^{217}Th α decay 2005Ku31,2002He29,2000Ni02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia	NDS 181, 475 (2022)	1-Jan-2022

Parent: ^{217}Th: E=0.0; J^π=(9/2$^+$); $T_{1/2}$=0.252 ms *4*; Q(α)=9435 *4*; %α decay=100.0

^{217}Th-J^π,$T_{1/2}$: From 2018Ko01 (A=217 evaluation). Other $T_{1/2}$=0.249 ms *11* (2019Zh54). Consideration of 2019Zh54 value with the ones in 2018Ko01 yields same $T_{1/2}$=0.252 ms *4*.

^{217}Th-Q(α): From 2021Wa16.

Others: 2005Li17, 2000He17, 1968Va18, 2005YeZZ, and 2008DoZZ.

2005Ku31: ^{217}Th produced through ^{170}Er(^{50}Ti,3n)^{217}Th; E=4.35 A-MeV; Detector: 16-strip PIPS-detector, Ge-Clover detector of 4 crystals; Measured: Eα, Iα, investigated by Evaporation Residues (ER)-γ-α- coincidences.

2002He29: ^{217}Th produced through ^{181}Ta(^{40}Ar,p3n)^{217}Th, Target: 99.988% natural tantalum; E=182 MeV; Detector: 16-strip PIPS-detector, Ge-Clover detector of 4 crystals; Measured: Eα, Iα, α-γ coincidences.

2000Ni02: ^{217}Th produced through ^{198}Pt(^{28}Si,α5n)^{217}Th; E=140-180 MeV; Detector: Double sided strip detector, TOF signal; Measured: Eα, Iα, t, deduced J^π of 818 state.

2000He17: ^{217}Th produced through ^{170}Er(^{50}Ti,3n)^{217}Th; E=215-235 MeV; Detector: 16-strip PIPS-detector, a HPGe detector; Measured: Eα, Iα.

2005Li17: Isotope produced by fragment separator of 1 GeV/u ^{238}U beam; Measured: Eα.

1968Va18: ^{217}Th produced through ^{206}Pb(^{16}O,5n)^{217}Th; E=166 MeV; 97.22% ^{206}Pb isotopes in the target; Detector: Semi; Measured: Eα, $T_{1/2}$.

2005YeZZ: ^{217}Th from ^{181}Ta(^{40}Ar,p3n)^{217}Th; Detector: array of silicon strip, 7 HPGe, time-of-flight detectors; Measured Eα; no γ event was attributed to the decay of ^{217}Pa isomer.

^{213}Ra Levels

E(level)[†]	J^π[‡]	$T_{1/2}$[‡]	Comments
0.0	1/2$^-$	2.73 min *5*	$T_{1/2}$: From Adopted Levels.
545 *6*	(5/2$^-$)	21.5 ps *28*	$T_{1/2}$: From Adopted Levels.
820 *6*	(3/2$^-$)		J^π: From systematics of ^{211}Rn isotone.

[†] Deduced by the evaluator using Q(α)(^{217}Th) and Eα.

[‡] From Adopted Levels, except noted otherwise.

α radiations

Eα	E(level)	Iα[‡]	HF[†]	Comments
8456 *4*	820	3.69 *14*	24 *1*	Eα: Weighted average of 8460 *7* (2005Ku31), 8455 *5* (2002He29), 8459 *15* (2000He17), and 8429 *32* (2000Ni02). Iα: Normalization value of 1.67 *14*: Weighted average of 3.0 *2* (2005Ku31), 3.7 *1* (2002He29), 3.8 *1* (2000He17), and 5.1 *+20−16* (2000Ni02).
8726 *4*	545	1.65 *8*	283 *16*	Eα: Weighted average of 8727 *8* (2005Ku31), 8725 *5* (2002He29), 8731 *15* (2000He17), and 8713 *32* (2000Ni02). Iα: Normalization value of 1.64 *8*: Weighted average of 1.5 *1* (2005Ku31), 1.8 *1* (2002He29), 1.6 *1* (2000He17), and 2.6 *+16−11* (2000Ni02).
9260 *4*	0.0	94.7 *7*	108 *2*	Eα: Weighted average of 9250 *10* (1968Va18), 9269 *9* (2005Ku31), 9250 *47* (2005Li17), 9261 *5* (2002He29), 9268 *15* (2000He17), 9247 *15* (2000Ni02), and 9257 *15* (2019Zh54). Iα: Normalized value of 94.2 *7*: Unweighted average of 95.5 *3* (2005Ku31), 94.5 *5* (2002He29), 94.6 *6* (2000He17), and 92.3 *6* (2000Ni02). Weighted average 94.8 *6* with χ^2=7.8 cf. χ^2_{crit}=2.6.

[†] Using r_0(^{213}Ra)=1.5091 *22* obtained from interpolation (or unweighted average) of radius parameters r_0(^{212}Ra)=1.4695 *14* and

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^{217}Th α decay 2005Ku31,2002He29,2000Ni02 (continued)

α radiations (continued)

$r_0(^{214}Ra)$=1.5487 *30* (2020Si16).

‡ Absolute intensity per 100 decays.