(HI,xnγ) 2006Or10,1984Lo07

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Zoltan Elekes and Janos Timar	NDS 129,191 (2015)	28-Feb-2015

1984Lo07: ^{128}Te(^{9}Be,xnγ) E=38 MeV; γ, γγ, γγ(θ).

The level scheme is that proposed by 2006Or10 based on γγ coincidences and DCO values. Level scheme of 1984Lo07 includes much less γ transitions and levels.

2006Or10: ^{124}Sn(^{9}Be,xnγ) E=58 MeV. Measured Eγ, Iγ, γγ, γγ(θ)(DCO) using the caesar array composed of six Compton-suppressed n-type coaxial HPGe detectors placed at angles (θ,φ) of (48°,0°), (48°,180°), (97°,0°), (97°,180°), (145°,0°), and (145°,180°), and two planar Ge detectors (LEPS) placed at angles: (45°,270°) and (135°,270°).

^{128}Xe Levels

E(level)	Jπ	$T_{1/2}$	Comments
0.0†	0^+		
442.6† *3*	2^+		
969.0‡ *3*	2^+		
1032.7† *3*	4^+		
1428.7‡ *3*	3^+		
1602.8‡ *4*	4^+		
1736.5† *4*	6^+		
1995.7‡ *4*	5^+		
2228.4@ *4*	5^-		
2280.3‡ *4*	$(6)^+$		
2499.9# *4*	6^-		
2512.0† *4*	8^+		
2582.4@ *4*	7^-		
2718.6 *5*	(6^-)		
2786.4d *4*	8^-	73 ns *3*	$T_{1/2}$: γγ(t) (2006Or10). Other: 83 ns *2* (1984Lo07).
2941.1 *5*	(10^+)		
2973.2‡ *4*	$(8)^+$		
3049.5# *4*	8^-		
3114.3d *4*	9^-		
3195.6† *7*	10^+		
3207.2@ *4*	(9^-)		
3214.2 *7*	$^+$		
3363.7& *6*	10^+		
3412.0e *5*	(9^-)		
3592.5d *5*	(10^-)		
3705.6# *6*	(10^-)		
3807.8† *7*	12^+		
3883.1d *5*	(11^-)		
3989.9 *8*	(11^+)		
4066.6e *5*	(11^-)		
4077.3@ *5*	(11^-)		
4086.8c *9*	(12^+)		
4250.1& *7*	(12^+)		
4443.2# *7*	12^-		
4492.3d *5*	(12^-)		

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(HI,xnγ) 2006Or10,1984Lo07 (continued)

^{128}Xe Levels (continued)

E(level)	Jπ	E(level)	Jπ	E(level)	Jπ	E(level)	Jπ
4548.3[c] *10*	(13+)	5286.1[a] *9*	16+	5816.7 *9*		6648.8 *9*	
4616.1[†] *8*	14+	5334.1[c] *10*	(15+)	5966.8[&] *9*	(16+)	7014.6[c] *12*	(19+)
4750.9[d] *6*	(13−)	5460.0[b] *6*	(14−)	6075.0[c] *11*	(17+)	7015.5[e] *10*	
4803.8[e] *7*	(13−)	5490.2 *10*	(15+)	6116.0[#] *10*	16−	7227.9[b] *8*	(18−)
4807.3 *8*	(13+)	5570.4[†] *9*	16+	6184.9[a] *10*	(18+)	7254.8[a] *12*	(20+)
4868.1[c] *10*	(14+)	5657.4[e] *8*	(15−)	6248.0[b] *8*	(16−)	7708.2[†] *10*	20+
4909.9[@] *5*	(13−)	5678.7[c] *10*	(16+)	6446.2[e] *9*		8009.2[c] *12*	(21+)
5096.1[&] *8*	(14+)	5712.3[d] *8*	15−	6603.3[†] *10*	18+	8890.2[†] *10*	22+
5230.8[#] *8*	12−	5713.5 *9*		6645.4[d] *9*	(17−)	8945.1 *11*	

[†] Band(A): g.s. band.
[‡] Band(B): $K^{\pi}=2^{+}$, γ band.
[#] Band(C): ν9/2[514]⊗ν1/2[400], $K^{\pi}=5^{-}$, α=0.
[@] Band(c): ν9/2[514]⊗ν1/2[400], $K^{\pi}=5^{-}$, α=1.
[&] Band(D): band based on 10^{+}.
[a] Band(E): band based on (16^{+}).
[b] Band(F): band based on (14^{-}).
[c] Band(G): 4-quasiparticle band.
[d] Band(H): ν9/2[514]⊗ν7/2[404], $K^{\pi}=8^{-}$.
[e] Band(I): band based on (9^{-}).

γ(^{128}Xe)

DCO=($I_{\gamma 1}$(48°) gated by γ_2(97°))/($I_{\gamma 1}$(97°) gated by γ_2(48°)). This ratio is expected to be 1 for ΔJ=2, quadrupole and ΔJ=0, dipole; ≈0.56 for ΔJ=1, dipole; and 0.3-1.2 for ΔJ=0,1, D+Q transitions.

E_i(level)	J_i^{π}	E_{γ}[‡]	I_{γ}	E_f	J_f^{π}	Mult.[#]	Comments
442.6	2+	442.6 *3*	100	0.0	0+		A_2=+0.25 *7* from γ(θ). A_2=0.16 *2* or 0.11 *3* from γ(θ,H,t) for 442.9γ+590.2γ (1984Lo07).
969.0	2+	526.4 *3*	100 *11*	442.6	2+		
		969.0 *4*	28 *6*	0.0	0+		
1032.7	4+	590.1 *3*	100	442.6	2+	Q	DCO=1.06 *5* A_2=+0.26 *6* from γ(θ). A_2=0.16 *2* or 0.11 *3* from γ(θ,H,t) for 442.9γ+590.2γ (1984Lo07).
1428.7	3+	396.0 *4*	22[†] *11*	1032.7	4+		
		459.6 *3*	100[†] *11*	969.0	2+		
		986.1 *4*	67[†] *11*	442.6	2+		
1602.8	4+	570.2 *4*	100 *33*	1032.7	4+		
		633.9 *4*	100 *33*	969.0	2+		
1736.5	6+	703.8 *3*	100	1032.7	4+	Q	DCO=1.06 *5*
1995.7	5+	392.9 *4*	17[†] *8*	1602.8	4+		
		567.0 *4*	100[†] *8*	1428.7	3+		
		963.0 *4*	50[†] *8*	1032.7	4+		
2228.4	5−	491.8 *4*	3.5[†] *12*	1736.5	6+		
		625.5 *4*	15.3[†] *12*	1602.8	4+		
		1195.7 *3*	100.0 *24*	1032.7	4+	D	DCO=0.55 *4*

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(HI,xnγ) 2006Or10,1984Lo07 (continued)

γ(^{128}Xe) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ	E_f	J_f^π	Mult.[#]	Comments
2280.3	$(6)^+$	543.6 *4*	100 *10*	1736.5	6^+	D+Q	DCO=0.63 *7*
		677.7 *4*	10 *5*	1602.8	4^+		
2499.9	6^-	271.4 *4*	100 *6*	2228.4	5^-	D+Q	DCO=0.65 *2* A_2=−0.53 *5* from γ(θ); A_2=−0.33 *3* or −0.30 *3* from γ(θ,H,t) (1984Lo07).
		504.1 *3*	41 *4*	1995.7	5^+	D+Q	DCO=0.73 *5*
		763.3 *4*	20 *2*	1736.5	6^+		E_γ: from Fig. 2 of 2006Or10, 768.3 in authors′ Table I is a misprint.
2512.0	8^+	775.4 *3*	100	1736.5	6^+	Q	DCO=1.01 *5*
2582.4	7^-	302.2 *4*	9.3 *7*	2280.3	$(6)^+$	D+Q	DCO=0.78 *20*
		353.8 *4*	31.4 *14*	2228.4	5^-	Q	DCO=1.23 *9*
		845.9 *3*	100.0 *21*	1736.5	6^+	D+Q	DCO=0.51 *3*
2718.6	(6^-)	490.2 *3*	100[†]	2228.4	5^-		
2786.4	8^-	204.0 *3*	57[†] *5*	2582.4	7^-	D+Q	DCO=0.76 *4* A_2=−0.29 *3* from γ(θ) (1984Lo07).
		274.4 *4*	0.38[†] *19*	2512.0	8^+		
		286.5 *3*	100 *5*	2499.9	6^-	Q	DCO=1.13 *7* A_2=+0.10 *6* from γ(θ); A_2=+0.09 *3* or +0.20 *6* from γ(θ,H,t) (1984Lo07).
2941.1	(10^+)	429.1 *3*	100	2512.0	8^+	Q	DCO=1.17 *9*
2973.2	$(8)^+$	461.2 *3*	100[†] *13*	2512.0	8^+	Q	DCO=0.87 *6*
		693.0 *5*	27 *13*	2280.3	$(6)^+$		
3049.5	8^-	467.2 *3*	24 *4*	2582.4	7^-		
		549.6 *3*	100 *5*	2499.9	6^-	Q	DCO=0.90 *6*
3114.3	9^-	328.0 *5*	53 *4*	2786.4	8^-	D+Q	DCO=0.37 *2*
		532.0 *4*	100 *4*	2582.4	7^-	Q	DCO=0.89 *6*
3195.6	10^+	683.6 *5*	100	2512.0	8^+	Q	DCO=0.98 *4*
3207.2	(9^-)	420.8 *5*	16 *2*	2786.4	8^-	D+Q	DCO=0.62 *9*
		624.9 *4*	100 *6*	2582.4	7^-	Q	DCO=0.98 *7*
3214.2	$^+$	273.1 *5*	100	2941.1	(10^+)	D+Q	DCO=0.47 *3*
3363.7	10^+	851.7 *4*	100[†]	2512.0	8^+	Q	DCO=0.99 *6*
3412.0	(9^-)	204.8 *4*	83[†] *11*	3207.2	(9^-)		
		297.7 *4*	89 *6*	3114.3	9^-	D	DCO=1.18 *21*
		438.8 *4*	100 *11*	2973.2	$(8)^+$	D+Q	DCO=0.51 *5*
3592.5	(10^-)	478.2 *4*	100 *7*	3114.3	9^-	D	DCO=0.42 *6*
		806.1 *4*	44[†] *7*	2786.4	8^-	Q	DCO=0.94 *7*
3705.6	(10^-)	656.1 *4*	100	3049.5	8^-	Q	DCO=0.88 *4*
3807.8	12^+	612.2 *3*	100	3195.6	10^+	Q	DCO=0.97 *4*
3883.1	(11^-)	290.5 *5*	7.7 *19*	3592.5	(10^-)		
		675.8 *4*	37 *4*	3207.2	(9^-)	Q	DCO=0.78 *8*
		768.8 *4*	100 *4*	3114.3	9^-	Q	DCO=1.00 *9*
3989.9	(11^+)	794.3 *5*	100	3195.6	10^+	D+Q	DCO=0.38 *5*
4066.6	(11^-)	474.1 *4*	4.1[†] *27*	3592.5	(10^-)	D+Q	DCO=0.61 *20*
		654.6 *4*	100 *7*	3412.0	(9^-)	Q	DCO=0.91 *9*
		859.4 *4*	9.5[†] *27*	3207.2	(9^-)	Q	DCO=1.25 *13*
4077.3	(11^-)	484.8 *4*	57.4 *21*	3592.5	(10^-)	D+Q	DCO=0.47 *9*
		870.1 *4*	100[†] *11*	3207.2	(9^-)	Q	DCO=0.84 *7*
4086.8	(12^+)	279.0 *5*	100	3807.8	12^+	D+Q	DCO=0.64 *5*
4250.1	(12^+)	886.4 *4*	100[†]	3363.7	10^+	Q	DCO=1.08 *9*
4443.2	12^-	737.6 *4*	100[†]	3705.6	(10^-)	Q	DCO=0.96 *5*
4492.3	(12^-)	609.3 *4*	86[†] *14*	3883.1	(11^-)		
		899.8 *4*	100[†] *29*	3592.5	(10^-)		

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(HI,xnγ) 2006Or10,1984Lo07 (continued)

γ(^{128}Xe) (continued)

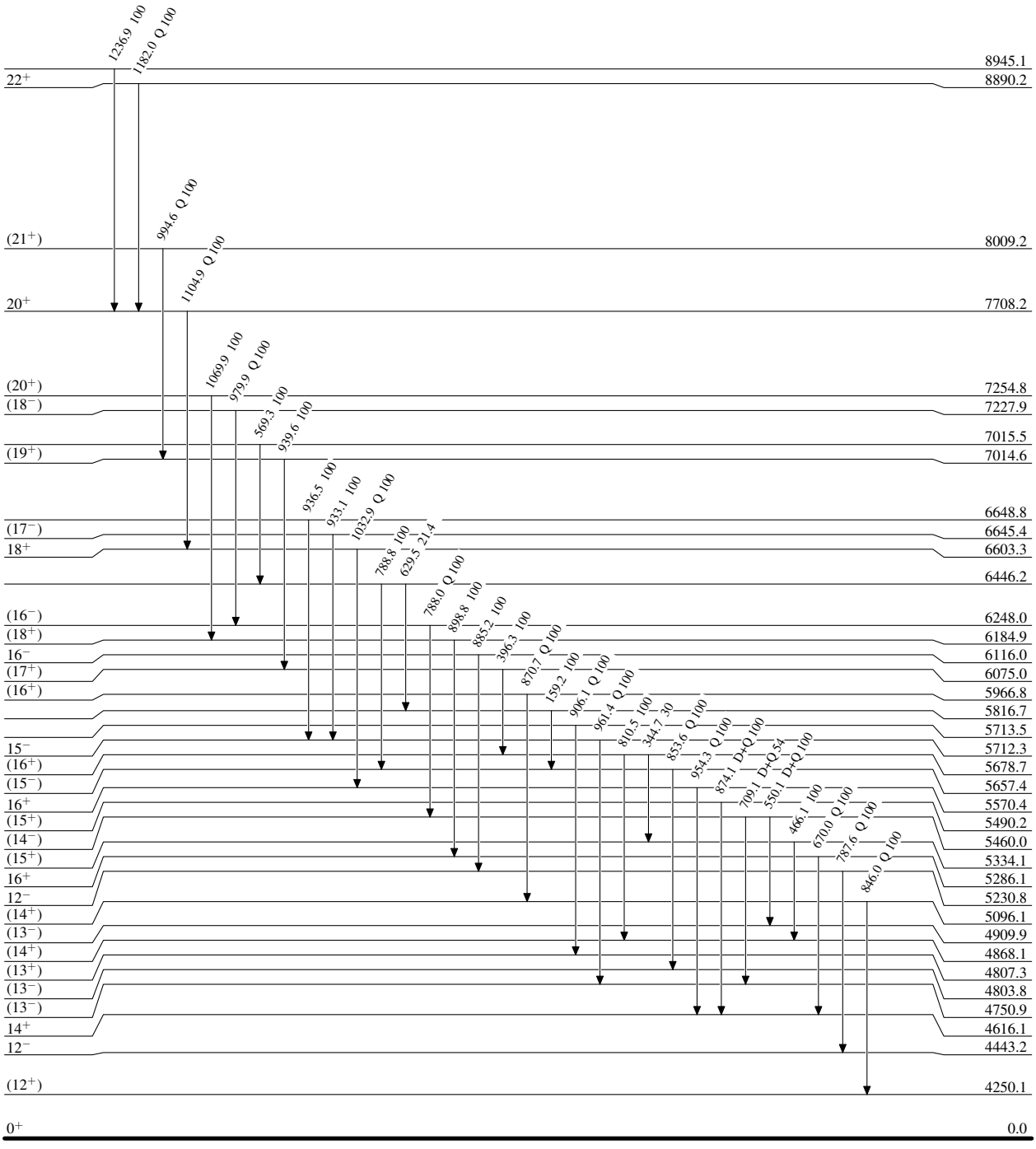
E_i(level)	J_i^π	E_γ[‡]	I_γ	E_f	J_f^π	Mult.[#]	Comments
4548.3	(13$^+$)	461.6 *5*	100[†]	4086.8	(12$^+$)		
4616.1	14$^+$	808.3 *4*	100	3807.8	12$^+$	Q	DCO=0.98 *6*
4750.9	(13$^-$)	867.8 *5*	100	3883.1	(11$^-$)	Q	DCO=0.93 *9*
4803.8	(13$^-$)	737.2 *5*	100[†]	4066.6	(11$^-$)	Q	DCO=0.92 *9*
4807.3	(13$^+$)	817.4 *5*	62[†] *8*	3989.9	(11$^+$)	Q	DCO=1.15 *19*
		999.6 *5*	100[†] *8*	3807.8	12$^+$	D+Q	DCO=0.49 *6*
4868.1	(14$^+$)	319.8 *5*	90 *10*	4548.3	(13$^+$)	D+Q	DCO=0.65 *6*
		781.3 *5*	100[†] *13*	4086.8	(12$^+$)		
4909.9	(13$^-$)	417.5 *5*	45[†] *10*	4492.3	(12$^-$)		
		832.5 *5*	100[†] *10*	4077.3	(11$^-$)	Q	DCO=1.13 *12*
		1026.8 *5*	35[†] *5*	3883.1	(11$^-$)	Q	DCO=0.82 *9*
5096.1	(14$^+$)	846.0 *4*	100[†]	4250.1	(12$^+$)	Q	DCO=0.95 *9*
5230.8	12$^-$	787.6 *4*	100[†]	4443.2	12$^-$	Q	DCO=0.89 *6*
5286.1	16$^+$	670.0 *4*	100[†]	4616.1	14$^+$	Q	DCO=0.88 *14*
5334.1	(15$^+$)	466.1 *5*	100[†]	4868.1	(14$^+$)		
5460.0	(14$^-$)	550.1 *5*	100[†] *31*	4909.9	(13$^-$)	D+Q	DCO=0.53 *5*
		709.1 *5*	54[†] *15*	4750.9	(13$^-$)	D+Q	DCO=0.83 *7*
5490.2	(15$^+$)	874.1 *5*	100	4616.1	14$^+$	D+Q	DCO=0.48 *5*
5570.4	16$^+$	954.3 *4*	100	4616.1	14$^+$	Q	DCO=0.89 *7*
5657.4	(15$^-$)	853.6 *4*	100[†]	4803.8	(13$^-$)	Q	DCO=0.99 *9*
5678.7	(16$^+$)	344.7 *4*	30[†] *4*	5334.1	(15$^+$)		
		810.5 *5*	100[†] *13*	4868.1	(14$^+$)		
5712.3	15$^-$	961.4 *5*	100[†]	4750.9	(13$^-$)	Q	DCO=0.80 *9*
5713.5		906.1 *5*	100[†]	4807.3	(13$^+$)	Q	DCO=0.86 *14*
5816.7		159.2 *5*	100[†]	5657.4	(15$^-$)		
5966.8	(16$^+$)	870.7 *4*	100[†]	5096.1	(14$^+$)	Q	DCO=1.23 *12*
6075.0	(17$^+$)	396.3 *4*	100[†]	5678.7	(16$^+$)		
6116.0	16$^-$	885.2 *5*	100[†]	5230.8	12$^-$		DCO=0.78 *7*
6184.9	(18$^+$)	898.8 *5*	100[†]	5286.1	16$^+$		
6248.0	(16$^-$)	788.0 *4*	100[†]	5460.0	(14$^-$)	Q	DCO=0.96 *9*
6446.2		629.5 *4*	21.4[†] *24*	5816.7			
		788.8 *4*	100[†] *7*	5657.4	(15$^-$)		
6603.3	18$^+$	1032.9 *3*	100	5570.4	16$^+$	Q	DCO=0.87 *9*
6645.4	(17$^-$)	933.1 *3*	100[†]	5712.3	15$^-$		
6648.8		936.5 *3*	100[†]	5712.3	15$^-$		
7014.6	(19$^+$)	939.6 *4*	100[†]	6075.0	(17$^+$)		
7015.5		569.3 *5*	100[†]	6446.2			
7227.9	(18$^-$)	979.9 *3*	100	6248.0	(16$^-$)	Q	DCO=1.38 *25*
7254.8	(20$^+$)	1069.9 *5*	100[†]	6184.9	(18$^+$)		
7708.2	20$^+$	1104.9 *3*	100	6603.3	18$^+$	Q	DCO=1.4 *4*
8009.2	(21$^+$)	994.6 *4*	100[†]	7014.6	(19$^+$)	Q	DCO=1.27 *20*
8890.2	22$^+$	1182.0 *3*	100	7708.2	20$^+$	Q	DCO=0.91 *9*
8945.1		1236.9 *4*	100	7708.2	20$^+$		

[†] Estimated from gated coincidence spectra.
[‡] From 2006Or10, unless otherwise noted.
[#] From DCO values.

(HI,xnγ) 2006Or10,1984Lo07

Level Scheme

Intensities: Relative photon branching from each level

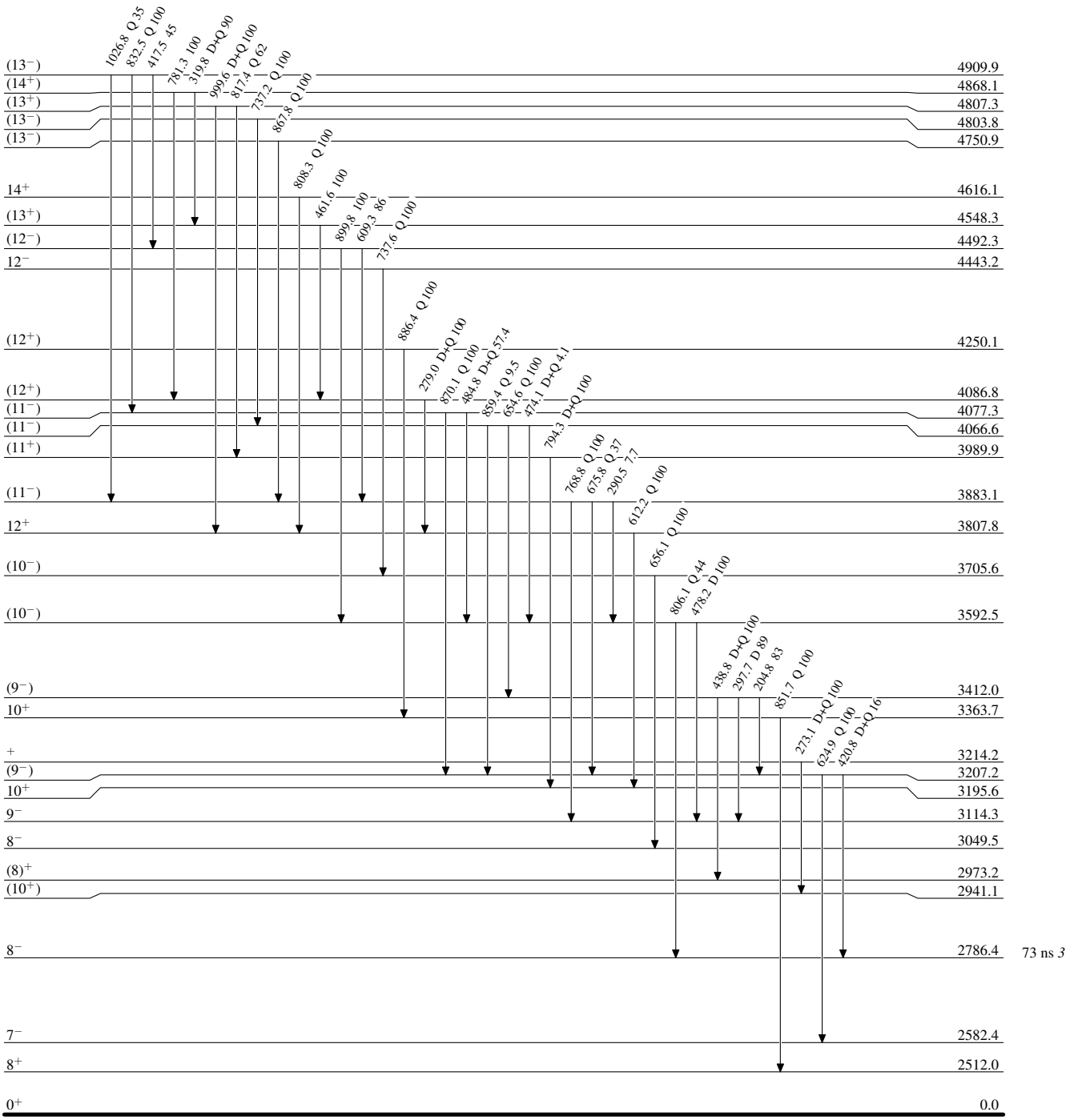


$^{128}_{54}Xe_{74}$

(HI,xnγ) 2006Or10,1984Lo07

Level Scheme (continued)

Intensities: Relative photon branching from each level

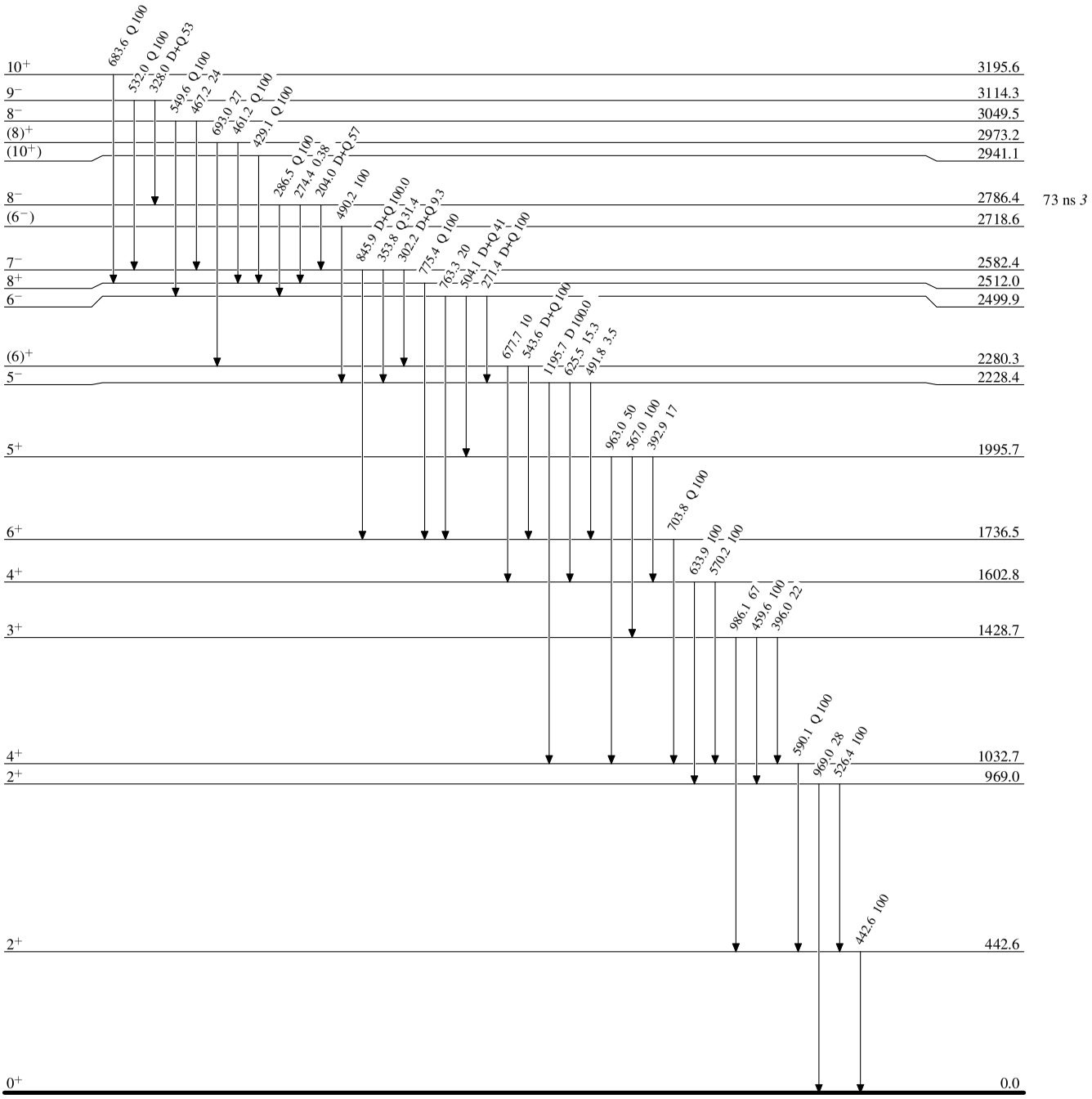


$^{128}_{54}Xe_{74}$

(HI,xnγ) 2006Or10,1984Lo07

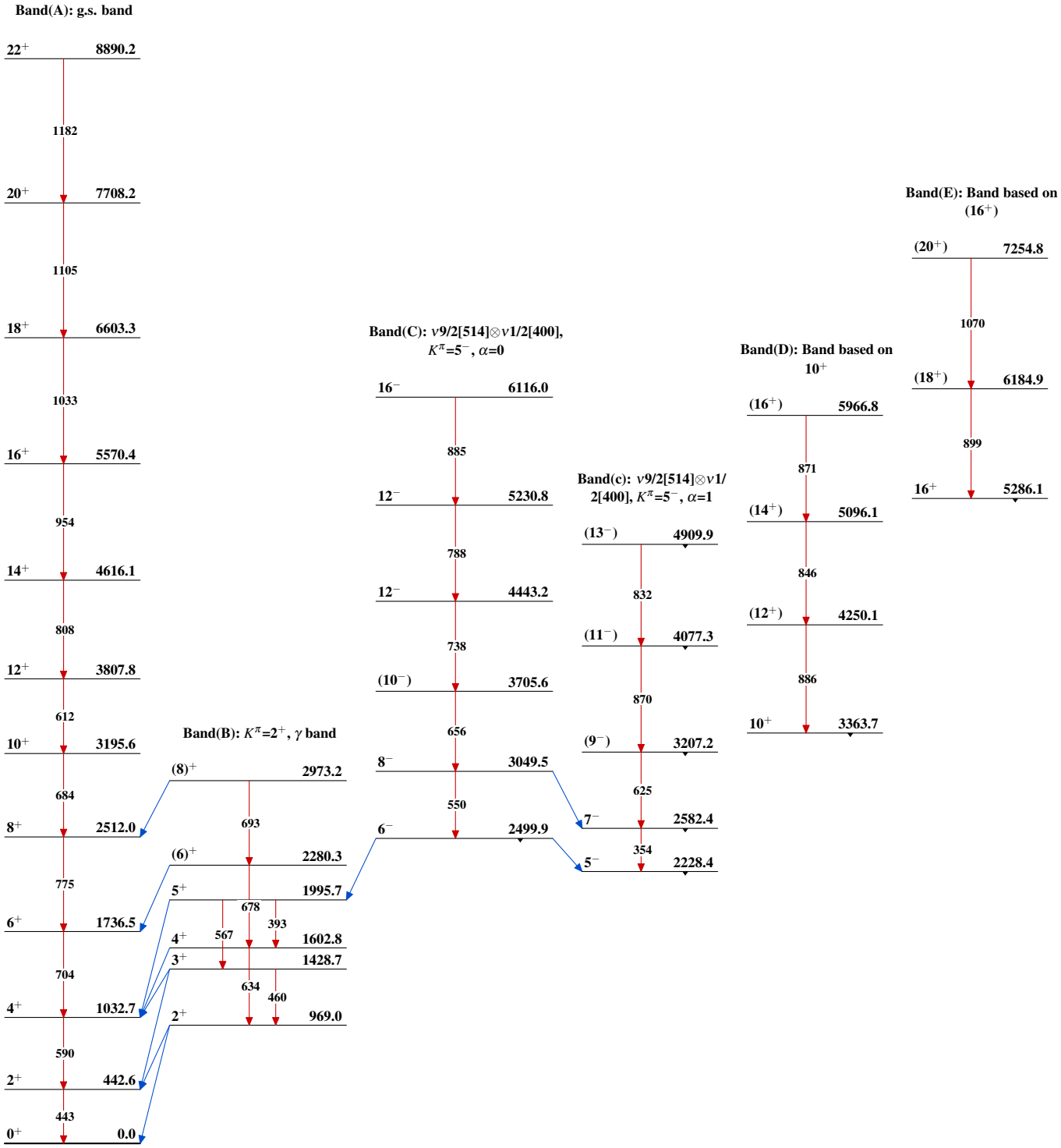
Level Scheme (continued)

Intensities: Relative photon branching from each level

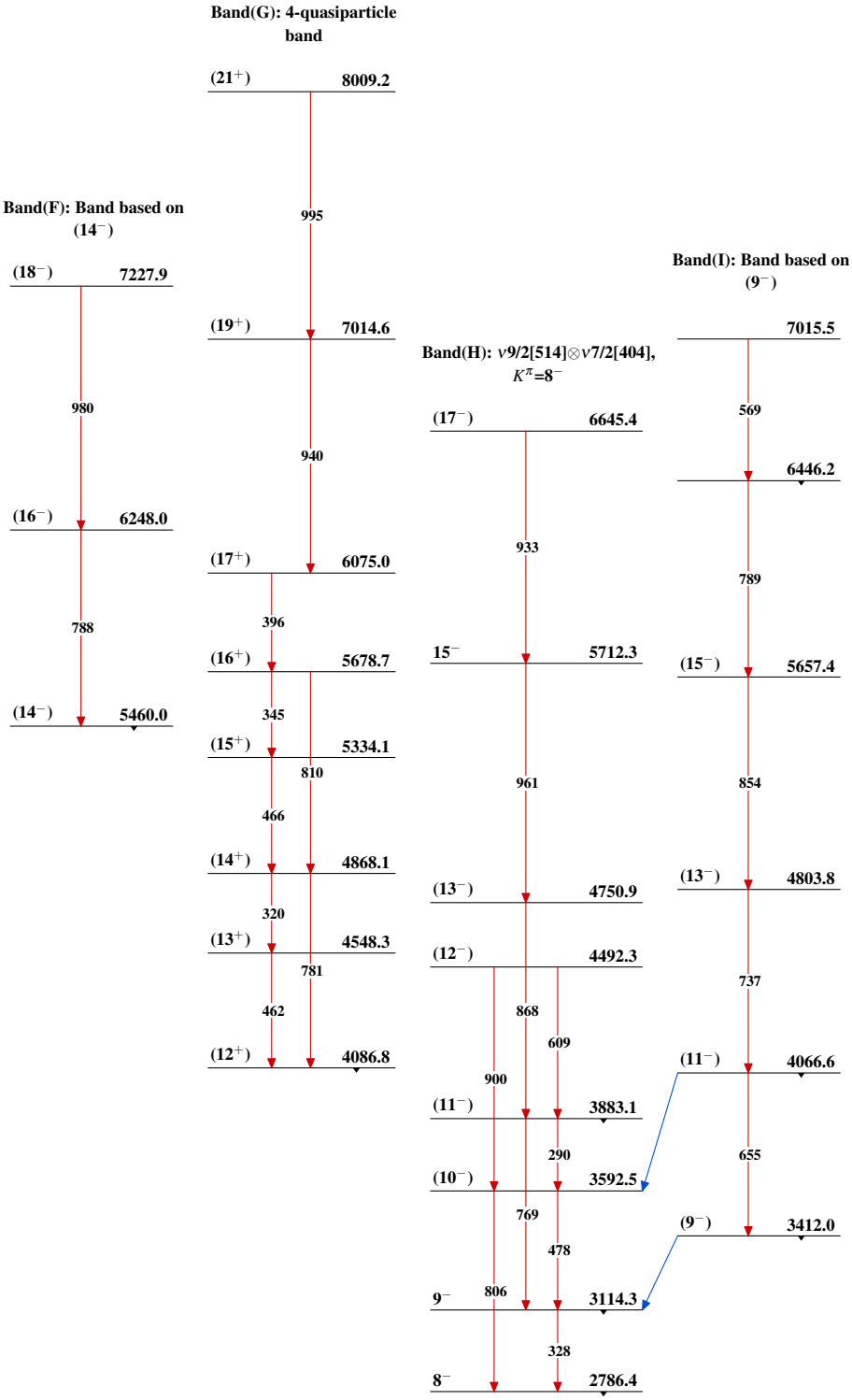


$^{128}_{54}Xe_{74}$

(HI,xnγ) 2006Or10,1984Lo07



(HI,xnγ) 2006Or10,1984Lo07 (continued)



$^{128}_{54}Xe_{74}$