^{216}U α decay (0.7 ms) 2015Ma37

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	K. Auranen and E. A. Mccutchan	NDS 168, 117 (2020)	1-Aug-2020

Parent: ^{216}U: E=2240 *42*; $J^{\pi}=(8^+)$; $T_{1/2}$=0.7 ms *+14−3*; Q(α)=8531 *26*; %α decay≈100.0

^{216}U-E: from measured Eα value and assuming that both the observed α groups from the ^{216}U ground state and from this level feed the ground state of ^{212}Th.

^{216}U-J^{π}: based on known α transitions in the decays of ^{214}Th, ^{216}Th and ^{218}U populating an 8^+ state of configuration= $\pi(h_{9/2}\otimes f_{7/2})$. The deduced energy of 2240 keV is in general agreement with energies of the 8^+ isomers at 2181, 2040, and 2105 keV in ^{216}Th, ^{214}Th and ^{218}U, respectively (2015Ma37).

^{216}U-$T_{1/2}$: from implant-α(t) (2015Ma37).

^{216}U-%α decay: assumed %α≈100. Only the α decay has been observed. Isomeric decay is observed in the decay of the (8^+) isomers in ^{214}Th and ^{216}Th.

2015Ma37: ^{216}U activity from ^{180}W(^{40}Ar,4n) reaction with E(^{40}Ar)=189.5 MeV from the Sector-Focusing Cyclotron facility at HIRFL-Lanzhou. Fragments separated with gas-filled recoil separator for heavy ions (SHANS). Measured Eα, $\alpha\alpha$ correlations, implant-α(t) using position-sensitive silicon strip detector surrounded by eight silicon detectors in a box-like arrangement. Six correlated decay chains were observed for the ground state of ^{216}U and two correlated decay chains were observed for an isomeric level in ^{216}U. Results also presented in 2016Zh33.

^{212}Th Levels

E(level)	J^{π}	$T_{1/2}$	Comments
0.0	0^+	31.7 ms *13*	$T_{1/2}$: from the Adopted Levels.

α radiations

Eα	E(level)	Iα[‡]	HF[†]	Comments
10582 *30*	0.0	100	49×10^3 *33*	Eα: From 2015Ma37. HF: assumed 100% α decay from ^{216}U isomer to ^{212}Th g.s.

[†] From r_0=1.488 *35*, deduced by evaluators from g.s. to g.s. α decay of ^{216}U to ^{212}Th.

[‡] For absolute intensity per 100 decays, multiply by ≈1.0.