^{213}Ac α decay 1968Va04,2000He17

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. Chen [#] and F. G. Kondev	NDS 126, 373 (2015)	30-Sep-2013

Parent: ^{213}Ac: E=0.0; J^π=9/2$^-$; $T_{1/2}$=738 ms *16*; Q(α)=7501 *6*; %α decay≈100.0

^{213}Ac-J^π: Assuming a favored α-decay to ^{209}Fr g.s. (J^π=9/2$^-$).

^{213}Ac-Q(α): From Eα=7360 keV *6*.

1968Va04: ^{213}Ac activities were produced by the ^{197}Au(^{20}Ne,6n), ^{209}Bi(^{12}C,8n) and ^{203}Tl(^{16}O,8n) reactions at beam energies of 99 MeV ^{20}Ne, 118 MeV ^{12}C, and 112 and 135 MeV ^{16}O from the Berkeley heavy-ion linear accelerator (HILAC). α particles were detected by a Si(Au) surface-barrier detector. Measured single Eα, α(t).

2000He17: ^{213}Ac activities were produced using various heavy-ion reactions at GSI. Reaction products were separated by a velocity filter (SHIP). 16-strip position-sensitive silicon detector was used to implant the recoils and correlate subsequent α decay events. Measured single Eα, α(t).

^{209}Fr Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	9/2$^-$	50.5 s *7*	J^π,$T_{1/2}$: from Adopted Levels.

α radiations

Eα	E(level)	Iα[‡]	HF[†]	Comments
7360 *6*	0.0	100	≈0.94	Eα: weighted average of 7356 *10* (2000He17) and 7364 *8* (1968Va04). The value from 1968Va04 has been increased by 2 keV by the evaluators to account for the changes in calibration energies, as recommended in 1991Ry01. Other: 7420 (1961Gr42).

[†] r_0(^{209}Fr)=1.471 *11*, weighted average of r_0(^{208}Rn)=1.466 *8* and r_0(^{210}Ra)=1.492 *16*, both deduced by using HF=1.

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