^{218}Ac α decay 2017Su18,2019Mi08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Shaofei Zhu and E. A. Mccutchan	NDS 175, 1 (2021)	1-May-2021

Parent: ^{218}Ac: E=0.0; $J^\pi=(1^-)$; $T_{1/2}=1.03$ μs *5*; Q(α)=9.38×10^3 *6*; %α decay=100.0

^{218}Ac-Q(α): from 2021Wa16.

^{218}Ac-J^π,$T_{1/2}$: from Adopted Levels of ^{218}Ac (2019Si39).

2017Su18: ^{218}Ac was the decay product of ^{222}Pa produced in reactions ^{187}Re(^{40}Ar,α3n) with pulsed beams at 188 MeV; evaporation residues (ER) were separated in-flight by the recoil separator SHANS and implanted to a double-sided strip Si detector (DSSSD). α decay of ^{218}Ac was studied by ER-(α_1)-(α_2)-(α_3) chains using time and position correlations.

2019Mi08: ^{218}Ac was the decay product of ^{222}Pa produced in reactions ^{181}Ta(^{48}Ca,3n)^{226}Np or ^{181}Ta(^{48}Ca,3n)^{222}Pa with pulsed beams at 212, 217 and 226 MeV; evaporation residues (ER) were separated in-flight by the velocity filter SHIP and investigated using the COMPASS decay spectroscopy station with digital electronics at the focal plane. α decay of ^{218}Ac was studied by ER-(α_1)-(α_2)-(α_3) chains using time and position correlations.

^{214}Fr Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	(1^-)	5.5 ms *3*	J^π,$T_{1/2}$: from Adopted Levels. $T_{1/2}$=5.9 ms *4* (2015Kh09) and 6.0 ms *2* (2019Mi08).

α radiations

Eα	E(level)	Iα[‡]	HF[†]	Comments
9213 *10*	0.0	100	2.3 *3*	Eα: weighted average of 9205 *15* (1970Bo13), 9219 *15* (2017Su18) and 9220 *30* (2019Mi08); other: 9200 (1983Sc23).

[†] $r_0(^{214}Fr)$=1.566 *14*, unweighted average of $r_0(^{212}Rn)$=1.5433 *36*, $r_0(^{214}Rn)$=1.5655 *13*, $r_0(^{214}Ra)$=1.5487 *30*, $r_0(^{216}Ra)$=1.6051 *43* (2020Si16).

[‡] Absolute intensity per 100 decays.