^{190}Ir IT decay (1.120 h) 1996Ga30,1964Ha06

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, [1] and Jun Chen[2]	NDS 169, 1 (2020)	15-Oct-2020

Parent: ^{190}Ir: E=26.1 *1*; J^π=(1)$^-$; $T_{1/2}$=1.120 h *3*; %IT decay=100.0

1996Ga30: source was produced via ^{192}Os(d,4n) with E=27.8 MeV deuteron beam from the isochronous cyclotron at the Institut fur Strahlen and Kernphysik (ISKP) of the University of Bonn. Conversion electrons were momentum-analyzed with a double-orange iron-free spectrometer and detected with a plastic scintillator; γ rays were detected with an LEPS detector. Measured E(ce), Eγ, ce-γ-coin, ce(t). Deduced half-life.

1964Ha06: source was produced from ^{190}Os(p,n) with E=12-22 MeV proton beams from the ORNL 86-Inch cyclotron. Measured ce with a magnetic spectrograph. A 15% uncertainty from authors′ statement has been assigned to measured I(ce) values by evaluators.

Isomer ratio measurements: 1987Re05, 1972Ze02, 1967Fl14.

^{190}Ir Levels

E(level)	J^π[†]	$T_{1/2}$	Comments
0.0	4$^-$		
26.1 *1*	(1)$^-$	1.120 h *3*	J^π: this level was assigned to have $J^\pi=7^+$ by 1964Ha06 based on a 148.7, M4 transition to this level from the (11)$^-$ 3.1-h isomer at an energy of 175 keV as proposed by 1964Ha06, and later based on the newly-identified γ transitions from the γ decay of the 3.1-h isomer and the ce data of the 26.1-keV transition, 1996Ga30 claimed that the 3.1-h isomer is at E=374.6 keV and that the 26.1-keV transition does not belong to the decay path of the 3.1-h isomer, and assigned $J^\pi=1^-$ to the 1.1-h isomer. $T_{1/2}$: from ce(t) in 1996Ga30. Other: 1.2 h (1964Ha06).

[†] From the Adopted Levels.

γ(^{190}Ir)

I(L$_\alpha$ x ray)(Ir)=14.0% *7*, I(L$_\beta$ x ray)(Ir)=4.3% *2* (1987Re05).

E$_\gamma$	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.	α[‡]	I$_{(\gamma+ce)}$[†]	Comments
26.1 *1*	26.1	(1)$^-$	0.0	4$^-$	M3	9.9×10^5 *3*	100	α(L)=6.99×10^5 *20*; α(M)=2.26×10^5 *7*; α(N)=5.72×10^4 *17*; α(O)=8.8×10^3 *3*; α(P)=145 *4* E$_\gamma$: from 1996Ga30, deduced from measured conversion-electron energies. Mult.: from L1:L2:L3=13:<1:100 and M1:M3:M5=15:100:5 (1964Ha06). Relative to ce(K)(502γ in ^{190}Os)=100, ce(L1)=44 *7*, ce(L2)<4, ce(L3)=350 *52*, ce(M)=118 *18* (1964Ha06).

[†] 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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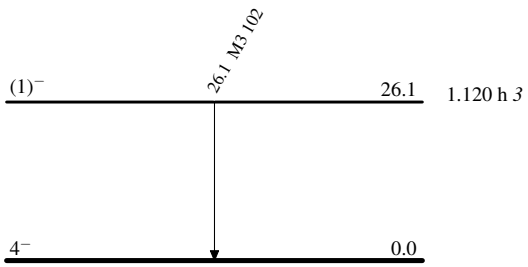
Decay Scheme

%IT=100.0



$^{190}_{77}Ir_{113}$