of 1 μs and 0.17 μs, respectively. Deduced α-decay reduced widths.

Other: 2001Ni06: tentative formation in the ^{221}U+^{217}Th channel in Ce(^{82}Se,X),E(c.m.)=215-253 MeV reaction, with evaporation residue cross-section of 17 to 21.6 nb at energies of 215 to 238 MeV.

Theoretical structure calculations: 2013To12, 2010To07, 2008Ad04.

^{221}U Levels

E(level)	J$^\pi$	T$_{1/2}$	Comments
0	(9/2$^+$)	0.66 μs *14*	%α≈100 Only the α decay observed by 2015Kh09. Decay mode %α≈100 is based on theoretical half-lives of 1.3 μs for α decay and >100 s for β^- decay (1997Mo25). E(level): it is assumed that the 0.66−μs activity corresponds to the ground state of ^{221}U. J$^\pi$: assignment proposed by 2015Kh09 based on systematics, and favored α transitions involving $\nu 2g_{9/2}$ orbital for N=129 nuclei. T$_{1/2}$: from fitting of the ER-α decay correlated curve for the 9710α peak from ^{221}U decay to a single exponential (2015Kh09). Measured Eα=9.71 MeV *5* from the decay of ^{221}U to ^{217}Th (2015Kh09).