^{180}**Hf(^{238}U,Xγ)**   **2001Wh02**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 126, 151 (2015)	1-Feb-2015

E(^{238}U)=1.6 GeV, beam chopped at 8.25/16.5 μs and 2/4 ms on/off cycles. Measured Eγ, Iγ, $\gamma\gamma$, γ-x-ray and γ-t coincidences using Gammasphere consisting of 98 HPGe and 3 x-ray detectors, all with Compton-suppression.

^{180}Lu Levels

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$	Comments
0[#]	5$^+$		
141.0[#]	(6$^+$)		
306.0[#]	(7$^+$)		
496.0[#]	(8$^+$)		
624.0	(9$^-$)	≥1 ms	E(level): K^{π}=9$^-$ isomer. Possible configuration=π9/2[514]ν9/2[624]. T$_{1/2}$: from comparison of relative intensity of isomer in 16.5 μs and 4 ms beam-off cycles.

† From least-squares fit to Eγ by evaluator.
‡ As proposed by 2001Wh02 based on assumed multipolarities and band structure.
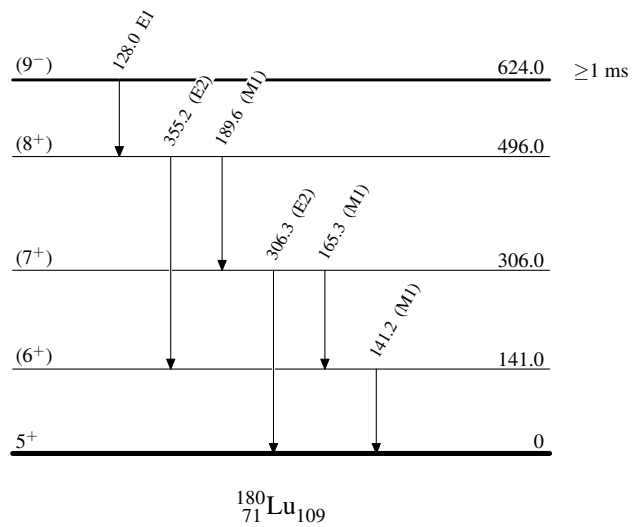# Band(A): K^{π}=5$^+$ band. Possible configuration=ν1/2[510] π9/2[514].
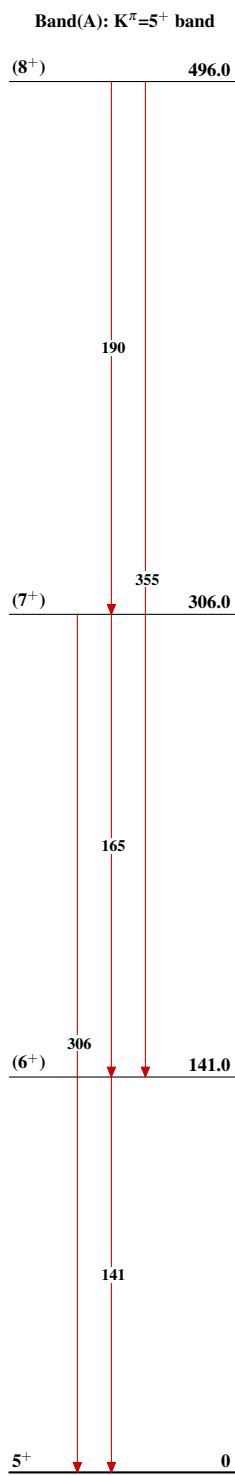
γ(^{180}Lu)

E$_{\gamma}$	E$_i$(level)	J$^{\pi}_i$	E$_f$	J$^{\pi}_f$	Mult.[†]	Comments
128.0	624.0	(9$^-$)	496.0	(8$^+$)	E1	α(exp)=0.3 1, from transition intensity balance. Mult.: from α(exp).
141.2	141.0	(6$^+$)	0	5$^+$	(M1)	
165.3	306.0	(7$^+$)	141.0	(6$^+$)	(M1)	
189.6	496.0	(8$^+$)	306.0	(7$^+$)	(M1)	
306.3	306.0	(7$^+$)	0	5$^+$	(E2)	
355.2	496.0	(8$^+$)	141.0	(6$^+$)	(E2)	

† From expected band structure as proposed by 2001Wh02, except where noted. The 100-200 keV transitions are assumed to be M1 and the 300-400 keV cross-over transitions are assumed to be E2.

$\underline{^{180}\textbf{Hf}(^{238}\textbf{U,X}\gamma)}$ **2001Wh02**

<u>Level Scheme</u>

$^{180}_{71}$Lu$_{109}$

$\underline{{}^{180}\textbf{Hf}({}^{238}\textbf{U,X}\gamma) \quad \textbf{2001Wh02}}$

Band(A): K$^{\pi}$=5^{+} band

(8^{+})   496.0

190

355
(7^{+})   306.0

165

306
(6^{+})   141.0

141

5^{+} 0

${}^{180}_{71}$Lu$_{109}$