

¹⁷⁶Ir α decay (8.6 s) 1990Bo19,1986Ke03,1967Si02

Type	History		Literature Cutoff Date
	Author	Citation	
Full Evaluation	Balraj Singh	ENSDF	31-Dec-2015

Parent: ¹⁷⁶Ir: E=0.0; J ^{π} =(5⁺); T_{1/2}=8.6 s 4; Q(α)=5240 40; % α decay=2.6 5

¹⁷⁶Ir-J ^{π} : Possible direct population of 6⁺ and 4⁺ states in ¹⁷⁶Os from ¹⁷⁶Ir ϵ decay. Possible configuration= $\pi 5/2^-$, 1/2[541] \otimes $\nu 5/2^-$, 1/2[521] or $\pi 5/2^-$, 1/2[541] \otimes $\nu 5/2^-$, 5/2[512] (1990Bo19); J ^{π} also supported by theoretical calculations by 2005Wa25.

¹⁷⁶Ir-T_{1/2}: Weighted average of 9.6 s 6 (2005Wa25, weighted average of 9.6 s 6, 9.2 s 7, 9.9 s 11 and 9.8 s 8, higher values of 10.9 s 4 and 10.1 s 3 were omitted since these could have contribution from a possible long-lived isomer proposed by 2005Wa25); 8.00 s 33 from α decay and 9.00 s 33 from γ -decay curves (1990Bo19, uncertainty of 1 s in each value listed by 1990Bo19 is 3 σ), and 8 s 1 (1967Si02). Note that T_{1/2}=8.7 s 5 in ¹⁷⁶Ir Adopted Levels, based on a choice of somewhat different set of values. Note also that 2005Wa25 propose the existence of a long-lived isomer in ¹⁷⁶Ir with a half-life of 17.6 s 17 determined from decay curve for 607.2 γ in ¹⁷⁶Os from ϵ decay of ¹⁷⁶Ir.

¹⁷⁶Ir-Q(α): From 2012Wa38.

¹⁷⁶Ir-% α decay: % α =2.6 5 from unweighted (or LWM) average of 3.1 2 (1990Bo19 where quoted uncertainty of 0.6 corresponds to 3 σ) and 2.1 4 (1986Ke03). Note that % α =3.1 6 in ¹⁷⁶Ir Adopted Levels, taken from 1990Bo19.

2005Wa25: measured ¹⁷⁶Ir half-life from γ -decay curves. The authors propose the existence of a long-lived isomer in ¹⁷⁶Ir with a half-life of 17.6 s 17.

1990Bo19: measured E α , I α , ¹⁷⁶Ir half-life, % α .

1986Ke03: ¹⁷⁶Ir produced by ⁸⁹Y(⁹⁰Zr,2P_n) and ⁹⁰Zr(⁹⁰Zr,3P_n). Measured E α , I α , % α . Detector: semi.

1967Si02: ¹⁷⁶Ir produced by bombarding ¹⁶⁹Tm(¹⁶O,X) and Er(¹⁹F,X) measured E α . Detector: semi.

¹⁷²Re Levels

E(level)	J ^{π}	T _{1/2}	Comments
0+x	(5 ⁺)	15 s 3	E(level),T _{1/2} : from Adopted Levels. J ^{π} : Favored α transition from (5 ⁺) parent.

α radiations

E α	E(level)	I α [‡]	HF [†]	Comments
5118 8	0+x	100	0.045 14	HF: assumed g.s. to g.s. transition. E α : from 1967Si02.

[†] Deduced by evaluator using r₀=1.54 3, from unweighted average of 1.56 2 for ¹⁷²Os, 1.54 3 for ¹⁷⁰W and 1.53 4 for ¹⁷⁴Os, and assuming g.s. to g.s. α transition.

[‡] For absolute intensity per 100 decays, multiply by 0.026 5.