

^{209}Ac α decay [2000He17](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 166, 1 (2020)	20-Apr-2020

Parent: ^{209}Ac : $E=0.0$; $J^\pi=9/2^-$; $T_{1/2}=87$ ms $+12-9$; $Q(\alpha)=7730$ 50; $\% \alpha$ decay ≈ 100.0

^{209}Ac - J^π : Favored α -decay to the $J^\pi=9/2^-$ state in ^{205}Fr .

[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. Measured: $E\alpha$, $I\alpha$, $\alpha(t)$.

 ^{205}Fr Levels

$E(\text{level})^\dagger$	J^π^\dagger	$T_{1/2}^\dagger$
0.0	$9/2^-$	3.90 s 7

† From Adopted Levels.

 α radiations

$E\alpha$	$E(\text{level})$	$I\alpha^\ddagger$	HF^\dagger	Comments
7577 10	0.0	100	≈ 1.4	$E\alpha$: From 2000He17 . Others: 7585 keV 15 (1968Va04), 7581 keV 15 (1994Le05), and 7580 keV 50 (1996Ik01).

† Using $r_0(^{205}\text{Fr})=1.518$ 22, unweighted average from the neighboring $r_0(^{204}\text{Rn})=1.496$ 8 and $r_0(^{208}\text{Ra})=1.54$ 5 isotopes ($N=118$) and $\text{HF}_\alpha=1.0$.

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