(HI,xnγ) 1981Wi08,1986Mc14,2006Fu06

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, A. A. Sonzogni	NDS 114, 435 (2013)	1-Apr-2013

1981Wi08: delayed γ rays from the reaction ^{122}Te(^{32}S,p3n) revealed an isomer with $T_{1/2}$=92 ns *8* which decayed through an eleven γ-ray cascade to a known low-lying 24-s 9^+ candidate for ground state. Coincidences between a high-multiplicity triggered sum spectrometer and semiconductor detectors enabled the establishment of a level scheme.

1986Mc14: ^{92}Zr(^{60}Ni,pnγ) and ^{93}Nb(^{60}Ni,2pnγ) reactions, E=240-250 MeV; confirmed the previous decay scheme of 1981Wi08 and added five additional transitions to it.

2006Fu06: ^{141}Pr(^{16}O,7nγ), E=165MeV. Measured Eγ, Iγ, lifetimes, γγ, γγ(t). Compton-suppressed co-axial HPGe detectors, placed at 45°, 70°, 90°, 125° and 150° with respect to beam axis.

Others: 1980Bo07, 1979Ha29.

α: Additional information 1.

^{150}Ho Levels

E(level)†‡	Jπ#	$T_{1/2}$	Comments
0.0	$(2)^-$	72 s *4*	E(level),$T_{1/2}$: from Adopted Levels.
x	$(9)^+$	23.5 s *3*	$T_{1/2}$,E(level): from Adopted Levels.
216.76+x *9*	(8^+)		
1096.02+x *8*	(11^-)	18 ns *2*	$T_{1/2}$: value from 1981Wi08.
1359.68+x *11*	(12^-)		
1535.03+x *9*	(11^+)		
1988.65 *12*	(13^-)		
2247.06 *11*	(13^+)		
2301.60+x *13*	(15^-)		
2431.28+x *18*			
2527.28+x *13*	(15^+)		
2625.48+x *16*	(17^+)	84 ns *8*	$T_{1/2}$: remeasured by 1986Mc14.
3684.5+x *10*	18^-		
4033.8+x *13*	(20)		
4124.8+x *14*	(21)		
4580.1+x *13*	(21)		
4885.6+x *16*	(22)		
5130.4+x *15*	(22)		
5307.9+x *15*	(22)		
5674.4+x *17*	(23)		
5766.6+x *15*	(23)		
6011.2+x *16*	(24)		
6202.2+x *19*	(27)		
6849.2+x *21*	(26)		
6940.2+x *21*	(26)		
7136.2+x *21*	(27)		
7212.2+x *21*	(27)		
7883.2+x *24*			
7912.2+x *23*	(28)	787 ns *36*	$T_{1/2}$: measured by 2006Fu06.
9149+x *3*			
9705+x *3*			
10388+x *3*			
10753+x *3*			

† Values readjusted on the basis of revised level energy of 24 s isomer (2003Au03).

‡ From least-squares fit to Eγ′s assuming 0.3 keV uncertainty when Eγ quoted to nearest tenth of a keV; otherwise it is 1 keV.

Values assigned through systematics of adjacent Tb, Dy, and Ho nuclei, and shell-model predictions.

(HI,xnγ) 1981Wi08,1986Mc14,2006Fu06 (continued)

γ(^{150}Ho)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α	Comments
91 *1*	16[‡] *7*	4124.8+x	(21)	4033.8+x	(20)	M1		
98.2 *1*	25[†] *2*	2625.48+x	(17^+)	2527.28+x	(15^+)	E2	2.89 *15*	α(K)=1.7 *6*; α(L)=0.9 *6*; α(M)=0.21 *14*; α(N)=0.05 *3*; α(O)=0.006 *4*; α(P)=0.00010 *5* α(N+..)=0.05 *4*
129.8 *2*	2.2[†] *2*	2431.28+x		2301.60+x	(15^-)			
191 *1*	77[‡] *5*	6202.2+x	(27)	6011.2+x	(24)			
216.8 *1*	16[†] *7*	216.76+x	(8^+)	x	$(9)^+$			
225.7 *1*	56[†] *3*	2527.28+x	(15^+)	2301.60+x	(15^-)	E1	0.0367	α(K)=0.0310 *5*; α(L)=0.00450 *7*; α(M)=0.000989 *14*; α(N)=0.000227 *4*; α(O)=3.19×10^{-5} *5* α(P)=1.572×10^{-6} *22*; α(N+..)=0.000261 *4*
263.7 *1*	71[†] *4*	1359.68+x	(12^-)	1096.02+x	(11^-)			
272 *1*	22[‡] *3*	7212.2+x	(27)	6940.2+x	(26)			
280.2 *1*	50[†] *3*	2527.28+x	(15^+)					
287 *1*	2[‡] *1*	7136.2+x	(27)	6849.2+x	(26)			
313.0 *1*	58[†] *3*	2301.60+x	(15^-)					
337 *1*	40[‡] *3*	6011.2+x	(24)	5674.4+x	(23)			
349 *1*	100[‡]	4033.8+x	(20)	3684.5+x	18^-	(E2)		
363 *1*	49[‡] *3*	7212.2+x	(27)	6849.2+x	(26)			
365 *1*	7[#] *2*	10753+x		10388+x				
442.5 *2*	4.3[†] *5*	2431.28+x						
455 *1*	11[‡] *2*	4580.1+x	(21)	4124.8+x	(21)			
546 *1*	6[‡] *3*	4580.1+x	(21)	4033.8+x	(20)			
550 *1*	20[‡] *2*	5130.4+x	(22)	4580.1+x	(21)			
556 *1*	82[#] *6*	9705+x		9149+x				
629.0 *1*	50[†] *3*	1988.65	(13^-)					
636 *1*	20[‡] *6*	5766.6+x	(23)	5130.4+x	(22)			
647 *1*	51[‡] *3*	6849.2+x	(26)	6202.2+x	(27)			
671 *1*	71[‡] *5*	7883.2+x		7212.2+x	(27)			
683 *1*	16[#] *4*	10388+x		9705+x				
703 *1*	37[‡] *3*	6011.2+x	(24)	5307.9+x	(22)			
712.0 *1*	20[†] *1*	2247.06	(13^+)					
738 *1*	22[‡] *2*	6940.2+x	(26)	6202.2+x	(27)			
761 *1*	40[‡] *3*	4885.6+x	(22)	4124.8+x	(21)			
776 *1*	29[‡] *3*	7912.2+x	(28)	7136.2+x	(27)			
789 *1*	40[‡] *6*	5674.4+x	(23)	4885.6+x	(22)			
879.4 *2*	9.4[†] *9*	1096.02+x	(11^-)	216.76+x	(8^+)			
887.4 *2*	27[†] *2*	2247.06	(13^+)					
892.6 *2*	14[†] *1*	1988.65	(13^-)					
896 *1*	2[‡] *1*	4580.1+x	(21)	3684.5+x	18^-			
934 *1*	27[‡] *2*	7136.2+x	(27)	6202.2+x	(27)			
1048 *1*	13[#] *3*	10753+x		9705+x				
1059 *1*	100[‡] *5*	3684.5+x	18^-	2625.48+x	(17^+)	(E1)		

Continued on next page (footnotes at end of table)

(HI,xnγ) 1981Wi08,1986Mc14,2006Fu06 (continued)

$\gamma(^{150}Ho)$ (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π
1096.0 *1*	100† *5*	1096.02+x	(11^-)	x	$(9)^+$
1183 *1*	11‡ *2*	5307.9+x	(22)	4124.8+x	(21)
1237 *1*	100# *5*	9149+x		7912.2+x	(28)
1239 *1*	16# *5*	10388+x		9149+x	
1274 *1*	26‡ *3*	5307.9+x	(22)	4033.8+x	(20)
1535.0 *1*	21† *1*	1535.03+x	(11^+)	x	$(9)^+$
1642 *1*	3‡ *1*	5766.6+x	(23)	4124.8+x	(21)

† For γ's below the 84-ns isomer, Iγ taken from 1986Mc14.
‡ Normalized to 100 for 1059keV γ, unless otherwise stated.
# Normalized to 100 for 1237 keV γ for γ's above the 787 ns isomer at 8412 keV.
@ From intensity balance in the delayed spectrum. Mult(96.0, 225.5γ's) require the assumption that mult(129.8γ) is D or E2.

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Level Scheme

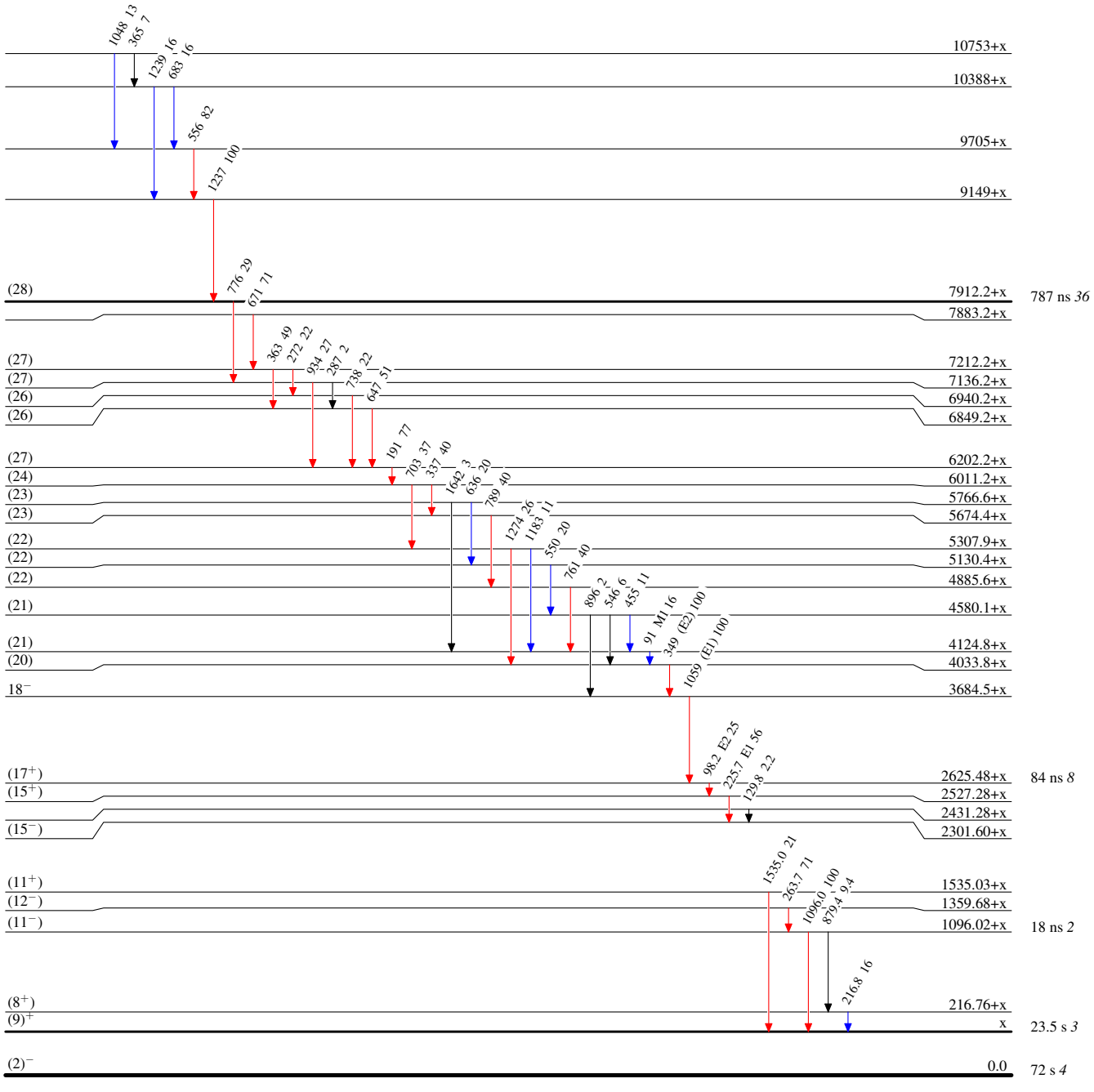
Intensities: Type not specified

Legend

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

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

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



$^{150}_{67}Ho_{83}$