(HI,xnγ) 2012Dr02

History

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

Beam=^{136}Xe, targets=^{186}W, ^{187}Re, ^{192}Os.

6.0 MeV/u ^{136}Xe pulsed beams, provided by the ATLAS facility at ANL, bombarded three different targets: enriched, metallic ^{186}W and ^{187}Re foils, ≈6 mg/cm^2 thick with 25 mg/cm^2 gold foil directly behind them and a pressed 44 mg/cm^2 enriched ^{192}Os target with a 10 mg/cm^2 gold foil behind it. Gamma rays detected by Gammasphere array (100 HPGe Compton-suppressed Ge detectors). Measured Eγ, Iγ, γγγ coin, γγ(t), γγ(θ). Deduced level scheme, J^π, $T_{1/2}$, total conversion coefficients and multipolarity.

^{193}Ir Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	3/2$^+$		Jπ: From Adopted Levels. configuration: π(3/2$^+$[402]).
80.238# *6*	11/2$^-$	10.53 d *4*	%IT=100 Additional information 1. E(level),$T_{1/2}$: from Adopted Levels. configuration: π(11/2$^-$[505]).
469.4@ *5*	13/2$^-$		
479.1# *5*	15/2$^-$		
928.4@ *5*	17/2$^-$		
1024.6# *5*	19/2$^-$		
1526.1 *6*	21/2$^-$		
1590.9@ *6*	21/2$^-$		
1713.5# *6*	23/2$^-$		
1727.0 *6*	23/2$^-$,25/2$^-$		
1822.1 *6*	(23/2)		
1843.8 *7*	(23/2)		
1892.5 *6*	25/2$^-$		
1942.8 *7*	25/2$^-$,27/2$^-$		
2050.8 *7*	27/2$^-$		
2230.3 *7*	(29/2$^+$)		
2277.4 *7*	31/2$^+$	124.8 μs *21*	%IT=100 $T_{1/2}$: from γ(t) (2012Dr02). configuration: possible ν(9/2$^-$[505],11/2$^+$[615])⊗π(11/2$^-$[505]).

† From a least-squares fit to Eγ.
‡ From 2012Dr02, unless otherwise stated.
# Band(A): Member of the πh$_{11/2}$ band, α=−1/2.
@ Band(B): Member of the πh$_{11/2}$ band, α=+1/2.

γ(^{193}Ir)

Eγ†	Iγ†	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	α&	Comments
(10# *1*)		479.1	15/2$^-$	469.4	13/2$^-$			
(47.2# *10*)	406 *12*	2277.4	31/2$^+$	2230.3	(29/2$^+$)	[M1]	9.8 *4*	α(L)=7.5 *3*; α(M)=1.73 *6*; α(N+..)=0.508 *18* α(N)=0.426 *15*; α(O)=0.075 *3*; α(P)=0.00568 *20* Iγ: inferred in 2012Dr02, from total intensity balance and total electron conversion coefficient.

Continued on next page (footnotes at end of table)

(HI,xnγ) 2012Dr02 (continued)

γ(^{193}Ir) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[&]	Comments
(49[#] *1*)		1892.5	25/2$^-$	1843.8	(23/2)			
(50[#] *1*)		1942.8	25/2$^-$,27/2$^-$	1892.5	25/2$^-$			
(71[#] *1*)		1892.5	25/2$^-$	1822.1	(23/2)			
96.0 *5*		1024.6	19/2$^-$	928.4	17/2$^-$			
120.7 *5*		1942.8	25/2$^-$,27/2$^-$	1822.1	(23/2)			
136.0 *5*		1727.0	23/2$^-$,25/2$^-$	1590.9	21/2$^-$	M1+E2		Mult.: α(exp)=1.79 *11* gives δ=1.35 *25*.
158.3 *5*		2050.8	27/2$^-$	1892.5	25/2$^-$	M1		Mult.: α(exp)=1.60 *30*.
165.3 *5*		1892.5	25/2$^-$	1727.0	23/2$^-$,25/2$^-$	M1		Mult.: α(exp)=1.96 *32*.
178.9 *5*		1892.5	25/2$^-$	1713.5	23/2$^-$	E2		Mult.: α(exp)=0.48 *19*.
187.3 *5*		1713.5	23/2$^-$	1526.1	21/2$^-$			
200.9 *5*		1727.0	23/2$^-$,25/2$^-$	1526.1	21/2$^-$	(E2)		Mult.: α(exp)=0.24 *6*.
215.8 *5*		1942.8	25/2$^-$,27/2$^-$	1727.0	23/2$^-$,25/2$^-$	M1+E2		Mult.: α(exp)=0.44 *12* gives δ=1.2 *5*.
226.7 *5*	1715 *51*	2277.4	31/2$^+$	2050.8	27/2$^-$	M2	2.81 *5*	α(K)=2.13 *4*; α(L)=0.522 *9*; α(M)=0.1267 *21*; α(N+..)=0.0372 *6* α(N)=0.0314 *6*; α(O)=0.00548 *9*; α(P)=0.000373 *6* Mult.: α(exp)=3.30 *20*.
231.3 *5*		1822.1	(23/2)	1590.9	21/2$^-$			
323.9 *5*		2050.8	27/2$^-$	1727.0	23/2$^-$,25/2$^-$	(E2)		Mult.: α(exp)=0.02 *12*.
334.5 *5*	4153 *57*	2277.4	31/2$^+$	1942.8	25/2$^-$,27/2$^-$	(E3)	0.303	α(K)=0.1248 *19*; α(L)=0.1335 *21*; α(M)=0.0346 *6*; α(N+..)=0.00980 *16* α(N)=0.00845 *14*; α(O)=0.001329 *21*; α(P)=1.95×10^{-5} *3* Mult.: α(exp)=0.31 *7*.
337.8 *5*		2230.3	(29/2$^+$)	1892.5	25/2$^-$	M2		Mult.: α(exp)=0.68 *16*.
385.0 *5*	389 *44*	2277.4	31/2$^+$	1892.5	25/2$^-$	[E3]	0.179	α(K)=0.0863 *13*; α(L)=0.0699 *11*; α(M)=0.0180 *3*; α(N+..)=0.00510 *8* α(N)=0.00439 *7*; α(O)=0.000696 *11*; α(P)=1.298×10^{-5} *19*
389.1 *5*		469.4	13/2$^-$	80.238	11/2$^-$			
398.9 *5*		479.1	15/2$^-$	80.238	11/2$^-$			
449.3 *5*		928.4	17/2$^-$	479.1	15/2$^-$	D+Q[@]		
458.8 *5*		928.4	17/2$^-$	469.4	13/2$^-$			
501.3 *5*		1526.1	21/2$^-$	1024.6	19/2$^-$	D+Q[@]		
503.3 *5*		2230.3	(29/2$^+$)	1727.0	23/2$^-$,25/2$^-$			
545.7 *5*		1024.6	19/2$^-$	479.1	15/2$^-$	Q[@]		
566.3 *5*		1590.9	21/2$^-$	1024.6	19/2$^-$	D+Q[@]		
597.7 *5*		1526.1	21/2$^-$	928.4	17/2$^-$			
662.7 *5*		1590.9	21/2$^-$	928.4	17/2$^-$			
688.8 *5*		1713.5	23/2$^-$	1024.6	19/2$^-$	Q[@]		
797.4 *5*		1822.1	(23/2)	1024.6	19/2$^-$			
819.2 *5*		1843.8	(23/2)	1024.6	19/2$^-$			

[†] From 2012Dr02. ΔEγ were estimated by the evaluator.

[‡] From total electron conversion coefficients, unless otherwise stated. A list of numerical values of the total electron conversion coefficients corresponding to those presented in figure 3 of 2012Dr02 was received from the first author (G.D. Dracoulis) on Feb. 28, 2012. These values are listed under comments.

[#] Implied by γγ coincidences, but not observed directly.

[@] From γγ(θ) in 2012Dr02.

[&] 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.

(HI,xnγ) 2012Dr02

Level Scheme

Intensities: Relative I_γ

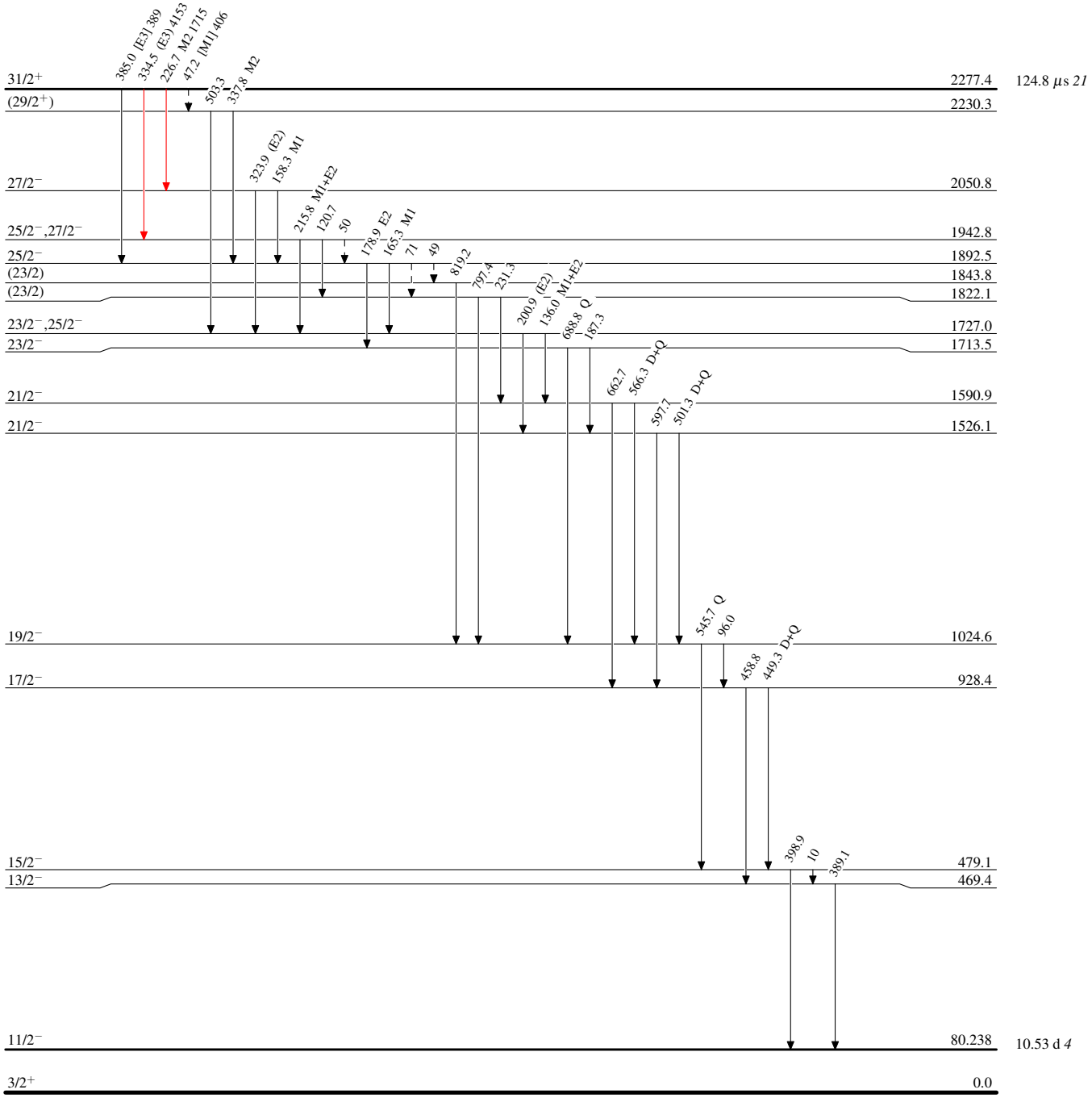
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

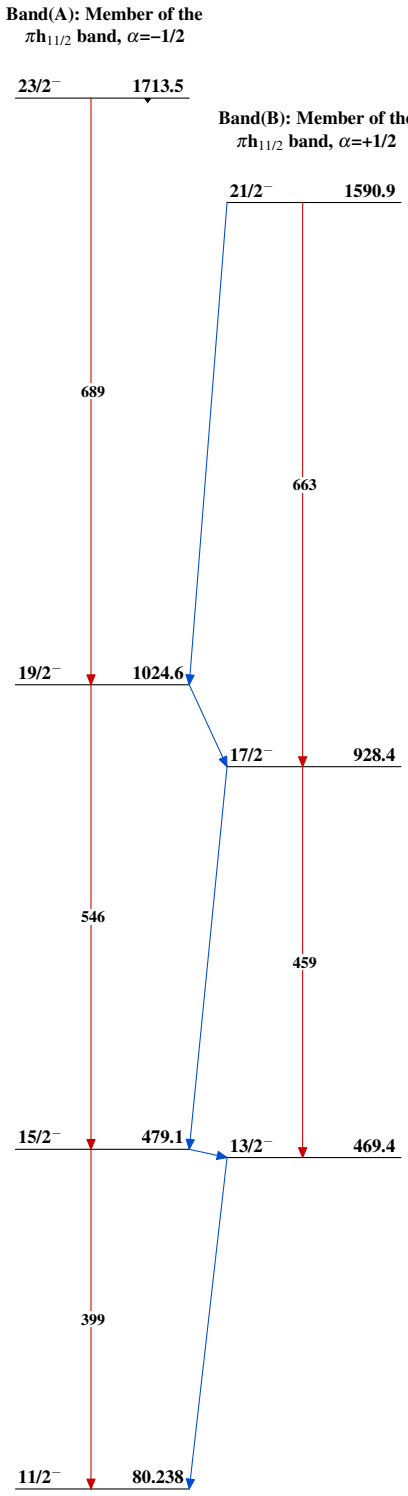
$I_\gamma > 10\% \times I_\gamma^{max}$

γ Decay (Uncertain)



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

(HI,xnγ) 2012Dr02



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