(HI,xnγ) 1997Od01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 110, 507 (2009)	1-Oct-2008

This includes ^{20}Ne(^{136}Xe,A7NG) E=8.2 MeV/A, ^{16}O(^{136}Xe,^{7}nγ) E= 7.4 MeV/A, ^{139}La(^{10}B,4nγ) E=47 MeV, ^{138}Ba(^{13}C,6nγ) E=95,98 MeV. Supersedes: 1995OdZZ, 1994OdZZ, 1994OdZY, 1994Od02, 1993GoZS, reactions 1993GoZO, 1993GoZM, 1993Go12, 1993FeZY, 1993Fe14.
Measured γ, γγ, γγ(t), γ(θ).
1999Je02: ^{122}Sn(^{27}Al,3Particle normalization), E=127 MeV. Measured γγ, γ(t). Nordball multi-detector.
1998El11: ^{139}La(^{10}B,4nγ) E=49 MeV. Measured $T_{1/2}$ Recoil Distance Method (RDM).

^{145}Sm Levels

E(level)‡	Jπ†	$T_{1/2}$#	E(level)‡	Jπ†	$T_{1/2}$#
0.0	7/2−		5679.8 *7*	(33/2)	
1105.1 *4*	13/2+	13.6 ns	5718.8 *7*		
1537.9 *3*	11/2−		5903.2 *7*	(35/2)	
2050.1 *4*	15/2−		5955.5 *7*		
2230.0 *5*	17/2−		6121.7 *8*		
2436.4 *5*	17/2+		6216.0 *7*	(37/2)	
2710.5 *5*	19/2−		6361.2 *7*	(37/2)	
2810.6 *5*	(15/2)		6719.5 *7*	(39/2)	
2899.2 *7*			6756.7 *8*	(39/2)	
2930.0 *5*	21/2+		7327.1 *8*	(43/2)	
2964.8 *6*	19/2(+)		7403.9 *8*	(41/2)	
2978.7 *5*	21/2+	0.12 ns	7448.8 *9*	(41/2)	
3029.9 *6*			7742.7 *8*	(45/2)	
3118.8 *5*	23/2+		7803.4 *9*	(45/2)	
3139.8 *6*			7926.2 *8*	(41/2)	
3321.4 *6*	(21/2)		8072.6 *10*	(47/2)	
3375.4 *8*			8189.7 *9*	(45/2)	
3482.8 *6*	25/2+		8333.0 *8*	(45/2)	
3921.4 *6*	27/2+	1.1 ns *2*	8376.8 *9*	(47/2)	
4227.9 *6*	(27/2)		8579.5 *10*	(47/2)	
4315.1 *7*			8785.3 *8*	(49/2+)	0.96@ μs *+19−15*
4389.0 *7*			9979.8 *10*	(53/2)	
4420.4 *6*	29/2+		10250.1 *11*		
4586.6 *9*			11146.5 *12*		7.4& ns *10*
4646.7 *7*	(29/2)		11454.7 *12*		
4739.9 *7*	(29/2)		12077.1 *13*		
4867.9 *8*	(29/2)		12334.3 *12*		
5028.9 *6*	(31/2)		12717.6 *14*		
5030.9 *6*	(31/2)		12819.6 *13*		
5247.5 *7*	(31/2)		14043.5 *14*		
5506.2 *7*	(33/2)		14427.4 *14*		
5524.6 *7*			14559.4 *15*		

† From Adopted Levels. Jπ adopted from this experiment are based on γ(θ). Jπ values up to 25/2+, 3.5 MeV were assigned earlier based on γ(θ), ce measurements (1991Pi06) and were found consistent with the values determined here (1997Od01). Jπ for the 0.96 μs level at 8786 is based on similarity with neighboring ^{147}Gd and agreement with model calculations. Transitions depopulating levels between 6 and 8.8 MeV were assumed to be D or Q as they were all prompt, within 10 ns.
‡ From least-squares fit to Eγ.
# from 1998El11, Recoil Distance Method.
@ From 1993Fe14. $T_{1/2}$=0.95 μs shown in partial level scheme (2002Go06).
& From 1999Je02.

(HI,xnγ) 1997Od01 (continued)

γ(^{145}Sm)

E_γ	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α †	Comments
140.2 *2*	26.6 *13*	3118.8	$23/2^+$	2978.7	$21/2^+$			A_2=−0.25 *2*, ΔJ=1.
160.9 *11*	11.6 *17*	5028.9	(31/2)	4867.9	(29/2)			
161.1 *11*	5.4 *10*	3482.8	$25/2^+$	3321.4	(21/2)			
180.0 *2*	50.6 *17*	2230.0	$17/2^-$	2050.1	$15/2^-$			A_2=−0.14 *2*, ΔJ=1.
186.9 *12*	4 *3*	8376.8	(47/2)	8189.7	(45/2)			
188.8 *2*	49 *4*	3118.8	$23/2^+$	2930.0	$21/2^+$			A_2=−0.23 *5*, ΔJ=1.
192.4 *3*	15.8 *20*	4420.4	$29/2^+$	4227.9	(27/2)			A_2=−0.34 *10*, ΔJ=1.
205.9 *7*	8.2 *9*	8785.3	($49/2^+$)	8579.5	(47/2)			
209.8 *4*	3.3 *7*	3139.8		2930.0	$21/2^+$			
219.3 *3*		3029.9		2810.6	(15/2)			
219.5 *2*	19.4 *15*	2930.0	$21/2^+$	2710.5	$19/2^-$			A_2=−0.21 *1*, ΔJ=1.
235.5 *8*	0.9# *1*	3375.4		3139.8				
239.7 *5*	3.1 *5*	6361.2	(37/2)	6121.7				
260.4 *5*	11.3 *17*	6216.0	(37/2)	5955.5				
268.2 *2*	39.6 *11*	2978.7	$21/2^+$	2710.5	$19/2^-$	E1	0.0196	α(K)=0.01669 *24*; α(L)=0.00228 *4*; α(M)=0.000486 *7*; α(N+..)=0.0001263 *18* α(N)=0.0001094 *16*; α(O)=1.602×10^{-5} *23*; α(P)=9.09×10^{-7} *13* B(E1)(W.u.)=0.000104 Mult.: from α(K)exp (1991Pi06).
270.3@ *5*	43@ *3*	10250.1		9979.8	(53/2)			
275.7 *8*	10.1 *11*	5955.5		5679.8	(33/2)			
281.3 *7*	2.2 *10*	4867.9	(29/2)	4586.6				
288.8 *4*	5.7 *10*	5028.9	(31/2)	4739.9	(29/2)			A_2=0.49 *15*, ΔJ=1.
306.0 *4*	14.1 *10*	4227.9	(27/2)	3921.4	$27/2^+$			A_2=0.31 *8*, ΔJ=0.
313.0 *4*	22.5 *12*	6216.0	(37/2)	5903.2	(35/2)			A_2=−0.29 *6*, ΔJ=1.
329.9 *5*	17.5 *9*	8072.6	(47/2)	7742.7	(45/2)			
358.2 *5*	10.2 *10*	6719.5	(39/2)	6361.2	(37/2)			A_2=0.65 *21*, ΔJ=1.
364.0 *2*	100.0	3482.8	$25/2^+$	3118.8	$23/2^+$			A_2=−0.13 *1*, ΔJ=1.
391.3 *3*	8.2 *8*	3321.4	(21/2)	2930.0	$21/2^+$			A_2=0.15 *5*, ΔJ=0.
393.8 *4*		4315.1		3921.4	$27/2^+$			
396.1 *10*	17 *11*	6756.7	(39/2)	6361.2	(37/2)			
396.7 *8*	2.6# *3*	3375.4		2978.7	$21/2^+$			
397.2 *5*	19 *5*	5903.2	(35/2)	5506.2	(33/2)			
403.0 *4*	8.3 *8*	6121.7		5718.8				
405.6 *4*	12.9 *9*	6361.2	(37/2)	5955.5				
406.8 *5*	3.1 *8*	8333.0	(45/2)	7926.2	(41/2)			
408.4 *5*	10 *3*	8785.3	($49/2^+$)	8376.8	(47/2)			
415.6 *2*	11.7 *17*	7742.7	(45/2)	7327.1	(43/2)			A_2=−0.16 *2*, ΔJ=1.
430.2 *11*	8.2 *8*	5955.5		5524.6				
432.5 *5*	5 *4*	5679.8	(33/2)	5247.5	(31/2)			
438.4 *4*	66.7 *16*	3921.4	$27/2^+$	3482.8	$25/2^+$	M1	0.0301	α(K)=0.0256 *4*; α(L)=0.00351 *5*; α(M)=0.000751 *11*; α(N+..)=0.000197 *3* α(N)=0.0001702 *25*; α(O)=2.56×10^{-5} *4*; α(P)=1.609×10^{-6} *23* B(M1)(W.u.)=0.00023 *5* A_2=−0.19 *2*, ΔJ=1 min$from α(K)exp (1991Pi06), γ(θ).
452.3 *5*	23.6 *12*	8785.3	($49/2^+$)	8333.0	(45/2)			
458.1 *4*	8.6 *7*	6361.2	(37/2)	5903.2	(35/2)			A_2=−0.28 *8*, ΔJ=1.
477.2 *2*	22.7 *8*	5506.2	(33/2)	5028.9	(31/2)			A_2=0.44 *14*, ΔJ=1.
480.5 *2*	68.1 *13*	2710.5	$19/2^-$	2230.0	$17/2^-$			A_2=0.023 *3*, ΔJ=1.
485.3@ *5*	6.6@ *16*	12819.6		12334.3				
493.6 *2*	60.1 *12*	2930.0	$21/2^+$	2436.4	$17/2^+$			A_2=0.27 *2*, ΔJ=2.

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(HI,xnγ) 1997Od01 (continued)

γ(^{145}Sm) (continued)

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
497.2 *6*	4.3 *8*	6216.0	(37/2)	5718.8		
499.0 *2*	36.5 *11*	4420.4	$29/2^+$	3921.4	$27/2^+$	A_2=−0.08 *1*, ΔJ=1.
503.6 *4*	9.2 *8*	6719.5	(39/2)	6216.0	(37/2)	A_2=0.31 *18*, ΔJ=1.
512.3 *4*	2.8 *4*	2050.1	$15/2^-$	1537.9	$11/2^-$	
515.9[@] *5*		14559.4		14043.5		
540.5 *6*	33.7 *14*	6756.7	(39/2)	6216.0	(37/2)	
570.4 *2*	31.0 *14*	7327.1	(43/2)	6756.7	(39/2)	
595.6 *5*	22.3 *17*	8785.3	$(49/2^+)$	8189.7	(45/2)	
608.4 *4*	4.2 *12*	5028.9	(31/2)	4420.4	$29/2^+$	
610.6 *2*	7.8 *14*	5030.9	(31/2)	4420.4	$29/2^+$	A_2=−0.04 *1*, ΔJ=1.
640.0 *8*	9.1 *8*	5028.9	(31/2)	4389.0		A_2=0.18 *4*, ΔJ=2.
640.5[@] *5*		12717.6		12077.1		
669.2 *5*	2.1[#] *4*	2899.2		2230.0	$17/2^-$	
684.3 *5*	7.5 *9*	7403.9	(41/2)	6719.5	(39/2)	
690.0 *4*	15.0 *11*	5718.8		5028.9	(31/2)	
709.3 *5*	2.5 *9*	6216.0	(37/2)	5506.2	(33/2)	
713.3 *19*	28 *6*	8785.3	$(49/2^+)$	8072.6	(47/2)	A_2=−0.42 *12*, ΔJ=1.
715.2 *19*	14 *4*	5028.9	(31/2)	4315.1		
725.2 *3*	7.3 *8*	4646.7	(29/2)	3921.4	$27/2^+$	
729.6 *8*	6.1 *8*	7448.8	(41/2)	6719.5	(39/2)	
734.8 *3*	11.3 *11*	2964.8	$19/2^{(+)}$	2230.0	$17/2^-$	A_2=−0.23 *4*, ΔJ=1.
745.3 *4*	12.9 *9*	4227.9	(27/2)	3482.8	$25/2^+$	A_2=−0.35 *18*, ΔJ=1.
766.3 *5*	6.7 *9*	5506.2	(33/2)	4739.9	(29/2)	A_2=−0.10 *1*, ΔJ=2.
776.5 *10*	3.3 *7*	8579.5	(47/2)	7803.4	(45/2)	
816.2 *9*	8.1 *7*	6719.5	(39/2)	5903.2	(35/2)	A_2=−0.08 *1*, ΔJ=2.
836.8 *10*	4.6 *7*	8579.5	(47/2)	7742.7	(45/2)	
862.5 *3*	17.8 *11*	8189.7	(45/2)	7327.1	(43/2)	
872.5 *4*	9.3 *7*	5903.2	(35/2)	5030.9	(31/2)	A_2=0.30 *5*, ΔJ=2.
877.9 *4*	6.0 *11*	5524.6		4646.7	(29/2)	
879.8[@] *5*		12334.3		11454.7		
884.3 *5*	7.9 *11*	8333.0	(45/2)	7448.8	(41/2)	
896.3[@] *5*		11146.5		10250.1		
929.0 *4*	10.8 *13*	8333.0	(45/2)	7403.9	(41/2)	A_2=−0.25 *4*, ΔJ=2.
930.6[@] *5*	8[@] *3*	12077.1		11146.5		
944.9 *4*	68.8 *19*	2050.1	$15/2^-$	1105.1	$13/2^+$	A_2=−0.21 *1*, ΔJ=1.
981.9 *4*	17.0 *12*	8785.3	$(49/2^+)$	7803.4	(45/2)	
1042.7 *7*	2.7 *8*	8785.3	$(49/2^+)$	7742.7	(45/2)	
1046.8 *4*	12.7 *11*	7803.4	(45/2)	6756.7	(39/2)	
1067.3 *10*	2.4[#] *3*	4389.0		3321.4	(21/2)	
1104.2 *8*	33 *4*	5524.6		4420.4	$29/2^+$	
1105.0 *5*	125 *3*	1105.1	$13/2^+$	0.0	$7/2^-$	A_2=0.215 *2*, ΔJ=3.
1187.7 *5*	17 *3*	12334.3		11146.5		
1194.5[@] *5*	48.0[@] *15*	9979.8	(53/2)	8785.3	$(49/2^+)$	A_2=0.19 *1*, ΔJ=2.
1204.7[@] *5*		11454.7		10250.1		
1206.7 *5*	4.6 *6*	7926.2	(41/2)	6719.5	(39/2)	
1223.9[@] *5*		14043.5		12819.6		
1257.0 *5*	19.6 *19*	4739.9	(29/2)	3482.8	$25/2^+$	A_2=0.12 *1*, ΔJ=2.
1259.3 *5*	11.5 *21*	5679.8	(33/2)	4420.4	$29/2^+$	A_2=0.20 *2*, ΔJ=2.
1270.4 *8*	6.4 *8*	4389.0		3118.8	$23/2^+$	A_2=0.19 *4*, ΔJ=2.
1326.2 *5*	10.4 *7*	5247.5	(31/2)	3921.4	$27/2^+$	A_2=0.36 *8*, ΔJ=2.
1331.2 *5*	56.3 *19*	2436.4	$17/2^+$	1105.1	$13/2^+$	A_2=0.29 *2*, ΔJ=2.
1385.1 *8*	10.6 *9*	4867.9	(29/2)	3482.8	$25/2^+$	A_2=0.40 *5*, ΔJ=2.
1457.8 *6*	6.4 *7*	8785.3	$(49/2^+)$	7327.1	(43/2)	A_2=1.1 *6*, ΔJ=3.
1467.6 *10*	2.8 *6*	4586.6		3118.8	$23/2^+$	

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(HI,xnγ) 1997Od01 (continued)

γ(^{145}Sm) (continued)

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
1537.9 *3*	11.3[#] *4*	1537.9	11/2$^-$	0.0	7/2$^-$	A_2=0.25 *12*, ΔJ=2.
1607.8[@] *5*		14427.4		12819.6		
1705.5 *3*	3.1[#] *3*	2810.6	(15/2)	1105.1	13/2$^+$	A_2=−0.18 *9*, ΔJ=1.

[†] Additional information 1.
[‡] From ^{16}O(^{136}Xe,^{7}nγ) unless indicated otherwise.
[#] From ^{139}La(^{10}B,4nγ).
[@] From ^{138}Ba(^{13}C,6nγ).

(HI,xnγ) 1997Od01

Level Scheme

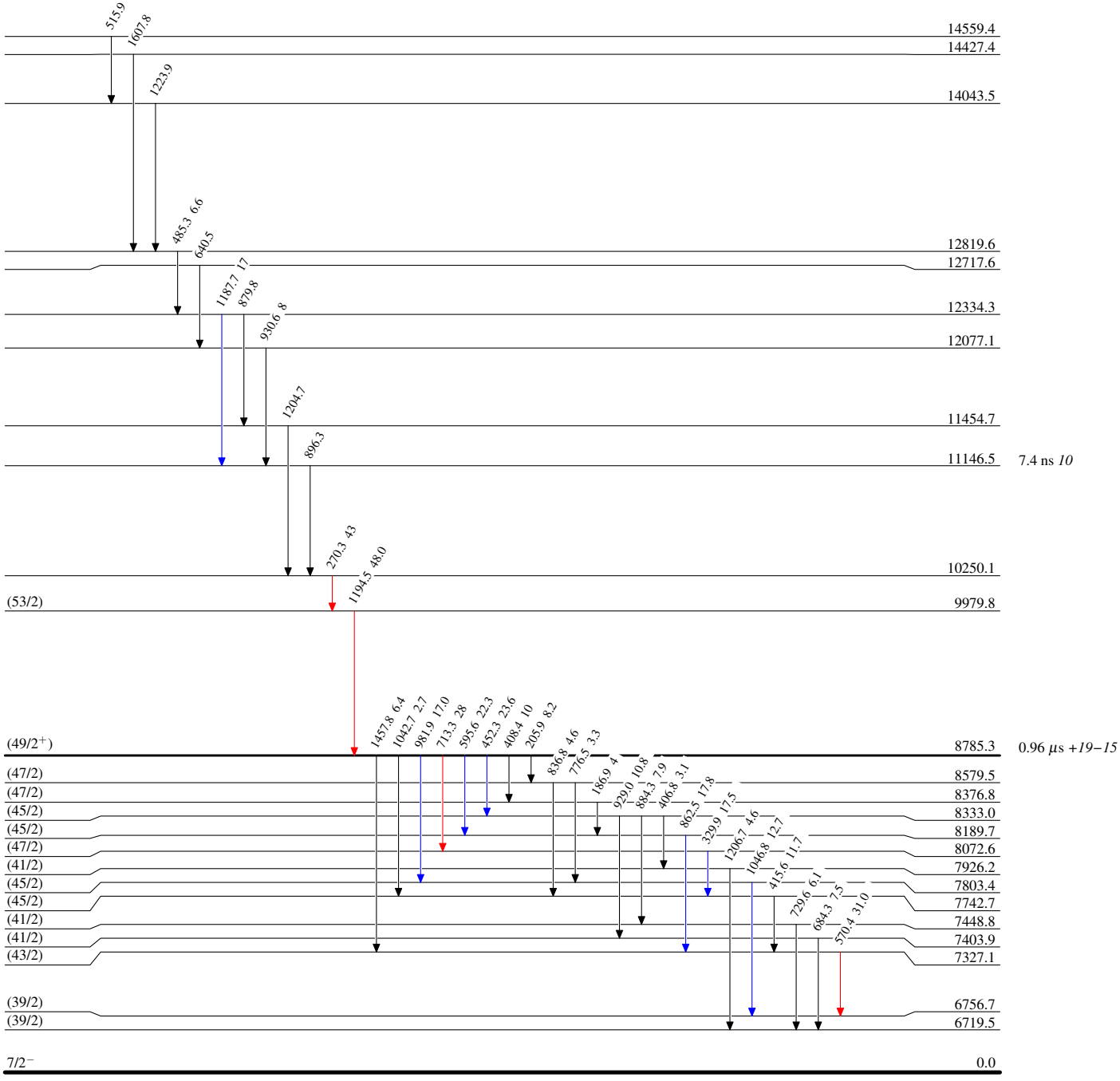
Intensities: Relative I_γ

Legend

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

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

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



$^{145}_{62}Sm_{83}$

(HI,xnγ) 1997Od01

Level Scheme (continued)

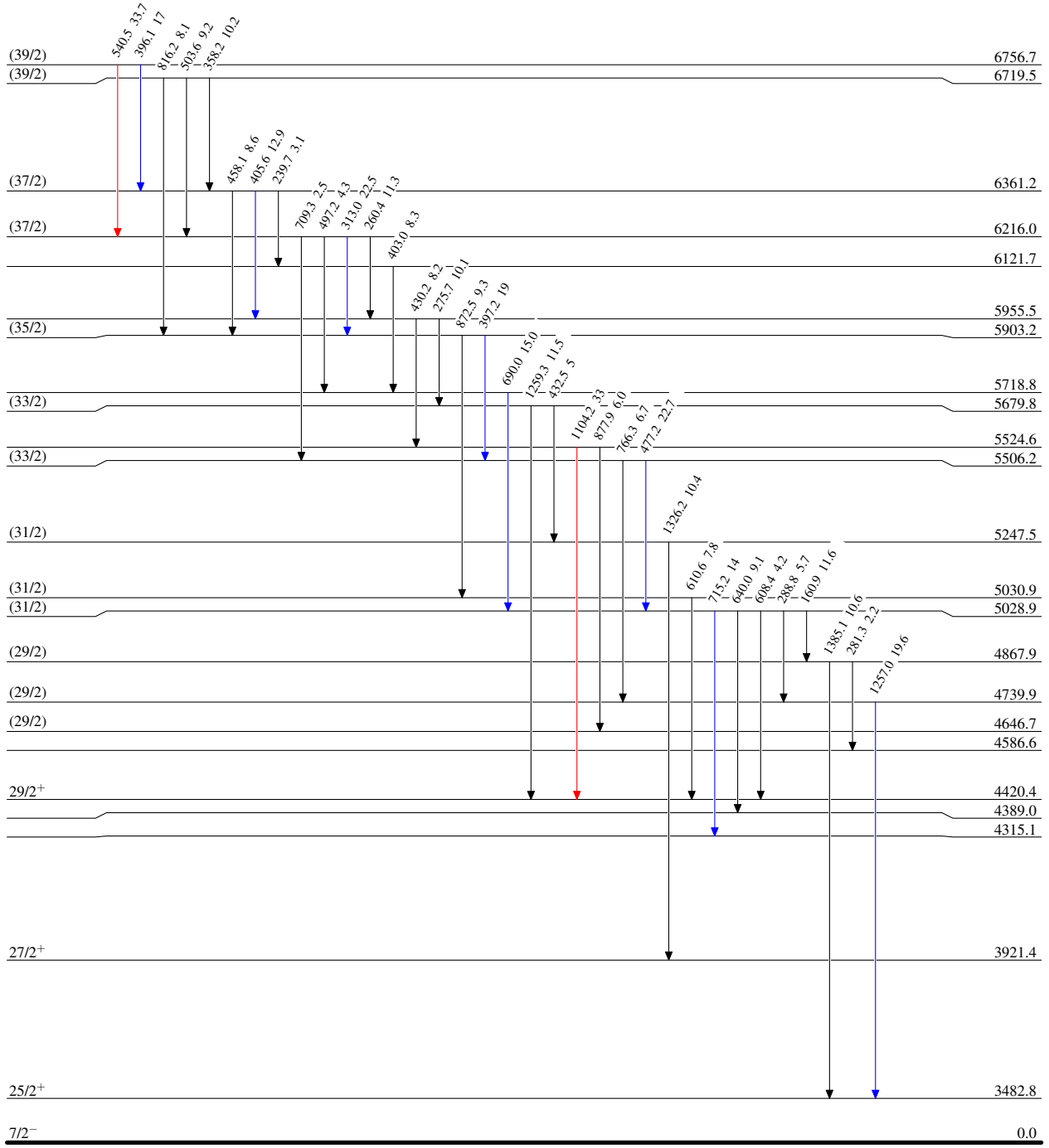
Intensities: Relative I_γ

Legend

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

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

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

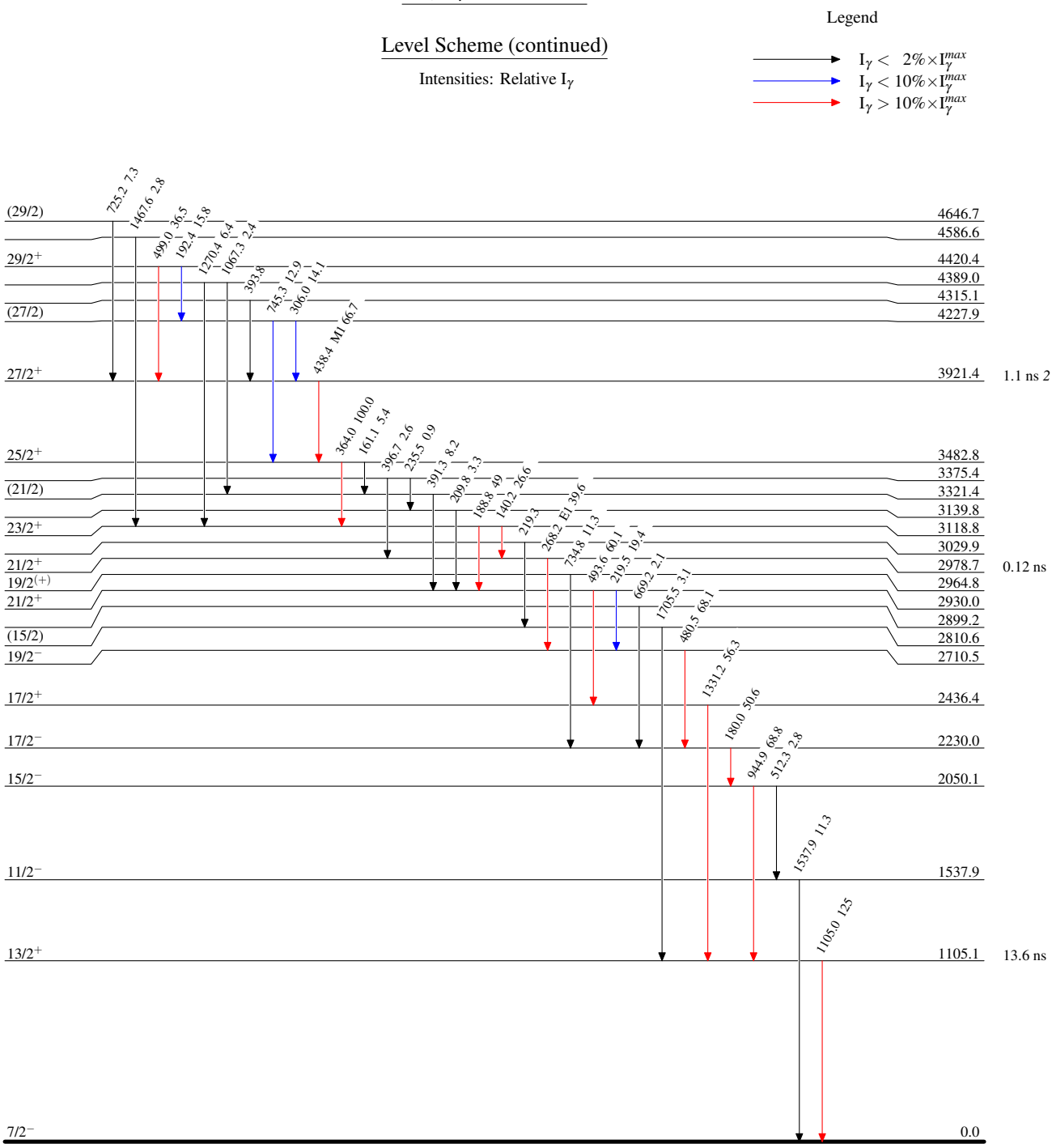


$^{145}_{62}Sm_{83}$

(HI,xnγ) 1997Od01

Level Scheme (continued)

Intensities: Relative I_γ



$^{145}_{62}Sm_{83}$