^{174}Pt α decay 2004GoZZ,1996Pa01,1982En03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. M. Baglin[1], E. A. Mccutchan[2], S. Basunia[1]	NDS 153, 1 (2018)	1-Oct-2018

Parent: ^{174}Pt: E=0.0; $J^{\pi}=0^+$; $T_{1/2}$=0.891 s *20*; Q(α)=6183 *3*; %α decay=75 *4*

^{174}Pt-$T_{1/2}$: from weighted average of 0.80 s *5* (1981De22), 0.90 s *1* (1982En03), 0.890 s *20* (1996Pa01), 0.857 s *5* (2004GoZZ), and 0.93 s *3* (2014Pe02). The uncertainty of 2004GoZZ was increased by a factor of 4 (reported value is 0.857 s *5*) and the uncertainty in the resulting weighted average taken as the minimum experimental uncertainty of the input values.

^{174}Pt-%α decay: from weighted average of %α=74 *3* (2004GoZZ), %α=67 *6* (1996Pa01) and %α=83 *5* (1979Ha10).

2004GoZZ: ^{174}Pt sources from ^{92}Mo(^{84}Sr,2p), E= 380 MeV and ^{94}Mo(^{84}Sr,2p2n), E=385 MeV; isotopically-enriched targets; fragment mass analyzer with parallel-grid avalanche counter In focal plane, and double-sided Si strip detector (for recoils and decay α particles) surrounded by 4 Ge detectors and a low-energy photon spectrometer; recoil decay tagging technique; measured Eα, Iα, Eγ, recoil-α-γ coin, α(t), %α(^{174}Pt), parent-daughter α correlations. See also 2004Go38.

2002Ro17: ^{174}Pt source produced via sequential α decay of ^{178}Tl and ε decay of ^{174}Au; Si strip detector; measured Eα, parent-daughter α correlations; Berkeley gas-filled separator, parallel-plate avalanche counters, double-sided Si strip focal plane detector (FWHM≈35 keV).

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

1982En03: sources produced by ^{144}Sm(^{32}S,2n); FWHM=25 keV; measured Eα using semiconductor detector and thin gas ΔE detector, $T_{1/2}$(^{170}Os).

1979Ha10: sources produced by bombardment of Pb targets with 600-MeV protons; measured Eα, Iα using semiconductor detector.

1973Ga08: sources produced by ^{142}Nd(^{40}Ar,8n).

1966Si08: source produced by ^{164}Er(^{20}Ne,10n); measured Eα using semi.

^{170}Os Levels

E(level)	J^{π}[†]	$T_{1/2}$	Comments
0.0	0^+	7.37 s *18*	$T_{1/2}$: from Adopted Levels.
286.7 *5*	2^+		E(level): From Eγ.

[†] From Adopted Levels.

α radiations

Eα	E(level)	Iα[†#]	HF[‡]	Comments
5762 *5*	286.7	<1	>6.2	Eα: reported by 2004GoZZ only. HF: 6.6 *4* if Iα=1. coincident with 286.7γ (2004GoZZ).
6039 *3*	0.0	99 *1*	1.0	Eα: weighted average of the following Eα measurements (after adjustment of data from 1979Ha10 and 1982En03 by 1991Ry01 for changes in calibration energies): 6030 *10* (1966Si08), 6035 *10* (1973Ga08), 6034 *10* (1979Ha10, 1991Ry01), 6043 *5* (1981De22), 6033 *10* (1982En03, 1991Ry01), 6040 *5* (2004GoZZ, 2004Go38). It implies Q(α)=6181 *3* cf. 6183 *3* in 2017Wa10. Other Eα: 6038 (2002Ro17). correlated with 6704α(^{178}Tl), 6428α(^{178}Hg), 5407α(^{170}Os) (2002Ro17); correlated with 5410α(^{170}Os) (2004GoZZ).

[†] From 2004GoZZ.

[‡] r_0(^{170}Os)=1.554 *3*, assuming Hf(6039α)=1.0, %α(^{174}Pt)=75 *4*, $T_{1/2}$(^{174}Pt)=0.891 s *20*, I(6039α)=99.5 *5* and Q(α)=6183 *3* (2017Wa10).

[#] For absolute intensity per 100 decays, multiply by 0.75 *4*.

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γ(^{170}Os)

E_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[‡]	Comments
286.7 *5*	286.7	2^+	0.0	0^+	E2	0.1047 *16*	α(K)=0.0663 *10*; α(L)=0.0291 *5*; α(M)=0.00722 *12*; α(N+..)=0.00202 *4* α(N)=0.00174 *3*; α(O)=0.000269 *5*; α(P)=6.61×10^{-6} *10* E_γ: from 2004GoZZ.

[†] From Adopted Gammas.

[‡] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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Decay Scheme