^{221}Ac α decay 1970Bo13,1988Hu08,1993AnZS

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. Kumar and F. G. Kondev	NDS 147, 382 (2018)	1-Dec-2017

Parent: ^{221}Ac: E=0.0; J^π=(3/2$^-$); $T_{1/2}$=52 ms *2*; Q(α)=7780 *50*; %α decay=100.0

^{221}Ac-J^π,$T_{1/2}$: From Adopted Levels of ^{221}Ac.

^{221}Ac-Q(α): From 2017Wa10.

1970Bo13: ^{221}Ac activities produced by bombarding ^{205}Tl, ^{209}Bi and ^{208}Pb targets with ^{22}Ne, ^{19}F and ^{18,16}O beams (E_{max}=10.3 MeV/nucleon) at the Berkeley Heavy-Ion Linear Accelerator (HILAC). Detectors: surface-barrier Si detector. Measured: Eα, Iα, α(t).

1988Hu08: ^{221}Ac activities from decay of ^{225}Pa source produced by the ^{230}Th(p,6n) reaction with E(p)=55 MeV from the Jyvaskyla cyclotron, 3 mg/cm^2 target, mass separation. Measured: Eα, Iα.

1993AnZS: ^{221}Ac activities produced by bombarding Tl, Bi and Pb targets with beams of ^{27}Al, ^{26}Mg and ^{22,20}Ne at the U-400 cyclotron JINR Dubna. In-flight separation of evaporation residues (ER) using the VASSILISSA mass separator. Detectors: an array of silion strips detectors. Measured ER-α, ER-α-α, Eα, and Iα. Others (from the same group): 1990An19, 1993AnZU.

Others: 1968Ha14.

^{217}Fr Levels

E(level)†	J^π	$T_{1/2}$	Comments
0.0	9/2$^-$	22 μs *5*	J^π,$T_{1/2}$: from the Adopted Levels.
210 *4*			
274 *4*			
482 *8*			

† Deduced by evaluators using Qα=7780 *50* (2017Wa10) and measured Eα.

α radiations

Eα	E(level)	Iα‡	HF†	Comments
7170 *8*	482	2.4 *10*	4.6 *21*	Eα: weighted average of 7170 *10* (1970Bo13), 7170 *15* (1990AnZU,1993AnZS). Iα: from (1990AnZU,1993AnZS). Other:≈2 (1970Bo13).
7374 *4*	274	7 *1*	8.1 *17*	Eα: weighted average of 7375 *10* (1970Bo13), 7373 *5* (1988Hu08), 7380 *15* (1990AnZU,1993AnZS). Iα: weighted average of 10 *5* (1970Bo13), 6 *1* (1988Hu08), 11 *2* (1990AnZU,1993AnZS).
7437 *4*	210	20 *2*	4.6 *9*	Eα: weighted average of 7420 *20* (1968Ha14), 7440 *15* (1970Bo13), 7437 *5* (1988Hu08), 7440 *15* (1990AnZU,1993AnZS). Iα: weighted average of 20 *5* (1970Bo13), 20 *2* (1988Hu08), 23 *4* (1990AnZU,1993AnZS).
7642 *4*	0.0	72 *3*	6.1 *9*	Eα: weighted average of 7630 *20* (1968Ha14), 7641 *5* (1988Hu08), 7645 *10* (1970Bo13), 7650 *15* (1990AnZU,1993AnZS). Iα: weighted average of 70 *10* (1970Bo13), 74 *3* (1988Hu08), 63 *7* (1990AnZU,1993AnZS).

† r_0(^{217}Fr)=1.548 *8*, unweighted average of 1.556 *8* (^{216}Rn) and 1.539 *8* (^{220}Ra) from 1998Ak04.

‡ Absolute intensity per 100 decays.