^{175}Hg α decay 2009Od01,2004GoZZ,2002Ro17

History

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

Parent: ^{175}Hg: E=0.0; J^{π}=(7/2$^-$); $T_{1/2}$=10.7 ms *4*; Q(α)=7072 *5*; %α decay99.0 *CA*

^{175}Hg-$T_{1/2}$: Parent $T_{1/2}$ (10.7 ms *4*) is the weighted average of 10.8 ms *4* (2002Ro17) and 10 ms *1* (2009Od01). other values: 15 ms *1* (2004GoZZ), 13 ms *+6−4* (1997Uu01), 8 ms *8* (1996Pa01), 20 ms *+40−13* (1983Sc24); the reason for the apparently discrepant datum from 2004GoZZ is not known.

^{175}Hg-Q(α)=7043 *5* from Eα=6882 *5* (cf. 7072 *5* from 2012Wa38).

1983Sc24: sources from ^{92}Mo bombardments of isotopically enriched targets of rubidium through molybdenum (velocity-filter, evaporation-residue separation); measured Eα, Iα, $T_{1/2}$ (position-sensitive silicon surface-barrier detectors).

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

1997Uu01: sources from 180-230 MeV ^{36}Ar bombardments of ^{144}Sm (86% enrichment); gas-filled recoil separator; fusion evaporation residues implanted into PIPS detector, FWHM=27 keV at 6 MeV; observed correlated recoil-α-α chains; measured Eα, parent and daughter $T_{1/2}$.

2002Ro17: ^{175}Hg from ^{179}Tl α decay followed by ^{175}Au ε decay; ^{179}Tl produced by bombardment of 90.4% enriched ^{102}Pd targets with ^{78}Kr, E=340 MeV (mid-target); gas-filled separator, two parallel-plate avalanche counters (PPACs), Si strip detector In focal plane, tof measured between PPAC and focal plane detector; two HPGe detectors near focal plane to measure γ and x rays; measured Eα (FWHM=35 keV), parent-daughter (or granddaughter) correlations; deduced $T_{1/2}$, corrected for random correlation rates.

2004GoZZ: ^{175}Hg from ε decay of ^{175}Au; measured Eα, $T_{1/2}$(175HG), parent-daughter α correlation.

2009Od01: ^{175}Hg from ^{92}Mo(^{86}Sr^{17+},3n), E=403 MeV using a 98% isotopically-enriched ^{92}Mo target; JUROGAM array (43 escape-suppressed Ge detectors); GREAT spectrometer (multi-wire proportional counter, 2 double-sided Si strip detectors, a planar Ge detector, a Clover detector and a Si PIN diode array) At focal plane; RITU He-filled magnetic separator; measured Eα, parent $T_{1/2}$.

2017Ba46: ^{175}Hg source from ^{179}Pb α decay produced in ^{104}Pd(^{78}Kr,3n), with E(^{78}Kr)=358 MeV, followed by mass separation using the RITU separator. Measued Eα, Iα, α(t) using two DSSD detectors.

Others: 1997Uu01,1996Pa01,1983Sc24.

^{171}Pt Levels

E(level)	J^{π}[†]	$T_{1/2}$[†]
0.0	(7/2$^-$)	45.5 ms *25*

[†] From Adopted Levels.

α radiations

Eα	E(level)	Iα[‡]	HF[†]	Comments
6882 *5*	0.0	100	≈1.4	Eα: weighted average of 6860 *20* (1983Sc24), 6909 *24* (1996Pa01), 6897 *11* (1997Uu01), 6879 *5* (2004GoZZ). Based on this Eα, Q(α)=7043 *5*, assuming a g.s. to g.s. transition (cf. 7060 *50* from 2003Au03, 2009AuZZ). correlated with 6453α from ^{171}Pt (2002Ro17 and 2004GoZZ) and with 5836α from ^{167}Os (2002Ro17).

[†] If r_0=1.545 *4* (unweighted average of r_0(^{172}Pt)=1.541 *7* in ENSDF (May 2010) and r_0(^{170}Pt)=1.548 *12* (2002Ba93)), $T_{1/2}$(175HG)=10.7 ms *4*, %α=99 *1*, Q(α)=7043 *5* (from Eα=6882 *5*).

[‡] For absolute intensity per 100 decays, multiply by calc 0.99.