

¹⁷⁵Pt α decay 2014Pe02,1979Ha10

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin, E. A. Mccutchan		NDS 151, 334 (2018)	30-Jun-2018

Parent: ¹⁷⁵Pt: E=0.0; J^π=(7/2⁻); T_{1/2}=2.43 s 4; Q(α)=6164 4; %α decay=64 5

¹⁷⁵Pt-T_{1/2}: weighted average of 2.38 s 4, 2.4 s 3 (1996Pa01), 2.52 s 8 (1973Ga08), 2.54 s 15, 2.56 s 10 (1979Ha10). Others: 2.1 s 2 (1966Si08).

¹⁷⁵Pt-%α decay: from 1979Ha10. Others: %(6038α+5960α)=57.3 11 (1986Ke03), %(5960α)=56 5 (1996Pa01), %(5960α)=75 15 (1971Ha03).

2014Pe02: ¹⁷⁵Pt activity from the ⁹²Mo(⁸⁶Sr,2pn) reaction with E(⁸⁶Sr)=403 MeV followed by separation using the RITU gas-filled spectrometer. Measured Eα, Iα, Eγ, Iγ, α-γ coincidences using two double-sided Si strip detectors, an array of silicon PIN detectors, a segmented planar Ge detector and a segmented Clover detector.

1979Ha10: sources from decay of ¹⁷⁹Hg parent activity; measured Eα, Iα, αγ coin (silicon surface-barrier detector, FWHM≈25 keV; Ge(Li), FWHM=2.1 keV at 1.33 MeV).

1982De11: sources from ⁶³Cu bombardments of indium and tin (E(⁶³Cu)=245-300 MeV, helium-jet transport); enriched targets; measured Eα, Iα (silicon surface-barrier detector).

1986Ke03: sources from ⁹⁰Zr on Y, Zr, and Mo (E(⁹⁰Zr)=321-390 MeV); velocity-filter, evaporation-residue separation; enriched targets; measured Eα, Iα (silicon surface-barrier detector).

1996Pa01: sources from heavy-ion fusion-evaporation reactions; recoil mass separator, double-sided Si strip detector (FWHM≤20 keV); measured T_{1/2}, %α for ¹⁷⁵Pt.

Others: 1966Si08, 1970Ha18, 1971Ha03, 1973Ga08, 1986Ke03.

The decay scheme is from 2014Pe02. J^π(¹⁷⁵Pt)=(7/2⁻) is assumed based on unhindered decay to (7/2⁻) 76.7 level.

α: Additional information 1.

¹⁷¹Os Levels

E(level) [†]	J ^π [‡]
0.0	(5/2 ⁻)
76.8 3	(7/2 ⁻)
207.7 4	(9/2 ⁻)
211.2 5	(7/2 ⁻ ,9/2 ⁻)

[†] From a least-squares fit to Eγ, by evaluators.

[‡] From the Adopted Levels.

α radiations

Eα [†]	E(level)	Iα ^{‡@}	HF [#]	Comments
5814 4	211.2	6.2 14	6.7 16	Eα: other: 5831 10 revision by 1991Ry01 of 5830 10 from 1979Ha10. Iα: from 2014Pe02 obtained by dividing the total intensity of 7.3 16 from 1979Ha10 to the 208-211 doublet using the ratios of the measured total intensities of the 130.8- and 134.1-keV γ rays.
5819 4	207.7	1.1 3	39 12	Iα: from 2014Pe02 obtained by dividing the total intensity of 7.3 16 from 1979Ha10 to the 208-211 doublet using the ratios of the measured total intensities of the 130.8- and 134.1-keV γ rays.
5948 4	76.8	85 8	1.75 23	Eα: others: 5959 3 (1982De11), 5963 5 (1979Ha10, after revision by 1991Ry01), 5960 10 (1973Ga08), 5950 10 (1966Si08), 5960 (1970Ha18).
6021 4	0.0	7.4 12	41 8	Eα: other: 6038 10 revision by 1991Ry01 of 6037 10 from 1979Ha10.

[†] From 2014Pe02.

[‡] From 1979Ha10, renormalized so Σ(Iα)=100, except where noted.

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^{175}Pt α decay [2014Pe02](#), [1979Ha10](#) (continued) α radiations (continued)

If $r_0=1.557\ 8$ (from $r_0(^{170}\text{Os})=1.553\ 14$ and $r_0(^{172}\text{Os})=1.559\ 10$ in [1998Ak04](#)).

@ For absolute intensity per 100 decays, multiply by 0.64 5.

 $\gamma(^{171}\text{Os})$

$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	α	Comments
76.7 3	76.8	(7/2 ⁻)	0.0	(5/2 ⁻)	M1	11.97 21	$\alpha(\text{K})_{\text{exp}}=11.6\ 9$ $\alpha(\text{K})=9.86\ 18$; $\alpha(\text{L})=1.63\ 3$; $\alpha(\text{M})=0.375\ 7$; $\alpha(\text{N})=0.0915\ 17$; $\alpha(\text{O})=0.0158\ 3$ $\alpha(\text{P})=0.001174\ 22$ E_γ : other: 76.4 10 (1979Ha10). Mult.: from $\alpha(\text{K})_{\text{exp}}$ (2014Pe02).
130.8 4	207.7	(9/2 ⁻)	76.8	(7/2 ⁻)	M1	2.61 5	$\alpha(\text{K})_{\text{exp}}=2.1\ 2$ $\alpha(\text{K})=2.16\ 4$; $\alpha(\text{L})=0.350\ 6$; $\alpha(\text{M})=0.0803\ 14$; $\alpha(\text{N})=0.0196\ 4$; $\alpha(\text{O})=0.00338\ 6$ $\alpha(\text{P})=0.000252\ 5$
134.4 10	211.2	(7/2 ⁻ , 9/2 ⁻)	76.8	(7/2 ⁻)	M1	2.42 7	$\alpha(\text{K})_{\text{exp}}$: for 130.8 + 134.4 doublet. $\alpha(\text{K})_{\text{exp}}=2.1\ 2$ $\alpha(\text{K})=2.00\ 6$; $\alpha(\text{L})=0.324\ 9$; $\alpha(\text{M})=0.0743\ 19$; $\alpha(\text{N})=0.0181\ 5$; $\alpha(\text{O})=0.00313\ 8$ $\alpha(\text{P})=0.000233\ 6$
207.9 5	207.7	(9/2 ⁻)	0.0	(5/2 ⁻)			E_γ : other: 134.4 10 (1979Ha10). $\alpha(\text{K})_{\text{exp}}$: for 130.8 + 134.4 doublet.
211.2 5	211.2	(7/2 ⁻ , 9/2 ⁻)	0.0	(5/2 ⁻)		0.274 6	E_γ : other: 211.8 10 (1979Ha10).

† From [1979Ha10](#).

^{175}Pt α decay 2014Pe02,1979Ha10

Decay Scheme

