^{193}Ir IT decay (10.53 d) 2004Ni14,1987Li16

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 143, 1 (2017)	31-Mar-2017

Parent: ^{193}Ir: E=80.238 *6*; $J^{\pi}=11/2^{-}$; $T_{1/2}=10.53$ d *4*; %IT decay=100.0

^{193}Ir Levels

Data are from 1987Li16, except where noted, highly pure sources from ^{192}Os(n,γ) E=thermal, osmium enriched to 99.4% in ^{192}Os, chemical separation; measured Eγ, Iγ(absolute) (calibrated planar germanium, well-type germanium detectors), E(ce), Ice(absolute) (4$\pi\beta$ proportional counter, evacuated windowless Si(Li) detector); determined Ir L-subshell fluorescence yield and Coster-Kronig coefficients.
2004Ni14 accurately measured the isomeric transition α(K); enriched (99.935%) ^{192}Os target, chemical separation, HPGe detector.

E(level)	J^{π}[†]	$T_{1/2}$	Comments
0.0	$3/2^{+}$	stable	
80.238 *6*	$11/2^{-}$	10.53 d *4*	%IT=100 $T_{1/2}$: Absolute electron counting in 4$\pi\beta$ proportional counter (1987Li16). Other values: 11.9 d *5* (1957Bo12), 10.8 d *5* (1969Bi01), 12 d *2* (1970Ba56), 10.60 d *11* (1975Ba35).

[†] From Adopted Levels.

$\gamma(^{193}Ir)$

It has been suggested that α(K) for this isomeric transition is decreased due to an 'electronic bridge' effect (1988Zh11); however, additional calculations (1989Ba76,1990Ba48) seem to indicate that this second-order effect does not contribute measurably to the α of this transition. This effect is further discussed in 1989Pi14, 1990Ko06, 1990Ko22, 1990Ko28, 1992Tk01, 1994Tk02. 2004Ni14 gives precise value of measured α(K) and compares the experimental value with several theoretical calculations.

Eγ	E$_i$(level)	J_i^{π}	E$_f$	J_f^{π}	Mult.	α[‡]	I$_{(\gamma+ce)}$[†]	Comments
80.22 *2*	80.238	$11/2^{-}$	0.0	$3/2^{+}$	M4	2.14×10^{4}	100	ce(K)/(γ+ce)=0.00503; ce(L)/(γ+ce)=0.681; ce(M)/(γ+ce)=0.235; ce(N+)/(γ+ce)=0.0793 Eγ: other values: Eγ=80.19 *5* (1957Bo12), Eγ=80.27 *4* (1970Ba56). Other: 1966Sy01. Mult.: from L1:L2:L3 (exp)=54.5 *3*:10.9 *2*:225 *1*. Also: α(K)exp=103.0 *8* (from I(K x ray)/Iγ assuming ω(K)=0.958 *4* given by 1996Sc06) (2004Ni14). Other: α(K)exp=104 *3* (I(K x ray)/Iγ) (1987Li16); α(K)exp=92.6 *9* (I(K x ray)/Iγ) (1988Zh11). K:L:M:N:(O+P)(exp)= 2.08 *4*:290.4 *6*:101.4 *6*:26.6 *3*:3.8 *1* (Ice(K) deduced from I(K x ray) (Ir fluorescence yield =0.95)); (O+P)/N3(exp)=0.228 *2* (1975Ma32). Other ce data: 1970Ba56, 1969Bi01, 1957Bo12.

[†] Absolute intensity per 100 decays.
[‡] 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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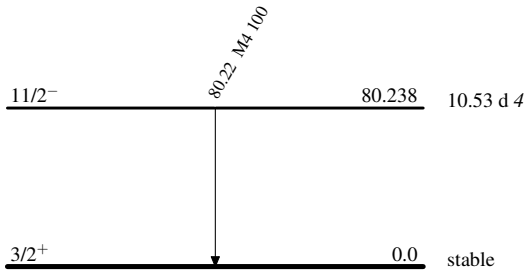
Decay Scheme

%IT=100.0



$^{193}_{77}Ir_{116}$