

^{206}Fr α decay **1992Hu04,2016Ly01**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 196,342 (2024)	1-Sep-2023

Parent: ^{206}Fr : $E=0$; $J^\pi=3^+$; $T_{1/2}\approx 16$ s; $Q(\alpha)=6923.3$; $\% \alpha$ decay=88.4 33

^{206}Fr - J^π : From [2013Vo10](#), [2015Vo05](#) and [2016Ly01](#); π from μ .

^{206}Fr - $T_{1/2}$: From [2008Ko21](#).

^{206}Fr - $Q(\alpha)$: From [2021Wa16](#).

^{206}Fr - $\% \alpha$ decay: From [2016Ly01](#).

1992Hu04: ^{206}Fr was produced in $^{\text{nat}}\text{Ir}(^{20}\text{Ne},\text{xn})$ and $^{181}\text{Ta}(^{32}\text{S},2\text{p}5\text{n})$ reactions, and separated at the Leuven Isotope Separator On-Line (LISOL) facility. Recoils were implanted into a Mylar tape that periodically moved the source from the implantation station to the decay station. Detectors: 2 Ge and 1 Ge LEPS (γ rays), 1 Si(Li) (CE), several surface-barrier and PIPS detectors (α particles). Measured: $\alpha\gamma(t)$ and α -X(t).

2016Ly01: ^{206}Fr was produced in the bombardment of 1.4 GeV protons on a Uranium carbide target at the ISOLDE-CERN facility. Recoils were selected by a high-resolution mass separator, injected into the ISCOOL cooler and buncher, resonantly excited with pulsed laser beams and implanted on a thin ($20\ \mu\text{g}/\text{cm}^2$) C foil. Alpha particles were measured using PIPS detectors.

Others: [1961Gr42](#), [1964Gr04](#), [1967Va20](#), [1974Ho27](#) and [1981Ri04](#).

 ^{202}At Levels

E(level)	J^π^\dagger	$T_{1/2}^\dagger$
0	3^+	184 s 1

† From Adopted Levels.

 α radiations

$E\alpha$	E(level)	$I\alpha^\ddagger$	HF †	Comments
6792 5	0	≈ 100	≈ 0.9	$E\alpha$: From 1992Hu04 , a doublet with $E\alpha$ depopulating the 7^+ isomer in ^{206}Fr . Others: 6790 keV 5 (1981Ri04), 6785 keV 5 (1974Ho27), 6792 keV 5 (1967Va20), 6790 keV 20 (1964Gr04) and 6740 keV (1961Gr42).

† $r_0(^{202}\text{At})=1.507\ 8$, unweighted average of 1.5026 13 (^{200}Po), 1.4917 27 (^{202}Po), 1.5287 42 (^{202}Rn) and 1.5029 39 (^{204}Rn) from [2020Si16](#).

‡ For absolute intensity per 100 decays, multiply by 0.884 33.