^{174}Ir α decay (7.9 s) 1992Sc16

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}Ir: E=0.; J^π=(3$^+$); $T_{1/2}$=7.9 s *6*; Q(α)=5625 *10*; %α decay=0.47 *27*

^{174}Ir-$T_{1/2}$: Weighted average of 9 s *2* (1992Sc16) and 7.8 s *6* (1992Bo21).

^{174}Ir-%α decay: 0.47% 27 from 1986Ke03. Other: 0.4% (1992Sc16).

1992Sc16: source from ^{141}Pr(^{36}Ar,xn), E=175-204 MeV; measured α excit, Eα, Iα, Eγ Iγ, I(K x ray), α-(K x ray) coin, $\alpha\gamma$ coin, α(t); deduced α branching; Si and Ge detectors.

^{170}Re Levels

E(level)[†]	J^π[‡]	Comments
0.	(5$^+$)	
31.3 *3*	(4$^+$)	E(level): 31.3 or 193.5; order of 31.4γ and 193.5γ not established.
224.7 *3*	(3$^+$)	

[†] From least-squares fit to Eγ.
[‡] Adopted values.

α radiations

Eα	E(level)	Iα[‡]	HF[†]
5275 *10*	224.7	100	1.5 *9*

[†] Using r_0=1.55 (based on r_0=1.553 *14* from ^{174}Pt α decay and r_0=1.54 *3* from ^{174}Os α decay (1998Ak04)).
[‡] For absolute intensity per 100 decays, multiply by 0.0047 *27*.

γ(^{170}Re)

Eγ	Iγ[†‡]	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.	α[#]	Comments
31.4 *4*	3.6 *16*	31.3	(4$^+$)	0.	(5$^+$)	(M1)	26.6 *11*	α(L)=20.5 *9*; α(M)=4.70 *20*; α(N+..)=1.34 *6* α(N)=1.14 *5*; α(O)=0.191 *8*; α(P)=0.0139 *6* Mult.: from intensity balance at 31 level, assuming mult(194γ)=E1, E2 or M1.
193.5 *2*	52 *8*	224.7	(3$^+$)	31.3	(4$^+$)	(E2)	0.358	α(K)=0.185 *3*; α(L)=0.1310 *20*; α(M)=0.0328 *5*; α(N+..)=0.00899 *14* α(N)=0.00783 *12*; α(O)=0.001144 *17*; α(P)=1.588×10^{-5} *23* Mult.: E1 or E2 based on I(K x ray); $\Delta\pi$=no from level scheme.
224.6 *4*	35 *7*	224.7	(3$^+$)	0.	(5$^+$)	(E2)	0.218 *4*	α(K)=0.1244 *19*; α(L)=0.0708 *12*; α(M)=0.0176 *3*; α(N+..)=0.00484 *8* α(N)=0.00421 *7*; α(O)=0.000620 *10*; α(P)=1.100×10^{-5} *17* Mult.,α: E1 or E2 based on I(K x ray); $\Delta\pi$=no from level scheme.

[†] Photon intensity per 100 α decays from 5275α-γ coin (1992Sc16). On this scale, I(K x ray, Re)=8 *3*.
[‡] For absolute intensity per 100 decays, multiply by 0.0047 *27*.
[#] 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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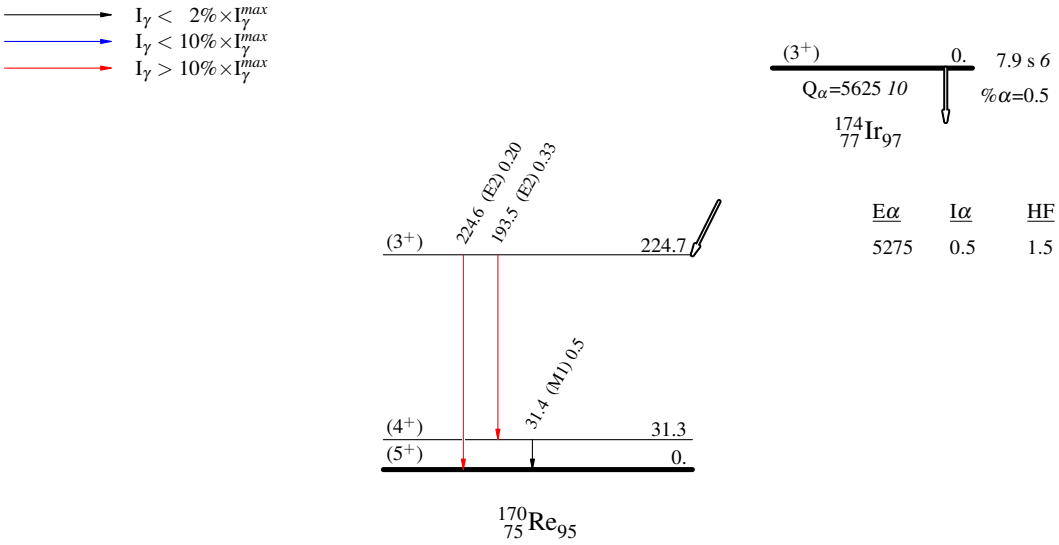
Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



Eα	Iα	HF
5275	0.5	1.5