(HI,xnγ)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 117, 1 (2014)	1-Oct-2013

(^{40}Ar,4nγ) E=175 MeV (1985DiZZ,1986DiZZ,1989DrZZ), (^{32}S,4nγ) E=145 MeV (1981Ha17), (^{16}O,4nγ) E=85-92 MeV, (α,8nγ) E=90-120 MeV (1982JuZY,1981Kl05,1980Kl09,1978Da14).

Measured: γ, γγ, γ(θ), γ(t) (1989DrZZ,1983JuZX,1982JuZY,1981Ha17,1981Kl05,1980Da18,1978Da14), ce (1978Da14,1981Kl05,1982JuZY).

Level scheme is that proposed by 1989DrZZ.

^{148}Dy Levels

E(level)	J^{π} †	$T_{1/2}$	Comments
0.0	0^+		
1677.3	2^+		
1687.5	3^-		
2348.3	5^-		
2426.7	4^+		
2731.0	6^+		
2738.1	7^-		
2832.2	8^+	65 ns *10*	$T_{1/2}$: from 1980Kl09.
2919.1	10^+	471 ns *20*	$T_{1/2}$: from 1981Ha17. Other: 480 ns *30* (1978Da14).
3980.7	(11^-)		
4477.2	(12^-)		
4851.4	(12^+)		
5270.4	(13)		
5410.5	(14^+)		
5522.9	(14^-)		
5772.4	(15^-)		
5985.5	(16^-)		
6264.5	(17^-)		
6591.8	(18)		
6601?			
7115.7	(17^-)		
7434.6	(18^+)		
8198.5	(19)		
8532.0	(20)		
8785.4			
9017.4			
9169.6			
9289.8	(21)		
9704.3			
10058.0			
10103.1			
10111.5	(23)		
10456.4			
10933.5			
11816.4			
12536.8			
12651.5			
13220.0			
14235.0			

† Adopted values, supported by unpublished data on γ(θ) and α(K)exp (1989DrZZ,1986DiZZ). J^{π} assignments for levels above 3 MeV are considered as tentative.

(HI,xnγ) (continued)

γ(^{148}Dy)

E_γ[‡]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†‡]	α[#]	Comments
(10.5)		1687.5	3⁻	1677.3	2⁺			E_γ: established by γγ but not seen (1978Da14). E from E(level) difference.
86.9		2919.1	10⁺	2832.2	8⁺	E2	4.60	α(K)=1.561 *22*; α(L)=2.34 *4*; α(M)=0.562 *8* α(N)=0.1258 *18*; α(O)=0.01502 *21*; α(P)=6.48×10^{-5} *9* α(exp)=4.8 *4*, α(L)exp=2.9 *4* (1980Da18).
94.1		2832.2	8⁺	2738.1	7⁻	E1	0.363	α(K)=0.303 *5*; α(L)=0.0474 *7*; α(M)=0.01039 *15* α(N)=0.00236 *4*; α(O)=0.000320 *5*; α(P)=1.384×10^{-5} *20* α(exp)=0.40 *6*, α(L)exp<0.05 (1980Da18).
101.2		2832.2	8⁺	2731.0	6⁺	E2	2.59	α(K)=1.090 *16*; α(L)=1.157 *17*; α(M)=0.277 *4* α(N)=0.0621 *9*; α(O)=0.00747 *11*; α(P)=4.52×10^{-5} *7* α(exp)=1.9 *4*, α(L)exp=1.3 *3* (1980Da18).
114.7		12651.5		12536.8		D		
152.0		9169.6		9017.4		D		
212.7		5985.5	(16⁻)	5772.4	(15⁻)			
279.4		6264.5	(17⁻)	5985.5	(16⁻)	M1	0.1366	α(K)=0.1153 *17*; α(L)=0.01664 *24*; α(M)=0.00365 *6* α(N)=0.000844 *12*; α(O)=0.0001238 *18*; α(P)=7.12×10^{-6} *10* Mult.: R=0.43 *4*.
304.3		2731.0	6⁺	2426.7	4⁺	E2	0.0618	α(K)=0.0464 *7*; α(L)=0.01191 *17*; α(M)=0.00274 *4* α(N)=0.000623 *9*; α(O)=8.20×10^{-5} *12*; α(P)=2.42×10^{-6} *4* α(K)exp=5×10^{-2} *1* (1980Da18).
318.4		7434.6	(18⁺)	7115.7	(17⁻)	D		
327.3		6591.8	(18)	6264.5	(17⁻)	D		
333.5		8532.0	(20)	8198.5	(19)	D		Mult.: R=0.67 *6*.
353.3		10456.4		10103.1				
353.7		10058.0		9704.3		D		Mult.: R=0.71 *10*.
361.8		5772.4	(15⁻)	5410.5	(14⁺)	E1	0.01087	α(K)=0.00923 *13*; α(L)=0.001291 *18*; α(M)=0.000281 *4* α(N)=6.47×10^{-5} *9*; α(O)=9.27×10^{-6} *13*; α(P)=4.94×10^{-7} *7* Mult.: R=0.64 *9*.
382.7		2731.0	6⁺	2348.3	5⁻	E1	0.00951	α(K)=0.00807 *12*; α(L)=0.001126 *16*; α(M)=0.000245 *4* α(N)=5.64×10^{-5} *8*; α(O)=8.10×10^{-6} *12*; α(P)=4.34×10^{-7} *6* α(K)exp=1.1×10^{-2} *3* (1980Da18).
389.8		2738.1	7⁻	2348.3	5⁻	E2	0.0298	α(K)=0.0233 *4*; α(L)=0.00505 *7*; α(M)=0.001148 *16* α(N)=0.000262 *4*; α(O)=3.53×10^{-5} *5*; α(P)=1.268×10^{-6} *18* α(K)exp=2.0×10^{-2} *3* (1980Da18).
398.5		10456.4		10058.0				
407.1		10111.5	(23)	9704.3				
418.3		5270.4	(13)	4851.4	(12⁺)			
462.9		5985.5	(16⁻)	5522.9	(14⁻)	E2	0.0186	α(K)=0.01484 *21*; α(L)=0.00291 *4*; α(M)=0.000657 *10* α(N)=0.0001501 *21*; α(O)=2.06×10^{-5} *3*; α(P)=8.24×10^{-7} *12* Mult.: R=1.04 *8*.
477.4		10933.5		10456.4				
491.4		6264.5	(17⁻)	5772.4	(15⁻)	E2	0.01586	α(K)=0.01274 *18*; α(L)=0.00242 *4*; α(M)=0.000546 *8* α(N)=0.0001249 *18*; α(O)=1.720×10^{-5} *24*; α(P)=7.12×10^{-7} *10*
496.5	129	4477.2	(12⁻)	3980.7	(11⁻)	M1	0.0302	α(K)=0.0256 *4*; α(L)=0.00363 *5*; α(M)=0.000794 *12* α(N)=0.000184 *3*; α(O)=2.70×10^{-5} *4*; α(P)=1.566×10^{-6} *22*

Continued on next page (footnotes at end of table)

(HI,xnγ) (continued)

γ(^{148}Dy) (continued)

E_γ[‡]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†‡]	α[#]	Comments
								α(K)exp=2.0×10^{-2} *5* (1980Da18). Mult.: R=0.76 *4*.
502.2		5772.4	(15$^-$)	5270.4	(13)	Q		
535.2		9704.3		9169.6		D		
559.1		5410.5	(14$^+$)	4851.4	(12$^+$)	E2	0.01139	α(K)=0.00927 *13*; α(L)=0.001659 *24*; α(M)=0.000372 *6* α(N)=8.52×10^{-5} *12*; α(O)=1.185×10^{-5} *17*; α(P)=5.23×10^{-7} *8*
568.5		13220.0		12651.5		(D)		
586.9		8785.4		8198.5	(19)	D		
637.6		9169.6		8532.0	(20)			
660.8		2348.3	5$^-$	1687.5	3$^-$	E2	0.00759	α(K)=0.00625 *9*; α(L)=0.001047 *15*; α(M)=0.000233 *4* α(N)=5.35×10^{-5} *8*; α(O)=7.54×10^{-6} *11*; α(P)=3.57×10^{-7} *5* α(K)exp=0.60×10^{-2} *7* (1980Da18).
720.4		12536.8		11816.4		D		
739.4		2426.7	4$^+$	1687.5	3$^-$	E1	0.00224	α(K)=0.00191 *3*; α(L)=0.000257 *4*; α(M)=5.59×10^{-5} *8* α(N)=1.288×10^{-5} *18*; α(O)=1.87×10^{-6} *3*; α(P)=1.059×10^{-7} *15* α(K)exp=0.18×10^{-2} *8* (1980Da18).
749.4		2426.7	4$^+$	1677.3	2$^+$	E2	0.00568	α(K)=0.00471 *7*; α(L)=0.000756 *11*; α(M)=0.0001676 *24* α(N)=3.85×10^{-5} *6*; α(O)=5.47×10^{-6} *8*; α(P)=2.70×10^{-7} *4* α(K)exp=0.55×10^{-2} *15* (1980Da18).
750.5		10456.4		9704.3				
757.8		9289.8	(21)	8532.0	(20)	D		
763.9		8198.5	(19)	7434.6	(18$^+$)	D		Mult.: R=0.65 *5*.
794.0		5270.4	(13)	4477.2	(12$^-$)	D		
818.9		9017.4		8198.5	(19)	(D)		
821.0[@]		10933.5		10111.5	(23)			
821.8		10111.5	(23)	9289.8	(21)	Q		
829[@]		6601?		5772.4	(15$^-$)			E_γ: observed only in 1981Ha17, not observed in 1989DrZZ.
851.6		7115.7	(17$^-$)	6264.5	(17$^-$)	(D+Q)		
882.9		11816.4		10933.5		Q		
933.5		10103.1		9169.6				
971.0		9169.6		8198.5	(19)	(Q)		
1015.0		14235.0		13220.0				
1045.7	108	5522.9	(14$^-$)	4477.2	(12$^-$)	E2	0.00277	α(K)=0.00234 *4*; α(L)=0.000344 *5*; α(M)=7.56×10^{-5} *11* α(N)=1.742×10^{-5} *25*; α(O)=2.51×10^{-6} *4*; α(P)=1.348×10^{-7} *19* Mult.: R=1.14 *9*. α(K)exp=0.23×10^{-2} *3* (1980Da18).
1061.6	126	3980.7	(11$^-$)	2919.1	10$^+$	E1	1.12×10^{-3}	α(K)=0.000956 *14*; α(L)=0.0001265 *18*; α(M)=2.74×10^{-5} *4* α(N)=6.33×10^{-6} *9*; α(O)=9.26×10^{-7} *13*; α(P)=5.34×10^{-8} *8* α(K)exp=0.08×10^{-2} *1* (1980Da18). Mult.: R=0.80 *4*.
1130.9		7115.7	(17$^-$)	5985.5	(16$^-$)	(D)		

Continued on next page (footnotes at end of table)

(HI,xnγ) (continued)

γ(^{148}Dy) (continued)

E_γ[‡]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†‡]	α[#]	Comments
1170.6		7434.6	(18$^+$)	6264.5	(17$^-$)	(E1)	9.49×10^{-4}	α(K)=0.000801 *12*; α(L)=0.0001056 *15*; α(M)=2.29×10^{-5} *4* α(N)=5.28×10^{-6} *8*; α(O)=7.73×10^{-7} *11*; α(P)=4.48×10^{-8} *7*; α(IPF)=1.331×10^{-5} *19* Mult.: R=1.00 *11*.
1171.9		9704.3		8532.0	(20)	(Q)		
1677.3		1677.3	2$^+$	0.0	0$^+$	E2	1.24×10^{-3}	α(K)=0.000939 *14*; α(L)=0.0001291 *18*; α(M)=2.81×10^{-5} *4* α(N)=6.50×10^{-6} *9*; α(O)=9.49×10^{-7} *14*; α(P)=5.42×10^{-8} *8*; α(IPF)=0.0001398 *20* α(K)exp=0.11×10^{-2} *2* (1980Da18).
1687.5		1687.5	3$^-$	0.0	0$^+$	E3	0.00213	α(K)=0.001726 *25*; α(L)=0.000258 *4*; α(M)=5.67×10^{-5} *8* α(N)=1.310×10^{-5} *19*; α(O)=1.90×10^{-6} *3*; α(P)=1.035×10^{-7} *15*; α(IPF)=7.09×10^{-5} *10* α(K)exp=0.18×10^{-2} *2* (1980Da18).
1932.3	38	4851.4	(12$^+$)	2919.1	10$^+$	E2	1.10×10^{-3}	α(K)=0.000724 *11*; α(L)=9.82×10^{-5} *14*; α(M)=2.14×10^{-5} *3* α(N)=4.93×10^{-6} *7*; α(O)=7.23×10^{-7} *11*; α(P)=4.18×10^{-8} *6*; α(IPF)=0.000253 *4* Mult.: R=1.28 *20*.

† From 1978Da14, 1980Kl09, 1982JuZY, 1980Da18, R=Iγ(0°)/Iγ(90°) (1981Ha17).
‡ From 1989DrZZ (for levels with E>2919, J>10). γ′s labeled D and Q are ΔJ=1 and ΔJ=2 stretched transitions, respectively.
# Additional information 1.
@ Placement of transition in the level scheme is uncertain.

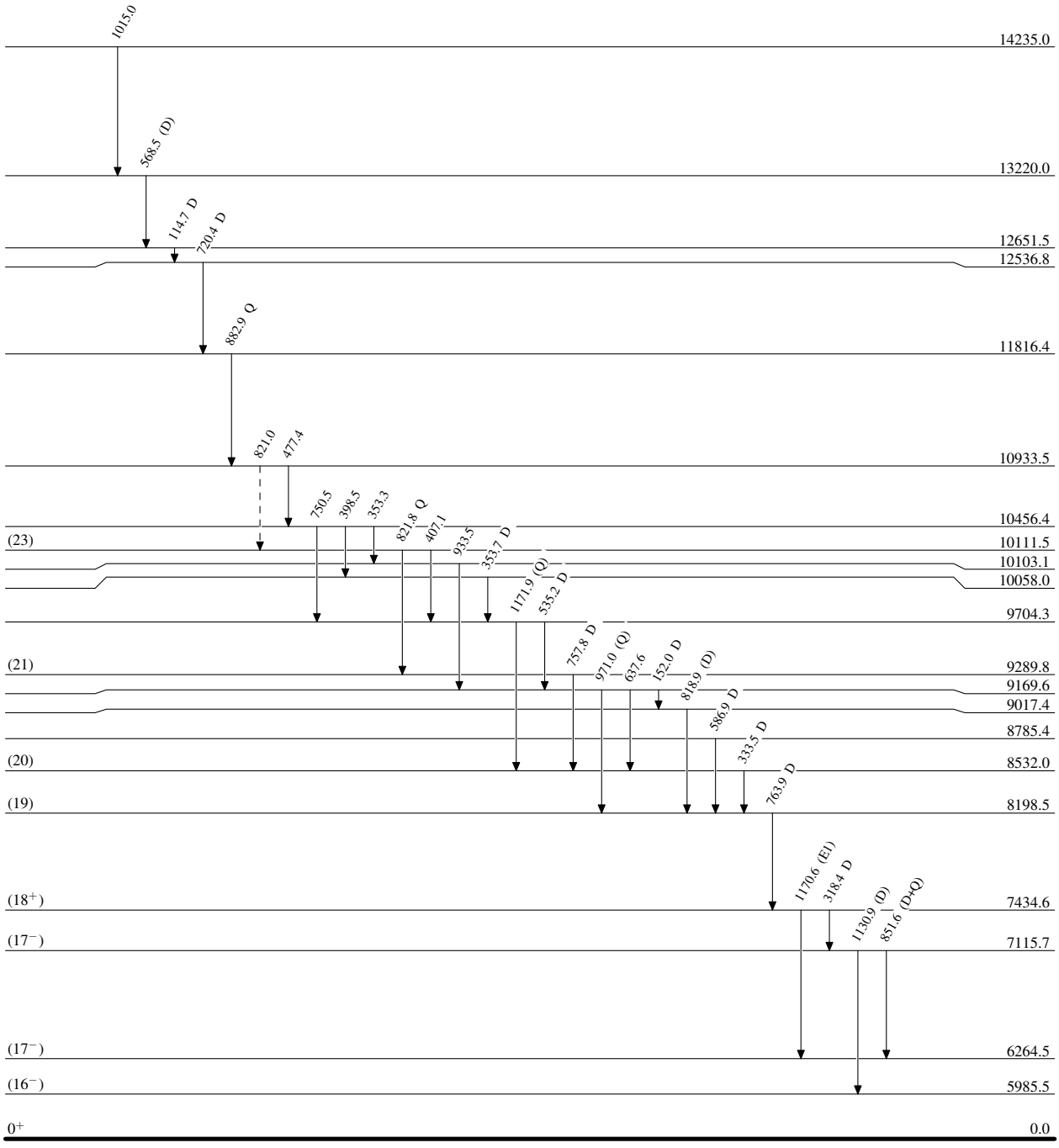
(HI,xnγ)

Legend

Level Scheme

Intensities: Relative I_γ

γ Decay (Uncertain)



$^{148}_{66}Dy_{82}$

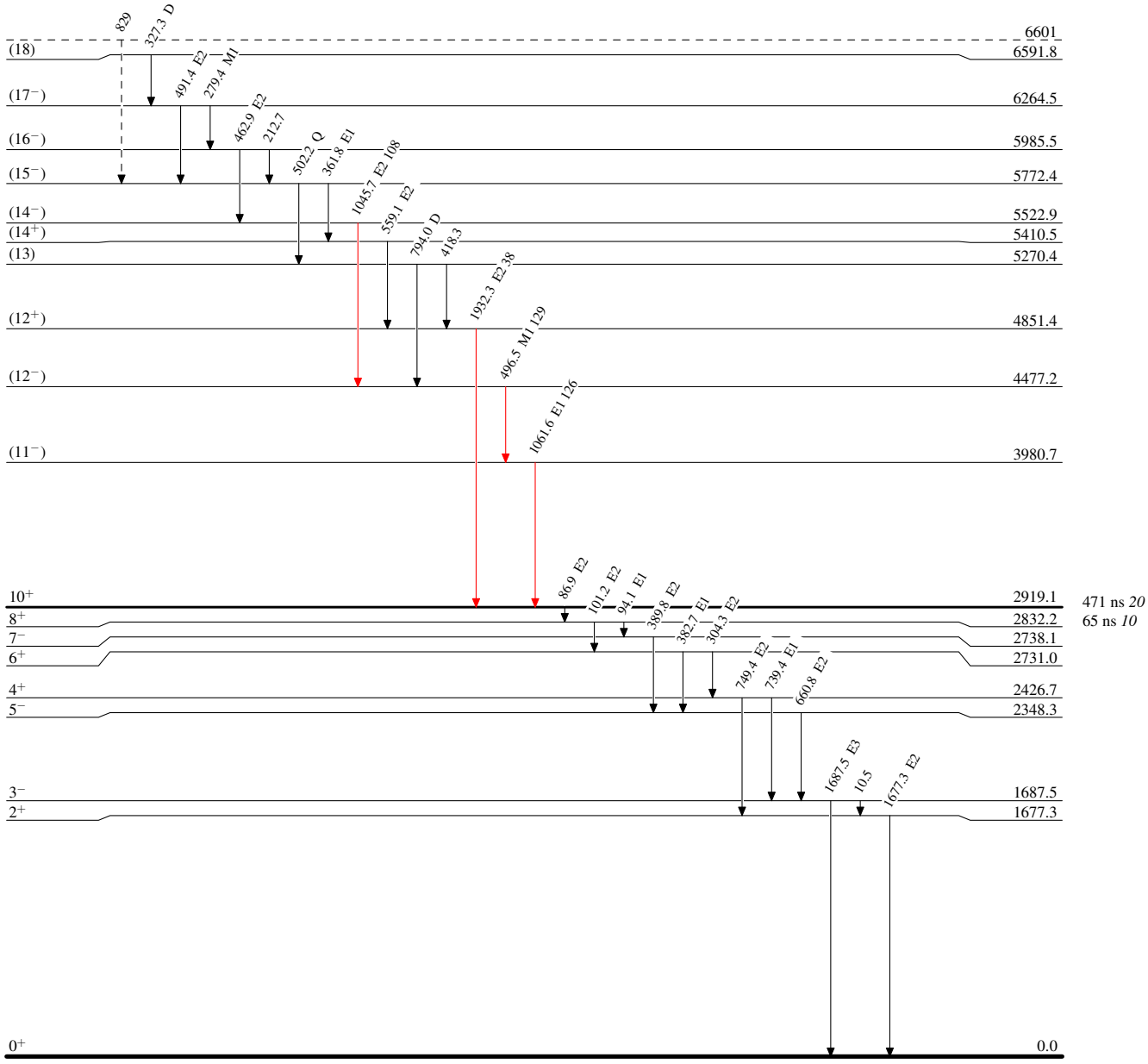
(HI,xnγ)

Level Scheme (continued)

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)



$^{148}_{66}Dy_{82}$