^{210}Ac α decay 1968Va04,2000He17

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 201,346 (2025)	21-Jan-2025

Parent: ^{210}Ac: E=0.0; $T_{1/2}$=0.35 s *4*; Q(α)=7590 *60*; %α decay≈100

^{210}Ac-$T_{1/2}$: Weighted average of 0.35 s *5* (1968Va04) and 0.34 s *+6−5* (2000He17).

^{210}Ac-Q(α): From 2021Wa16.

^{210}Ac-%α decay: Only %α was observed in 1968Va04 and 2000He17.

1968Va04: produced by ^{197}Au(^{20}Ne,X) reaction at 145-153 MeV. At lower energies, and for other reactions, the α line of ^{210}Ac is contaminated with that for the ^{211}Ac isotope.

2000He17: Produced using various heavy-ion reactions at GSI. The velocity filter SHIP was used to separate reaction residues and scattered beam. 16 strips position sensitive silicon detector was used to implant the recoils and correlate subsequent alpha decay events.

^{206}Fr Levels

E(level)	J^π	$T_{1/2}$	Comments
0	3^+	≈16 s	E(level),J^π,$T_{1/2}$: From Adopted Levels. It is not clear if ^{210}Ac α decays to the 3^+ ground state or to the 7^+ isomer in ^{206}Fr.

α radiations

Eα	E(level)	Iα[‡]	HF[†]	Comments
7462 *8*	0	100	≈1.5	Eα: From 1968Va04. Others: 7462 keV *10* (2000He17) and 7482 (1975AlZD).

[†] $r_0(^{206}Fr)$=1.501 *5*, unweighted average of 1.5029 *36* (^{204}Rn), 1.4861 *29* (^{206}Rn), 1.507 *11* (^{206}Ra), and 1.5058 *26* (^{208}Ra) from 2020Si16.

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