^{183}Au α decay 1995Bi01,1982Bo04,1968Si01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 110, 265 (2009)	15-Nov-2008

Parent: ^{183}Au: E=0.0; $J^\pi=(5/2)^-$; $T_{1/2}$=42.8 s *10*; Q(α)=5466 *3*; %α decay=0.55 *25*

^{183}Au-%α decay: %α(^{183}Au)=0.55 *25* from unweighted average of 0.8 *2* (1995Bi01) and 0.30 *5* (1970Ha18, based on parent-daughter α intensities).

Others: 1970Ha18, 1970Ma24, 1968De01.

Parent J from systematics, π from allowed ε decay to π=−.

^{179}Ir Levels

E(level)†	J^π‡	Comments
0.0	$(5/2)^-$	
99.7	$(1/2)^-$	
192.7	$(3/2)^-$	E(level): 193 *7* from energy difference for α groups in 1995Bi01.
271 *11*	$(1/2,3/2)^+$	E(level): from energy difference for α groups in 1995Bi01.
394 *11*		E(level): from energy difference for α groups in 1995Bi01.

† From measured Eγ (1995Bi01), except as noted.

‡ From Adopted Levels.

α radiations

Eα†	E(level)	Iα‡@	HF#	Comments
4964 *10*	394	0.20 *10*	7 *5*	
5084 *10*	271	0.40 *10*	15 *8*	Coincident with Kα x ray and Kβ x ray.
5160 *5*	192.7	0.59 *10*	26 *13*	Coincident with Kα x ray, Kβ x ray, 92.5γ, 99.7γ, 193.2γ.
5346 *3*	0.0	98.8 *10*	1.5 *7*	Eα: weighted average of 5349 *5* (1995Bi01) and 5344 *4* (the value recommended by 1991Ry01 based on Eα=5343 *5* (1982Bo04) and Eα=5343 *5* (1968Si01)). Other measurements: 1968De01 (5345 *40*, 5312 *33*, 5322 *29*, 5311 *26*), 1970Ha18 (5350 *20*), 1970Ma24 (5343 *20*).

† From 1995Bi01.

‡ Relative Iα from 1995Bi01, renormalized by evaluator so ΣIα=100.

If r_0=1.525 *13* (unweighted average of r_0(^{178}Os)=1.538 *25* and r_0(^{180}Pt)=1.512 *11* (1998Ak04)), %α(^{183}Au)=0.55 *25* and $T_{1/2}$(183AU)=42.8 s *10* (weighted average of 44.6 s *19* (1995Bi01), 42 s *4* (1970Ha18), 42.0 s *12* (1970Ma24), 45 s *4* (1968Si01)).

@ For absolute intensity per 100 decays, multiply by 0.0055 *25*.

γ(^{179}Ir)

Eγ†	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.‡	δ‡	α#	Comments
92.5	192.7	$(3/2)^-$	99.7	$(1/2)^-$	M1(+E2)	≤0.52	7.52 *18*	α(K)=5.7 *6*; α(L)=1.4 *4*; α(M)=0.33 *9*; α(N+..)=0.095 *25* α(N)=0.080 *22*; α(O)=0.014 *4*; α(P)=0.00071 *8*
99.7	99.7	$(1/2)^-$	0.0	$(5/2)^-$	E2		4.67	α(K)=0.758 *11*; α(L)=2.95 *5*; α(M)=0.758 *11*; α(N+..)=0.211 *3* α(N)=0.183 *3*; α(O)=0.0279 *4*; α(P)=9.17×10^{-5} *13* Eγ: from Eγ and E(level) in fig. 8 of 1995Bi01; Eγ=99.5 in table iii.

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^{183}Au α decay 1995Bi01,1982Bo04,1968Si01 (continued)

$\gamma(^{179}Ir)$ (continued)

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[#]	Comments
193.2	192.7	$(3/2)^-$	0.0	$(5/2)^-$	[M1,E2]	0.7 *3*	α(K)=0.5 *3*; α(L)=0.140 *14*; α(M)=0.034 *5*; α(N+..)=0.0097 *12* α(N)=0.0083 *12*; α(O)=0.00137 *10*; α(P)=6.E−5 *4*

[†] From 1995Bi01; uncertainty unstated by authors.
[‡] 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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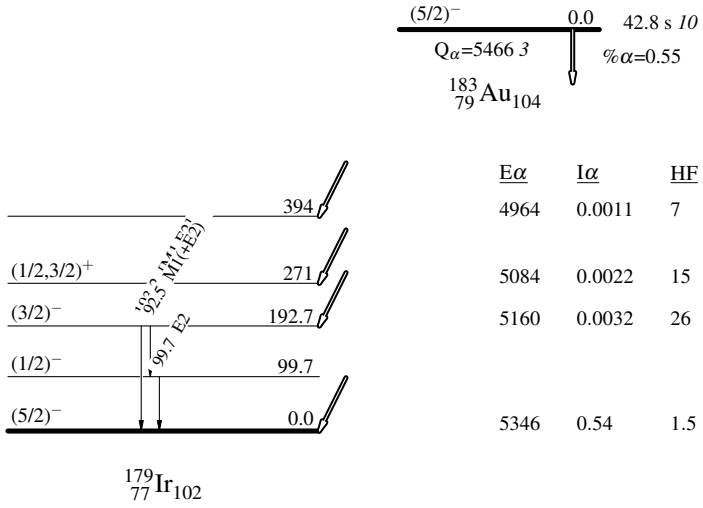
Decay Scheme



Eα	Iα	HF
4964	0.0011	7
5084	0.0022	15
5160	0.0032	26
5346	0.54	1.5