## $^{205}$Ac $\alpha$ decay 2014Zh03

| History | | | |
|---|---|---|---|
| Type | Author | Citation | Literature Cutoff Date |
| Full Evaluation | F. G. Kondev | NDS 187,355 (2023) | 20-Sep-2022 |

Parent: $^{205}$Ac: E=0; $J^{\pi}=9/2^{-}$; $T_{1/2}$=20 ms *+97−9*; Q($\alpha$)=8090 *60*; %$\alpha$ decay≈100

$^{205}$Ac-E,$J^{\pi}$: From 2021Ko07.

$^{205}$Ac-$T_{1/2}$: From 7935$\alpha$(t) in 2014Zh03.

$^{205}$Ac-Q($\alpha$): From 2021Wa16.

$^{205}$Ac-%$\alpha$ decay: From 2021Ko07.

2014Zh03: $^{205}$Ac produced in the $^{169}$Tm($^{40}$Ca,4n) reaction, E($^{40}$Ca)=196 MeV at the HIRFL facility, Lanzhou. Target: 400 $\mu$g/cm$^2$ thick covered with a 10 $\mu$g/cm$^2$-thick carbon layer. Evaporation residues were separated in flight using SHANS recoil separator, and implanted into position sensitive DSSD (48 vertical strips of 3 mm width). Eight non-position sensitive Si detectors were used to detect escaping $\alpha$ particles. Measured: recoil-$\alpha_1$(t)-$\alpha_2$(t)-$\alpha_3$(t) correlated events. Deduced: E$\alpha$ and half-life of $^{205}$Ac.

### $^{201}$Fr Levels

| E(level) | $J^{\pi}$[†] | $T_{1/2}$[†] |
|---|---|---|
| 0 | $9/2^{-}$ | 63 ms *4* |

[†] From Adopted Levels.

### $\alpha$ radiations

| E$\alpha$ | E(level) | I$\alpha$[‡] | HF[†] | Comments |
|---|---|---|---|---|
| 7935 *30* | 0 | ≈100 | ≈2 | E$\alpha$,I$\alpha$: From 2014Zh03. E$\alpha$1=7935 keV *30* correlated with E$\alpha$2=7406 keV *30* ($^{201}$Fr) and E$\alpha$3=6997 keV *30* ($^{197}$At). |

[†] Using $r_0$=1.4957 *15*, unweighted average of $r_0$=1.4803 *16* for $^{200}$Po and 1.511 *5* for $^{202}$Rn in 2020Si16.

[‡] For absolute intensity per 100 decays, multiply by ≈1.