^{173}Ir ε decay (2.20 s) 1992Bo21,1992Sc16

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	J. Tuli	ENSDF	15-Aug-2015

Parent: ^{173}Ir: E=226 *18*; J^π=(11/2$^-$); $T_{1/2}$=2.20 s *5*; Q(ε)=7370 *SY*; %ε+%β^+ decay=88 *1*

^{173}Ir-E,J^π,$T_{1/2}$: From ^{173}Ir Adopted Levels.

1992Bo21: sources from fusion of ^{32}S with samarium (E(^{32}S)=180-195 MeV), helium-jet transport (some sources from ^{40}Ca fusion with samarium); measured Eγ, Iγ (γ multianalysis), γX coin, $\gamma\gamma$ coin.

1992Sc16: sources from ^{141}Pr(^{36}Ar,4n), E(^{36}Ar)=234 MeV, helium-jet transport; monoisotopic targets; measured excitation functions, Eγ, Iγ, γX coin, $\gamma\gamma$ coin.

The partial decay scheme and all data are from 1992Sc16, except where noted.

^{173}Os Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	5/2$^-$	22.4 s *9*	
91.8 *2*	7/2$^-$		
141.4 *3*	(9/2$^+$)	>28 ns	$T_{1/2}$: estimate from prompt $\gamma\gamma$-timing width (1992Bo21); 1990Ba29 estimate several microseconds in (HI,xnγ).
219.4 *5*	9/2$^-$		
386.7 *3*	11/2$^-$		

γ(^{173}Os)

Unplaced γ's are attributed to ^{173}Ir(2.20 s) or ^{173}Ir(9.0 s).

Eγ	Iγ	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.[‡]	δ	α[#]	Comments
49.6 *2*	≈33[†]	141.4	(9/2$^+$)	91.8	7/2$^-$	E1		0.518	α(L)= 0.396; α(M)= 0.0918 α(exp)=0.7 *2* (1992Sc16).
91.8 *2*	≈7[†]	91.8	7/2$^-$	0.0	5/2$^-$	M1+E2	0.30 *16*	7.35 *11*	α(K)= 5.7 *5*; α(L)= 1.3 *3*; α(M)= 0.30 *8*; α(N+..)= 0.091 *22* δ: from α(K)exp=5.7 *4* (1992Sc16). Other: α(K)exp=5 *1* (1992Bo21). δ=−0.7 *+3−6* (from (HI,xnγ) (1990Ba29)).
127.6 *5*	7 *2*	219.4	9/2$^-$	91.8	7/2$^-$	M1+E2		2.3 *6*	α(K)= 1.5 *9*; α(L)= 0.6 *3*; α(M)= 0.16 *8*; α(N+..)= 0.048 *20* Reported by 1992Sc16 only. δ=−2.7 *+11−27* or −0.16 *+17−21* (from (HI,xnγ) (1990Ba29)). α: α brackets combined range for M1 and E2.
[x]147.7 *2*	16 *2*								
[x]285.0 *2*	25 *2*								
294.9 *2*	16 *2*	386.7	11/2$^-$	91.8	7/2$^-$	E2		0.0971	α(K)= 0.0622; α(L)= 0.0265; α(M)= 0.00653; α(N+..)= 0.00193
[x]296	<5								

[†] Sources also contained ^{173}Ir(9.0 s); 1992Sc16 attribute 25% of Iγ(91.8γ) and 33% of Iγ(49.6γ) to 2.20-s isomer. Iγ(total)=27 *2* for 91.8γ, Iγ(total)=100 for 49.6γ.

[‡] From (HI,xnγ).

[#] 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.

[x] γ ray not placed in level scheme.

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Decay Scheme

Intensities: Relative I_γ