(HI,xnγ)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 113, 2537 (2012)	1-Mar-2012

Additional information 1.

Data set has been adapted from the compilation in the XUNDL data file prepared by J. Chenkin and B. Singh (August, 1999).

Results are given for levels and half-lives from the $^{124}Sn(^{36}S,4n\gamma)$ (1988Ri09,1988Mo22,1989Em01,1998Ko49, 2003Pe22, 2006Mo22), $^{24}Mg(^{136}Xe,4n\gamma)$ (1979Wa12), $^{25}Mg(^{136}Xe,5n\gamma)$ (1984Em02), and $^{148}Nd(^{12}C,4n\gamma)$ (1988Ri09) reactions. These data are reviewed in 1988Sh37. See separate tables for the results from the (p,4nγ), (α,xnγ), and some other (^{12}C,4nγ) experiments.

1979Wa12: $^{24}Mg(^{136}Xe,4n\gamma)$, E(^{136}Xe)=5 MeV. Ge and NaI detectors. $T_{1/2}$ from recoil-distance method; values depend on level-feeding model.

1984Em02: $^{25}Mg(^{136}Xe,5n\gamma)$, E(^{136}Xe)=642 MeV. Ge detectors. Measured $T_{1/2}$ using the recoil-distance method. Values depend on level-feeding model; values are given for two models.

1988Mo22: $^{124}Sn(^{36}S,4n\gamma)$, E(^{36}S)=160 MeV. Measured $\gamma(\theta)$, $\gamma\gamma$ coincidences using a detector array of 12 Ge and 50 BGO detectors. Extends the bands reported by 1988Ri09 to 46^+, 46^+, 36^+, 53^-, 41^-, 40^-, and 42^-.

1988Ri09: $^{148}Nd(^{12}C,4n\gamma)$, E(^{12}C)=65 MeV; and $^{124}Sn(^{36}S,4n\gamma)$, E(^{36}S)=155 MeV. Measured $\gamma(\theta)$ and $\gamma\gamma$ coincidences using detector arrays of Ge and BGO detectors. Report bands to 10^+, 42^+, 36^+, 19^-, 45^-, 37^-, 36^-, 38^-, and 15^+.

1989Em01: $^{124}Sn(^{36}S,4n\gamma)$, E(^{36}S)=155 MeV. γ's measured using an array of 8 Ge and 14 BGO detectors. Half-lives determined from Doppler-broadened γ lineshapes.

1998Ko49: $^{124}Sn(^{36}S,4n\gamma)$, E(^{36}S)=165 MeV. Target was two stacked foils, 400 $\mu g/cm^2$ thick. γ radiation studied using the Gammasphere array of 93 large-volume Compton-suppressed Ge detectors. Measured multiple γ coincidences, DCO ratios.

2003Pe22: $^{124}Sn(^{36}S,4n\gamma)$, E(^{36}S)=145 MeV. Target was Sn foil (^{124}Sn enrichment 95.3%), 0.9 mg/cm^2 thick, evaporated onto a 13.4-mg/cm^2 thick Ta foil backing to stop the recoiling nuclei. γ radiation studied using the GASP array in its configuration I. Lifetimes measured by the Doppler-shift attenuation technique using line-shape analysis. Report mean lifetimes for 5 levels in the S band and 3 levels in the g.s. band.

2006Mo22: (Many of the same authors as 2003Pe22.) $^{124}Sn(^{36}S,4n\gamma)$, E(^{36}S)=155 MeV. Target was Sn foil (^{124}Sn enrichment 97.7%) evaporated onto a 1.8-mg/cm^2 thick Ta foil. Recoils stopped using a 12.0-mg/cm^2 thick Au foil. γ radiation studied using the GASP array in its configuration I, consisting of 40 large-volume Compton-suppressed HPGE detectors and an inner 74-element BGO ball. Report mean lifetimes for 14 γ's.

2006Pe09 describe a new procedure for determining level lifetimes from the Doppler-shift attenuation method. They report lifetime values for 3 levels in the S band and compare them with previously measured values.

2004De15 (some of the same authors as 2006Mo22 and 2003Pe22) discuss the level scheme and γ transition probabilities in terms of an X(5) symmetry.

2003Pe22 conclude that their lifetime data do not support the previously reported conclusion that there is a reduction in the collectivity of the levels after the crossing of the g.s. band and the S band.

1999Ko20 further discuss these data and the existence of terminating bands in ^{156}Dy, as well as in ^{159}Er and ^{160}Er.

Studies of the continuum γ-ray spectre include: 1989ReZV; 1989KhZU; 1988HoZQ.

1998Ko49 show data (in the form of a level scheme only) only for levels at or above 7533 keV. These levels and band structure are based on the results of previous studies and generally extend them to higher spins. In this evaluation, the previous results are retained and the data of 1998Ko49 generally are given only where they are new or when they contradict previous data. These instances are noted.

1999KoZM: Private communication from F. Kondev and M. Riley to J. Chenkin and B. Singh (July 22, 1999). This communication contains as yet unpublished data on the γ cascade which connects the 2261.5, 8^- level of 1988Ri09 and the 7532.9, 26^- level of 1998Ko49.

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Band-label (quasiparticle) conventions for neutrons:
        α      3/2[651], α=+1/2  , π=+
        B      3/2[651], α=-1/2  , π=+
        C      1/2[660], α=+1/2  , π=+
        D      1/2[660], α=-1/2  , π=+
        E      3/2[521], α=+1/2  , π=-
        F      3/2[521], α=-1/2  , π=-
        X     11/2[505], α=+1/2  , π=-
        Y     11/2[505], α=-1/2  , π=-
Band-label (quasiparticle) conventions for protons:
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A_p    7/2[523], α=-1/2 , π=-
B_p    7/2[523], α=+1/2 , π=-
C_p    5/2[532], α=-1/2 , π=-
D_p    5/2[532], α=+1/2 , π=-
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^{156}Dy Levels

Possible multiparticle nucleonic configuration assignments for the highest-spin states in several of the bands are discussed by 1998Ko49 and 1999Ko20.

E(level)[†]	Jπ[#]	$T_{1/2}$	Comments
0[@]	0^+	stable	
137.8[@] *1*	2^+	0.74 ns *4*	$T_{1/2}$: From 2006Mo22. Their reported value actually gives 735 ps *35*.
404.1[@] *1*	4^+	31.6 ps *3*	$T_{1/2}$: From 2006Mo22. Others: 29.5 ps *26* (1979Wa12); and 29.8 ps *28* (1984Em02).
673.2[&] *6*	0^+		
770.5[@] *2*	6^+	6.3 ps *3*	$T_{1/2}$: Weighted average of: 6.27 ps *10* (2006Mo22); 7.8 ps *6* (1979Wa12); and 9.1 ps *+6−8* (1984Em02).
828.6[&] *2*	2^+		
890.4[a] *5*	2^+		
1022.4[a] *2*	3^+		
1088.6[&] *2*	4^+	4.5 ps *12*	$T_{1/2}$: From 2006Mo22.
1168.5[a] *2*	4^+		
1215.9[@] *2*	8^+	2.26 ps *6*	$T_{1/2}$: Weighted average of: 2.29 ps *7* (2006Mo22); 2.2 ps *1* (1979Wa12); and 2.2 ps *3* (1984Em02).
1335.7[a] *2*	5^+		
1437.6[&] *2*	6^+	3.56 ps *24*	$T_{1/2}$: From 2006Mo22.
1525.5[a] *2*	6^+		
1724.9[@] *2*	10^+	1.06 ps *10*	$T_{1/2}$: Weighted average of: 1.17 ps *8* (2006Mo22); 0.89 ps *6* (1979Wa12); and 0.90 ps *+28−14* (1984Em02).
1728.8[a] *2*	7^+		
1810.1[b] *2*	7^-		
1859.1[&] *2*	8^+	2.09 ps *10*	$T_{1/2}$: From 2006Mo22.
1898.7[c] *2*	6^-		
1957.6[a] *2*	8^+		
2186.6[b] *2*	9^-		
2191.3[a] *2*	9^+		
2261.7[c] *2*	8^-		
2285.7[@] *2*	12^+	0.62 ps *7*	$T_{1/2}$: Weighted average of: 0.72 ps *5* (2006Mo22); 0.54 ps *3* (1979Wa12); and 0.46 ps *+10−8* (1984Em02).
2315.9[&] *27*	10^+	1.55 ps *10*	$T_{1/2}$: From 2006Mo22.
2345.1[f] *2*	8^-		
2408.5[e] *3*	9^-		
2448.7[a]	10^+		
2580.1[f]	10^-		
2592.7[g]	9^-		
2636.3[b]	11^-		
2701.5[h]	10^-		
2706.9[i]	12^+	4.53 ps *10*	$T_{1/2}$: From 2006Mo22.
2707.8[c]	10^-		
2709.4[e]	11^-		
2711.5[a]	11^+		
2847.5[g]	11^-		
2887.5[@]	14^+	0.56 ps *6*	$T_{1/2}$: Weighted average of: 0.49 ps *10* (2006Mo22); 0.68 ps *8* (1979Wa12); and 0.51 ps *7*

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(HI,xnγ) (continued)

^{156}Dy Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$	Comments
			(1984Em02).
2941.9[f]	12^-		
3021.2[h]	12^-		
3066.0[i]	14^+	7.49 ps *21*	$T_{1/2}$: From 2006Mo22. Others: 4.3 ps *7* (1979Wa12); and 5.4 ps *6* (1984Em02).
3103.6[e]	13^-		
3154.4[b]	13^-		
3186.8[c]	12^-		
3221.2[g]	13^-		
3273.8[a]	(13^+)		
3411.6[f]	14^-		
3444.9[h]	14^-		
3498.7[i] *2*	16^+	1.39 ps *8*	$T_{1/2}$: From 2006Mo22. Other: 0.9 ps *3* (1984Em02).
3523.0[@]	16^+	0.32 ps *6*	$T_{1/2}$: Weighted average of: 0.27 ps *6* (1979Wa12); and 0.40 ps *8* (1984Em02).
3596.4[e]	15^-		
3678.0[c]	14^-		
3689.9[g]	15^-		
3719.8[b]	$15^{(-)}$		
3861.2?[a]	(15^+)		
3954.0[h]	16^-		
3961.5[f]	16^-		
4025.8[i]	18^+	0.92 ps *5*	$T_{1/2}$: From 1984Em02.
4157.8[e]	17^-		
4178.2[@]	18^+	0.24 ps *6*	$T_{1/2}$: Weighted average of 0.24 ps *8* (1979Wa12) and 0.24 ps *10* (1984Em02).
4210.4[c]	16^-		
4236.2[g]	17^-		
4331.1[b]	(17^-)		
4533.9[h]	18^-		
4562.4[f]	18^-		
4635.6[i]	20^+	0.49 ps *4*	$T_{1/2}$: From 1984Em02.
4771.2[e]	19^-		
4779.2[c]	18^-		
4845.9[g]	19^-		
4859.0[@]	20^+	0.24 ps *6*	$T_{1/2}$: Weighted average of 0.25 ps *7* (2003Pe22) and 0.23 ps *10* (1984Em02). Other: 0.19 ps (1979Wa12).
4978.8[b]	(19^-)		
5170.8[h]	20^-		
5199.9[f]	20^-		
5320.2[i]	22^+	0.31 ps *3*	$T_{1/2}$: Weighted average of: 0.27 *6* (2003Pe22); 0.35 ps *6* (1984Em02); and 0.32 ps *6* (1989Em01).
5381.9[c]	20^-		
5428.2[e]	21^-		
5507.3[g]	21^-		
5573.0[@]	22^+	0.21 ps *3*	$T_{1/2}$: Weighted average of 0.20 ps *4* (2003Pe22) and 0.34 ps *+12−10* (1984Em02).
5855.3[h]	22^-		
5873.4[f]	22^-		
6036.3[c]	22^-		
6070.1[i]	24^+	0.177 ps *18*	$T_{1/2}$: Weighted average of: 0.180 ps *19* (2003Pe22) and 0.15 ps *6* (1989Em01). Other: 0.39 *6* (1984Em02).

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(HI,xnγ) (continued)

^{156}Dy Levels (continued)

E(level)[†]	Jπ[#]	$T_{1/2}$	Comments
6129.3[e]	23⁻		
6213.8[g]	23⁻		
6328.7[@]	24⁺	0.155 ps *30*	$T_{1/2}$: From 2003Pe22. Other: 0.34 ps *8* (1984Em02).
6582.5[h]	24⁻		
6589.7[f]	24⁻		
6753.7[c]	24⁻		
6876.8[e]	25⁻		
6877.9[i]	26⁺	0.123 ps *19*	$T_{1/2}$: Weighted average of 0.132 ps *24* (2003Pe22) and 0.11 ps *3* (1989Em01). Other: 0.21 ps *+7−6* (1984Em02).
6963.9[g]	25⁻		
7130.3[@]	26⁺		
7349.6[f]	26⁻		
7358.7[h]	26⁻		
7533.4[‡c]	26⁻		
7672.6[e]	27⁻		
7738.8[i]	28⁺	0.091 ps *14*	$T_{1/2}$: Weighted average of 0.085 ps *17* (2003Pe22) and 0.11 ps *3* (1989Em01). Other: 0.16 ps *+7−6* (1984Em02).
7760.3[g]	27⁻		
7920.5[d]	27⁻		
7978.5[@]	28⁺		
8164.5[f]	28⁻		
8179.7[h]	28⁻		
8364[c]	28⁻		
8517.0[e]	29⁻		
8605.8[g]	29⁻		
8650.8[i]	30⁺	0.074 ps *8*	$T_{1/2}$: Weighted average of: 0.060 ps *15* (2003Pe22) and 0.080 ps *10* (1989Em01). Other: 0.12 ps *+6−4* (1984Em02).
8762[d]	29⁻		
8875.9[@]	30⁺		
9031.9[f]	30⁻		
9051.5[h]	30⁻		
9234[c]	30⁻		
9407.4[e]	31⁻		
9502.2[g]	31⁻		
9611.3[i]	32⁺	0.06 ps *1*	$T_{1/2}$: From 1989Em01.
9653[d]	31⁻		
9692[k]	(31⁺)		
9825.2[@]	32⁺		
9952.3[f]	32⁻		
9973.5[h]	32⁻		
10063[j]	32⁺		
10141[c]	32⁻		
10340.6[e]	33⁻		
10449.3[g]	33⁻		
10592[d]	33⁻		
10618.0[i]	34⁺	0.06 ps *1*	$T_{1/2}$: From 1989Em01.
10629[k]	(33⁺)		
10713[l]	(34⁺)		

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(HI,xnγ) (continued)

^{156}Dy Levels (continued)

E(level)[†]	Jπ[#]	$T_{1/2}$	Comments
10828.1[@]	34+		
10925.0[f]	34−		
10944.6[h]	34−		
10975[j]	34+		
11092[c]	34−		
11313.4[e]	35−		
11443.5[‡g]	35−		
11585[d]	35−		
11614[k]	(35+)		
11670.6[i]	36+	0.04 ps *1*	$T_{1/2}$: From 1989Em01.
11735[l]	(36+)		
11886.7[‡@]	36+		
11946.2[f]	36−		
11957.3[‡h]	36−		
11986[j]	36+		
12089[c]	36−		
12326.8[e]	37−		
12462[g]	37−		
12626[d]	37−		
12628[k]	(37+)		
12769.3[i]	38+	0.14 ps *4*	$T_{1/2}$: From 1989Em01.
12818[l]	(38+)		
12959[h]	38−		
12976[@]	38+		
13014.0[f]	38−		
13051[j]	38+		
13140[c]	38−		
13386.8[e]	39−		
13470[g]	39−		
13686[k]	(39+)		
13711[d]	39−		
13885.1[‡i]	40+	0.05 ps *+8−3*	$T_{1/2}$: From 1989Em01.
13941[l]	(40+)		
13973[h]	40−		
14021.9[@]	40+		
14113.9[‡f]	40−		
14210[j]	40+		
14254[c]	(40−)		
14496.1[e]	41−		
14532[g]	41−		
14797[d]	(41−)		
14800[k]	(41+)		
14994.8[i]	42+		
15061[h]	42−		
15152[l]	(42+)		
15190[@]	42+		
15229[m]	42+		
15232[f]	42−		

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(HI,xnγ) (continued)

^{156}Dy Levels (continued)

E(level)[†]	Jπ[#]	Comments
15411[c]	(42⁻)	
15447[j]	(42⁺)	
15635.6[e]	43⁻	E(level): In 1988Ri09 this level is shown at 15637.0 keV with a deexciting γ of 1141.3 keV.
15679[g]	43⁻	
15841[n]	43⁻	
15950[d]	(43⁻)	
15975[k]	(43⁺)	
16171.2[i]	44⁺	
16210[h]	44⁻	
16289[@]	44⁺	
16350[f]	44⁻	
16448[l]	(44⁺)	
16474[m]	(44⁺)	
16625[c]	(44⁻)	
16717[j]	(44⁺)	
16833.3[e]	45⁻	E(level): In 1988Ri09 this level is shown at 16818.0 keV with deexciting γ of 1181 keV.
16869[g]	45⁻	
17012[n]	(45⁻)	
17236[k]	(45⁺)	
17348[i]	46⁺	
17388[f]	46⁻	
17434[@]	46⁺	
17482[h]	46⁻	
17832[l]	(46⁺)	
17908?[c]	(46⁻)	
18015.7[e]	47⁻	
18036[j]	(46⁺)	
18152[g]	47⁻	
18303[n]	(47⁻)	
18472[f]	48⁻	
18600[k]	(47⁺)	
18615[i]	48⁺	
18616[f]	50⁻	
18651[@]	48⁺	
18813[h]	48⁻	
19090.2[e]	49⁻	
19298[l]	(48⁺)	
19408[j]	(48⁺)	
19488[g]	49⁻	
19652?[n]	(49⁻)	
19953[i]	50⁺	
19963[@]	50⁺	
20002[k]	(49⁺)	
20009[f]	52⁻	Proposed (1999Ko20) termination of this band.
20241?[h]	(50⁻)	
20332.2[‡e]	51⁻	
20858[j]	(50⁺)	
20874[l]	(50⁺)	

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(HI,xnγ) (continued)

^{156}Dy Levels (continued)

E(level)[†]	J^{π}[#]	Comments
21332[@]	52^+	
21422[i]	(52^+)	
21512[k]	(51^+)	
21763[e]	53^-	Proposed (1999Ko20) termination of this band.
22369?[j]	(52^+)	
22576?[l]	(52^+)	
22799[@]	54^+	
22998[i]	(54^+)	
23244?[k]	(53^+)	
24382?[l]	(54^+)	
24430[@]	(56^+)	
24716?[i]	(56^+)	
26224[@]	(58^+)	
26640?[i]	(58^+)	
28122?[@]	(60^+)	
30241?[@]	(62^+)	

† From a least-squares fit to the γ energies. Where no uncertainty is given for an Eγ value, the analysis assumes that it is 1 keV. The computed level energies are quoted to no better than the nearest 0.1 keV, and uncertainties are generally not given, especially for the higher-lying levels.

‡ Data on band members above this one are from 1998Ko49.

The listed values are those proposed by the various authors. These values are inferred from the usual considerations involved in the analysis of such data, including angular-distribution data, the presumption of the presence of rotational-band structure, the interaction of levels in different bands which lie close together, and the systematics of neighboring nuclei. Stretched quadrupole transitions are presumed to be E2 and not M2.

@ Band(A): $K^{\pi}=0^+$ g.s. band.

& Band(B): First excited $K^{\pi}=0^+$ band.

a Band(C): $K^{\pi}=2^+$ γ-vibrational band.

b Band(D): Aligned odd-spin octupole band.

c Band(E): Unfavored, even-spin octupole band.

d Band(e): Negative-parity band, α=1. Band proposed by 1998Ko49.

e Band(F): Odd-spin, negative-parity band. Conf assigned as AE, changing to AEBC at the higher spins (1988Ri09).

f Band(f): Even-spin, negative-parity band. Conf assigned as AF, changing to AFBC at the higher spins (1988Ri09).

g Band(g): Odd-spin, negative-parity band. Conf assigned as AX, changing to AXBC at the higher spins (1988Ri09).

h Band(G): Even-spin, negative-parity band. Conf assigned as AY, changing to AYBC at the higher spins (1988Ri09).

i Band(H): Positive-parity (S) band, α=0. Conf assigned as AB at the lower spins (J<22) (1988Ri09). This band crosses the g.s. band around $J^{\pi}=16^+$ and the first excited 0^+ band between J=10 and 12. A crossing with the two-proton quasiparticle band with conf A_pB_p also occurs within this band at higher spins.

j Band(I): Positive-parity band, α=0. Band proposed by 1998Ko49.

k Band(J): Positive-parity band, α=1 branch. Band proposed by 1998Ko49.

l Band(j): Positive-parity band, α=0 branch. Band proposed by 1998Ko49.

m Band(K): Positive-parity band, α=0. Band proposed by 1998Ko49.

n Band(L): Negative-parity band, α=0. Band proposed by 1998Ko49.

(HI,xnγ) (continued)

γ(^{156}Dy)

E_γ[†]	I_γ[#]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	α[a]	Comments
137.8 1		137.8	2+	0	0+	E2	0.849	
146.1 1	2.1 1	2847.5	11−	2701.5	10−	E2,M1		
155.4[b] 5		828.6	2+	673.2	0+			
173.7 1	3.7 2	3021.2	12−	2847.5	11−	E2,M1		
178.7 5		3066.0	14+	2887.5	14+			
200.0 1	5.1 2	3221.2	13−	3021.2	12−	E2,M1		
223.8 1	3.6 2	3444.9	14−	3221.2	13−	E2,M1		
235.0 2		2580.1	10−	2345.1	8−	E2		
244.9 1	2.9 2	3689.9	15−	3444.9	14−	E2,M1		
254.8 1	2.5 2	2847.5	11−	2592.7	9−	E2		
259.8 2		1088.6	4+	828.6	2+			
264.2 1		3954.0	16−	3689.9	15−			
266.3 1	100	404.1	4+	137.8	2+	E2	0.0934	
281.8 2	2.8 2	4236.2	17−	3954.0	16−	E2,M1		
297.7 1	3.0[@] 9	4533.9	18−	4236.2	17−	E2,M1		
300.9 1	2.8 2	2709.4	11−	2408.5	9−	E2		
312.2 2	2.6 2	4845.9	19−	4533.9	18−	E2,M1		
313.5 2		1335.7	5+	1022.4	3+	E2		
319.6 1	3.3 2	3021.2	12−	2701.5	10−	E2		
324.7 1	2.7 2	5170.8	20−	4845.9	19−	E2,M1		
336.4 1	1.7 2	5507.3	21−	5170.8	20−	E2,M1		
347.9 1		5855.3	22−	5507.3	21−			
348.8 1	4.9 2	1437.6	6+	1088.6	4+	E2	0.0411	I_γ: In ^{156}Dy Adopted γ radiations, Iγ(348)/Iγ(667)=0.73, so about 45% of this line may be from another γ.
357.1 2		1525.5	6+	1168.5	4+			
358.6 3		6213.8	23−	5855.3	22−			
359.0 1	19.9 9	3066.0	14+	2706.9	12+	E2		
361.7 1		2941.9	12−	2580.1	10−			
362.9 1		2261.7	8−	1898.7	6−	E2		
366.1 1	97.5 16	770.5	6+	404.1	4+	E2	0.0357	
373.8 1	6.4 4	3221.2	13−	2847.5	11−	E2		
388.6 2		2580.1	10−	2191.3	9+			
390.9 1	17.7 7	2706.9	12+	2315.9	10+	E2		
393.1 1		1728.8	7+	1335.7	5+	E2		
393.9 2	6.5 7	3103.6	13−	2709.4	11−	E2		
394 1		7358.7	26−	6963.9	25−			
402		7760.3	27−	7358.7	26−			E_γ: From 1998Ko49.
420		8179.7	28−	7760.3	27−			
421.0 4		2706.9	12+	2285.7	12+			
421.4 1	11.9 6	1859.1	8+	1437.6	6+	E2	0.0240	
423.7 1	6.0 5	3444.9	14−	3021.2	12−	E2		
426		8605.8	29−	8179.7	28−			E_γ: From 1998Ko49.
432.2 2		1957.6	8+	1525.5	6+	E2		
432.6 1	21.2 9	3498.7	16+	3066.0	14+	E2		
439.8 1	7.2 3	2701.5	10−	2261.7	8−	E2		
445.2 1	96.1 15	1215.9	8+	770.5	6+	E2	0.0206	
446[b]		9051.5	30−	8605.8	29−			E_γ: From 1998Ko49.
446.1[‡] 1		2707.8	10−	2261.7	8−			
449.5 2		2636.3	11−	2186.6	9−			
451		9502.2	31−	9051.5	30−			E_γ: From 1998Ko49.
451.7 2		2261.7	8−	1810.1	7−			
456.8 1	14.5 6	2315.9	10+	1859.1	8+	E2	0.0192	
462.4 1		2191.3	9+	1728.8	7+	E2		

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(HI,xnγ) (continued)

γ(^{156}Dy) (continued)

E_γ[†]	I_γ[#]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	α[a]	Comments
467.5 2	7.9[@] 18	3103.6	13⁻	2636.3	11⁻	E2		
468.7 1	5.7[@] 10	3689.9	15⁻	3221.2	13⁻	E2		
469.7 1		3411.6	14⁻	2941.9	12⁻	E2		
472[b]		9973.5	32⁻	9502.2	31⁻			E_γ: From 1998Ko49.
475		10449.3	33⁻	9973.5	32⁻			E_γ: From 1998Ko49.
479.0[‡] 1		3186.8	12⁻	2707.8	10⁻			
491.1 2		2448.7	10⁺	1957.6	8⁺	E2		
491.2[‡] 2		3678.0	14⁻	3186.8	12⁻			
492.8 1	14.0 7	3596.4	15⁻	3103.6	13⁻	E2	0.01574	
496[b]		10944.6	34⁻	10449.3	33⁻			
497[b]		12959	38⁻	12462	37⁻			
499		11443.5	35⁻	10944.6	34⁻			E_γ: From 1998Ko49.
503[b]		13973	40⁻	13470	39⁻			
504[b]		12462	37⁻	11957.3	36⁻			
509.1 1	72.7 15	1724.9	10⁺	1215.9	8⁺	E2	0.01446	
509.1 1		3954.0	16⁻	3444.9	14⁻			
511[b]		13470	39⁻	12959	38⁻			
514[b]		11957.3	36⁻	11443.5	35⁻			E_γ: From 1998Ko49.
515.2 2		2701.5	10⁻	2186.6	9⁻			
518.0 2		3154.4	13⁻	2636.3	11⁻			
520.1 1		2711.5	11⁺	2191.3	9⁺	E2		
527.1 1	37.3 10	4025.8	18⁺	3498.7	16⁺	E2		
529		15061	42⁻	14532	41⁻			
532.4[‡] 2	1.6 2	4210.4	16⁻	3678.0	14⁻	E2	0.01289	E_γ: 1988Ri09 report Eγ=532.8 2. Mult.: From γ(θ) (1988Ri09).
546.4 1	6.3 3	4236.2	17⁻	3689.9	15⁻	E2		
549.9 1	7.1	3961.5	16⁻	3411.6	14⁻	E2		
559[b]		14532	41⁻	13973	40⁻			
560.9 1	62.4 16	2285.7	12⁺	1724.9	10⁺	E2	0.01130	
561.4 1	12.8 11	4157.8	17⁻	3596.4	15⁻	E2		
562.3 3		3273.8	(13⁺)	2711.5	11⁺			
564.7 2		1335.7	5⁺	770.5	6⁺	E2(+M1)		
565.4 2		3719.8	15$^{(-)}$	3154.4	13⁻			
568.8[‡] 2	0.5 2	4779.2	18⁻	4210.4	16⁻	E2	0.01092	E_γ: 1988Ri09 report Eγ=568.7 2. Mult.: From γ(θ) (1988Ri09).
579.9 1	7.2 3	4533.9	18⁻	3954.0	16⁻	E2		
587.4[b] 2		3861.2?	(15⁺)	3273.8	(13⁺)			
590.9 1	1.0[@] 2	2315.9	10⁺	1724.9	10⁺	E2+E0		
600.9 1	0.6 5	4562.4	18⁻	3961.5	16⁻			
601.9 1	54.0 16	2887.5	14⁺	2285.7	12⁺	E2	0.00950	
602.7[‡] 2	1.6 2	5381.9	20⁻	4779.2	18⁻			E_γ: 1988Ri09 report Eγ=603.9 2.
609.6 1		4845.9	19⁻	4236.2	17⁻	E2		
609.8 1	35.3 12	4635.6	20⁺	4025.8	18⁺	E2	0.00920	
611.3 1	38.6[@] 14	3498.7	16⁺	2887.5	14⁺	E2		
611.3 2		4331.1	(17⁻)	3719.8	15$^{(-)}$			
613.3 2	12.6 12	4771.2	19⁻	4157.8	17⁻	E2	0.00907	
616.5 1		2345.1	8⁻	1728.8	7⁺			
635.5 1	29.8 19	3523.0	16⁺	2887.5	14⁺	E2	0.00833	
637.0 1		5170.8	20⁻	4533.9	18⁻	E2		
637.4 1	6.3 6	5199.9	20⁻	4562.4	18⁻	E2		
643.1 1	2.5 3	1859.1	8⁺	1215.9	8⁺	E2+E0		

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(HI,xnγ) (continued)

γ(^{156}Dy) (continued)

Eγ[†]	Iγ[#]	Ei(level)	J^{π}_{i}	Ef	J^{π}_{f}	Mult.[&]	α[a]	Comments
647.7 6		4978.8	(19⁻)	4331.1	(17⁻)			
654.4[‡] 1	1.6 2	6036.3	22⁻	5381.9	20⁻			Eγ: 1988Ri09 report Eγ=654.4 2.
655.2 1	21.8 16	4178.2	18⁺	3523.0	16⁺	E2	0.00775	
657.0 1	12.0 9	5428.2	21⁻	4771.2	19⁻	E2		
661.5 1	5.7 2	5507.3	21⁻	4845.9	19⁻	E2		
666.8 1	3.9 4	1437.6	6⁺	770.5	6⁺	E2+E0+M1		
673.5 1	5.2 5	5873.4	22⁻	5199.9	20⁻	E2		
680.8 1	20.8 20	4859.0	20⁺	4178.2	18⁺	E2	0.00708	
684.3 1		1088.6	4⁺	404.1	4⁺	E2+E0		
684.6 1	33.8 12	5320.2	22⁺	4635.6	20⁺	E2	0.00699	
684.6 1		5855.3	22⁻	5170.8	20⁻			
690.5 3		828.6	2⁺	137.8	2⁺	E0+E2		
701.1 1	10.0 6	6129.3	23⁻	5428.2	21⁻	E2		
706.5 1		6213.8	23⁻	5507.3	21⁻	E2		
714.0 1	15.1 15	5573.0	22⁺	4859.0	20⁺	E2	0.00634	
716.3 1	4.4 4	6589.7	24⁻	5873.4	22⁻			
717.4[‡] 2	1.4 2	6753.7	24⁻	6036.3	22⁻			Eγ: 1988Ri09 report Eγ=717.9 3.
727.2 1	5.9 2	6582.5	24⁻	5855.3	22⁻			
741.5 1		1957.6	8⁺	1215.9	8⁺	E2+E0		
747.5 1	9.4 6	6876.8	25⁻	6129.3	23⁻	E2		
749.9 1	26.2 11	6070.1	24⁺	5320.2	22⁺	E2	0.00567	
750.1 1		6963.9	25⁻	6213.8	23⁻	E2		
754.6 3		1525.5	6⁺	770.5	6⁺	E2+E0		
755.7 1	11.6 12	6328.7	24⁺	5573.0	22⁺	E2	0.00557	
760.0 2	2.1 2	7349.6	26⁻	6589.7	24⁻			
764.5 5		1168.5	4⁺	404.1	4⁺	E0+E2,M1		
766.9 2	2.7 3	7349.6	26⁻	6582.5	24⁻			
768.7 2		7358.7	26⁻	6589.7	24⁻			
776.7 3		7358.7	26⁻	6582.5	24⁻	E2		
779.7[‡] 3	1.1 2	7533.4	26⁻	6753.7	24⁻			Eγ: 1988Ri09 report Eγ=780.0 3.
780.0 2		3066.0	14⁺	2285.7	12⁺			
795.8 1	8.5 5	7672.6	27⁻	6876.8	25⁻	E2		
796.4 1		7760.3	27⁻	6963.9	25⁻	E2		
801.6 1	8.5 11	7130.3	26⁺	6328.7	24⁺	E2		
807.8 1	22.7 9	6877.9	26⁺	6070.1	24⁺	E2	0.00480	
814.9 1		8164.5	28⁻	7349.6	26⁻	E2		
818.0 2	7.6[@] 14	3103.6	13⁻	2285.7	12⁺	E1		
821.0 1		8179.7	28⁻	7358.7	26⁻	E2		
831		8364	28⁻	7533.4	26⁻			
832.4 4		3719.8	15⁽⁻⁾	2887.5	14⁺	(E1)		
842		8762	29⁻	7920.5	27⁻			
844.4 1	6.8 6	8517.0	29⁻	7672.6	27⁻	E2		
845.6 2		8605.8	29⁻	7760.3	27⁻	E2		
848.2 1	6.7 8	7978.5	28⁺	7130.3	26⁺	E2		
855.4 2		2580.1	10⁻	1724.9	10⁺	(E1)		
860.9 1	18.5 8	7738.8	28⁺	6877.9	26⁺	E2	0.00418	
867.5 1		9031.9	30⁻	8164.5	28⁻	E2		
868.7 1		3154.4	13⁻	2285.7	12⁺	E1		
870		9234	30⁻	8364	28⁻			
871.7 2		9051.5	30⁻	8179.7	28⁻	E2		
884.8 2		1022.4	3⁺	137.8	2⁺	E2		
890.4 5		890.4	2⁺	0	0⁺	E2		
890.4 1	5.9 4	9407.4	31⁻	8517.0	29⁻	E2		
891		9653	31⁻	8762	29⁻			
896.5 2		9502.2	31⁻	8605.8	29⁻	E2		

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(HI,xnγ) (continued)

γ(^{156}Dy) (continued)

Eγ[†]	Iγ[#]	Ei(level)	Jiπ	Ef	Jfπ	Mult.[&]	α[a]	Comments
897.4 *1*	4.9 *8*	8875.9	30+	7978.5	28+	E2		
907		10141	32−	9234	30−			
911.5 *1*		2636.3	11−	1724.9	10+	E1		
912.0 *1*	14.3 *8*	8650.8	30+	7738.8	28+	E2	0.00369	
912		10975	34+	10063	32+			
920.3 *2*		9952.3	32−	9031.9	30−	E2		
921.9 *2*		9973.5	32−	9051.5	30−	E2		
931.6 *1*		1335.7	5+	404.1	4+	E2,M1		
933.2 *1*	5.4 *5*	10340.6	33−	9407.4	31−	E2		
937		10629	(33+)	9692	(31+)			
939		10592	33−	9653	31−			
947.2 *2*		10449.3	33−	9502.2	31−	E2		
949.3 *2*	3.5 *6*	9825.2	32+	8875.9	30+	E2		
950.6 *3*		1088.6	4+	137.8	2+	E2		
951		11092	34−	10141	32−			
958.5 *1*		1728.8	7+	770.5	6+	E2		
960.5 *1*	9.4 *7*	9611.3	32+	8650.8	30+	E2	0.00331	
970.9 *4*		10944.6	34−	9973.5	32−	E2		
971.2 *4*		2186.6	9−	1215.9	8+	E1		
972.7 *3*		10925.0	34−	9952.3	32−	E2		
972.8 *1*	4.7 *4*	11313.4	35−	10340.6	33−	E2		
973		14994.8	42+	14021.9	40+			Eγ: From 1998Ko49.
975.2 *3*		2191.3	9+	1215.9	8+	E2		
977.1 *3*	1.6[@] *2*	2701.5	10−	1724.9	10+	(E1)		
982.2 *2*	6.0[@] *6*	2706.9	12+	1724.9	10+	E2		
983[b]		16171.2	44+	15190	42+			
983.5 *5*		2709.4	11−	1724.9	10+	E1		
985		11614	(35+)	10629	(33+)			
988.4 *5*		2711.5	11+	1724.9	10+			
992		11585	35−	10592	33−			
994.3 *2*		11443.5	35−	10449.3	33−	E2		
997		12089	36−	11092	34−			
1002		12959	38−	11957.3	36−			
1003.1 *5*	2.5 *4*	10828.1	34+	9825.2	32+	E2		
1006.7 *1*	7.5 *6*	10618.0	34+	9611.3	32+	E2		
1008		13470	39−	12462	37−			
1010		11986	36+	10975	34+			
1012.6		11957.3	36−	10944.6	34−	E2		
1013		12959	38−	11946.2	36−			
1013.3 *2*	3.7 *4*	12326.8	37−	11313.4	35−	E2		
1014		12628	(37+)	11614	(35+)			
1014		13973	40−	12959	38−			
1019		12462	37−	11443.5	35−			
1021.2 *4*		11946.2	36−	10925.0	34−	E2		
1022[b]		11735	(36+)	10713	(34+)			
1031.2 *4*		1168.5	4+	137.8	2+	E2		
1033.8 *1*	0.6[@] *1*	1437.6	6+	404.1	4+	E2	0.00284	
1038		17388	46−	16350	44−			
1039.9 *3*		1810.1	7−	770.5	6+	E1		
1041[b]		9692	(31+)	8650.8	30+			
1042		12626	37−	11585	35−			
1045.3 *5*		2261.7	8−	1215.9	8+	(E1)		
1046		14021.9	40+	12976	38+			
1051		13140	38−	12089	36−			

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(HI,xnγ) (continued)

γ(^{156}Dy) (continued)

E_γ[†]	I_γ[#]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	α[a]	Comments
1052.6 2	5.1 6	11670.6	36+	10618.0	34+	E2		
1057		13014.0	38−	11957.3	36−			E_γ: From 1998Ko49.
1058		13686	(39+)	12628	(37+)			
1058.6 4	1.7 3	11886.7	36+	10828.1	34+	E2		
1060.0 3	3.4 3	13386.8	39−	12326.8	37−	E2		
1060		16289	44+	15229	42+			
1062[b]		14532	41−	13470	39−			
1065		13051	38+	11986	36+			
1067.8 4		13014.0	38−	11946.2	36−			
1074.5		19090.2	49−	18015.7	47−			
1083[b]		12818	(38+)	11735	(36+)			
1084		13711	39−	12626	37−			
1084		18472	48−	17388	46−			
1086		14797	(41−)	13711	39−			
1088		15061	42−	13973	40−			
1089.0 2	0.9[@] 2	1859.1	8+	770.5	6+	E2	0.00255	
1089		12976	38+	11886.7	36+			
1098.7 2	4.6 4	12769.3	38+	11670.6	36+	E2		
1099		16289	44+	15190	42+			
1100.2		14113.9	40−	13014.0	38−			
1100.3 2	1.0[@] 2	2315.9	10+	1215.9	8+	E2	0.00250	
1109.2 3	2.8 3	14496.1	41−	13386.8	39−	E2		Mult.: Based on γ(θ) (1988Ri09).
1109.6		14994.8	42+	13885.1	40+			
1114		14254	(40−)	13140	38−			
1114		14800	(41+)	13686	(39+)			
1115.8 2	2.7 3	13885.1	40+	12769.3	38+	E2		
1118		15232	42−	14113.9	40−			
1119		16350	44−	15232	42−			
1121.7 3		1525.5	6+	404.1	4+	E2		
1122.0 5		2847.5	11−	1724.9	10+			
1123		13941	(40+)	12818	(38+)			
1127.9 2		1898.7	6−	770.5	6+			
1128.1 2		2345.1	8−	1215.9	8+			
1132		17482	46−	16350	44−			
1138.8		15635.6	43−	14496.1	41−			
1145		14532	41−	13386.8	39−			
1145		17434	46+	16289	44+			
1147[b]		12818	(38+)	11670.6	36+			
1148		15679	43−	14532	41−			
1148		18015.7	47−	16869	45−			E_γ: From 1998Ko49.
1149		16210	44−	15061	42−			
1150		10975	34+	9825.2	32+			
1154[b]		15950	(43−)	14797	(41−)			
1157		15411	(42−)	14254	(40−)			
1158		11986	36+	10828.1	34+			
1159		14210	40+	13051	38+			
1165		13051	38+	11886.7	36+			
1168		15190	42+	14021.9	40+			
1171		17012	(45−)	15841	43−			
1172[b]		13941	(40+)	12769.3	38+			
1175		15975	(43+)	14800	(41+)			
1176.4 3	1.8 3	16171.2	44+	14994.8	42+	E2		E_γ: 1988Ri09 place this γ from the 42+ member of this band.
1177		17348	46+	16171.2	44+			

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(HI,xnγ) (continued)

γ(^{156}Dy) (continued)

E_γ[†]	I_γ[#]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]
1177		17388	46⁻	16210	44⁻	
1181.7		18015.7	47⁻	16833.3	45⁻	
1183		15679	43⁻	14496.1	41⁻	
1185		10592	33⁻	9407.4	31⁻	
1187		10063	32⁺	8875.9	30⁺	
1187.2 *1*		1957.6	8⁺	770.5	6⁺	
1190		16869	45⁻	15679	43⁻	
1192.3 *3*		2408.5	9⁻	1215.9	8⁺	E1
1196.8		16833.3	45⁻	15635.6	43⁻	
1207		15229	42⁺	14021.9	40⁺	
1211		15152	(42⁺)	13941	(40⁺)	
1214		16625	(44⁻)	15411	(42⁻)	
1217		18651	48⁺	17434	46⁺	
1228		18616	50⁻	17388	46⁻	
1233		16869	45⁻	15635.6	43⁻	
1234		14210	40⁺	12976	38⁺	
1237		15447	(42⁺)	14210	40⁺	
1242.0		20332.2	51⁻	19090.2	49⁻	
1244		11585	35⁻	10340.6	33⁻	
1245		16474	(44⁺)	15229	42⁺	
1252.6 *3*	0.8 *3*	14021.9	40⁺	12769.3	38⁺	
1261		17236	(45⁺)	15975	(43⁺)	
1267		18615	48⁺	17348	46⁺	
1270		16717	(44⁺)	15447	(42⁺)	
1272		17482	46⁻	16210	44⁻	
1283[b]		17908?	(46⁻)	16625	(44⁻)	
1284		18152	47⁻	16869	45⁻	
1291		18303	(47⁻)	17012	(45⁻)	
1296		16448	(44⁺)	15152	(42⁺)	
1304		15190	42⁺	13885.1	40⁺	
1312		19963	50⁺	18651	48⁺	
1313		12626	37⁻	11313.4	35⁻	
1319		18036	(46⁺)	16717	(44⁺)	
1319		18152	47⁻	16833.3	45⁻	
1331		18813	48⁻	17482	46⁻	
1336		19488	49⁻	18152	47⁻	
1338		19953	50⁺	18615	48⁺	
1344		15229	42⁺	13885.1	40⁺	
1345		15841	43⁻	14496.1	41⁻	
1349[b]		19652?	(49⁻)	18303	(47⁻)	
1364		18600	(47⁺)	17236	(45⁺)	
1369		21332	52⁺	19963	50⁺	
1372		19408	(48⁺)	18036	(46⁺)	
1376.6 *3*		2592.7	9⁻	1215.9	8⁺	(E1)
1384		13711	39⁻	12326.8	37⁻	
1384		17832	(46⁺)	16448	(44⁺)	
1393		20009	52⁻	18616	50⁻	
1402		20002	(49⁺)	18600	(47⁺)	
1410		14797	(41⁻)	13386.8	39⁻	
1428[b]		20241?	(50⁻)	18813	48⁻	
1431		21763	53⁻	20332.2	51⁻	
1450		20858	(50⁺)	19408	(48⁺)	
1454		15950	(43⁻)	14496.1	41⁻	
1466		19298	(48⁺)	17832	(46⁺)	
1467		22799	54⁺	21332	52⁺	

Continued on next page (footnotes at end of table)

(HI,xnγ) (continued)

γ(^{156}Dy) (continued)

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π
1469	21422	(52^+)	19953	50^+	1718 [b]	24716?	(56^+)	22998	(54^+)
1510	21512	(51^+)	20002	(49^+)	1732 [b]	23244?	(53^+)	21512	(51^+)
1511 [b]	22369?	(52^+)	20858	(50^+)	1794	26224	(58^+)	24430	(56^+)
1576	20874	(50^+)	19298	(48^+)	1806 [b]	24382?	(54^+)	22576?	(52^+)
1576	22998	(54^+)	21422	(52^+)	1898 [b]	28122?	(60^+)	26224	(58^+)
1631	24430	(56^+)	22799	54^+	1924 [b]	26640?	(58^+)	24716?	(56^+)
1702 [b]	22576?	(52^+)	20874	(50^+)	2119 [b]	30241?	(62^+)	28122?	(60^+)

† Most values are from the ^{124}Sn(^{36}S,4nγ) reaction (1988Ri09), otherwise from ^{148}Nd(^{12}C,4nγ) (1988Ri09) or ^{124}Sn(^{36}S,4nγ) (1988Mo22) as noted. For many of the higher-spin states, the values are from 1998Ko49. These latter authors list the γ′s on their level scheme only and quote them only to the nearest keV.

‡ Value from 1999KoZM. Previously (1988Ri09), these γ′s were placed in a band, but its position in the level scheme was not established.

From ^{124}Sn(^{36}S,4nγ) with E(^{36}S)=155 MeV (1988Ri09). Authors state "Due to the complex nature of the spectra, the quoted relative γ-ray intensities are incomplete. The information provided is intended only to give a general guide to the relative population of the bands...." . The other reaction is ^{148}Nd(^{12}C,4nγ) with E(^{12}C)=65 MeV (1988Ri09). In some instances, relative I_γ values for γ′s deexciting a level are given in this latter data set, but not in the former one. In these cases, the I_γ data are not shown here. Where adopted, however, they are given in the Adopted Gammas data set, with a suitable notation.

@ Value deduced from the relative γ intensities from the ^{148}Nd(^{12}C,4nγ) data of 1988Ri09. These authors do not list an Iγ value for this γ in their ^{124}Sn(^{36}S,4nγ) data.

& From ^{156}Dy Adopted γ Radiations. The data for those levels seen only in these heavy-ion studies are from γ(θ) and DCO-ratio data. These data are not sensitive to parity change. In these studies, quadrupole transitions are assumed to be E2; and multipolarities for dipole and/or mixed-multipole transitions are generally chosen based on parity-change considerations.

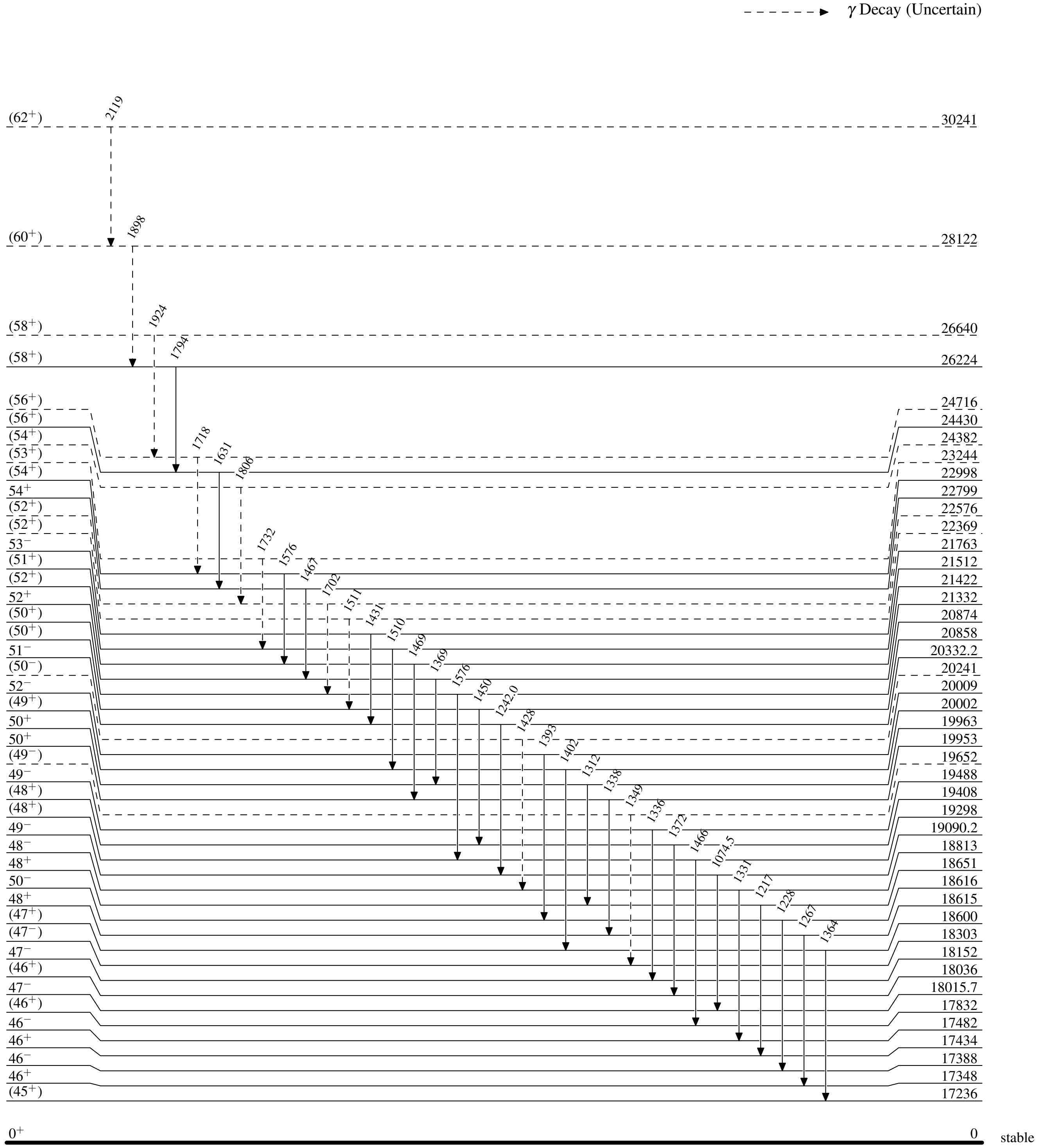
a Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

b Placement of transition in the level scheme is uncertain.

(HI,xnγ)

Level Scheme

Intensities: Relative I_γ



$^{156}_{66}Dy_{90}$

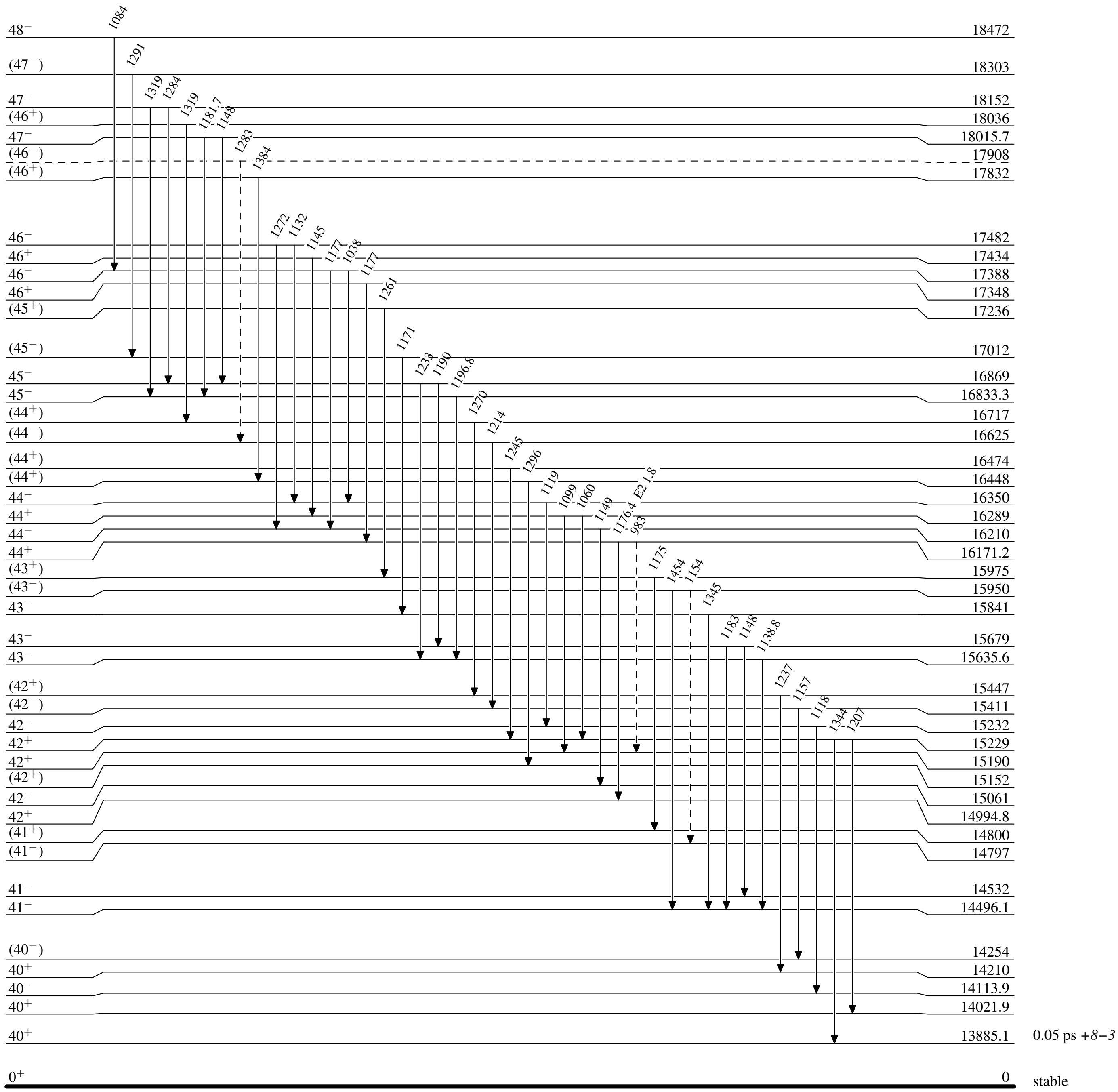
(HI,xnγ)

Level Scheme (continued)

Intensities: Relative I_γ

Legend

γ Decay (Uncertain)

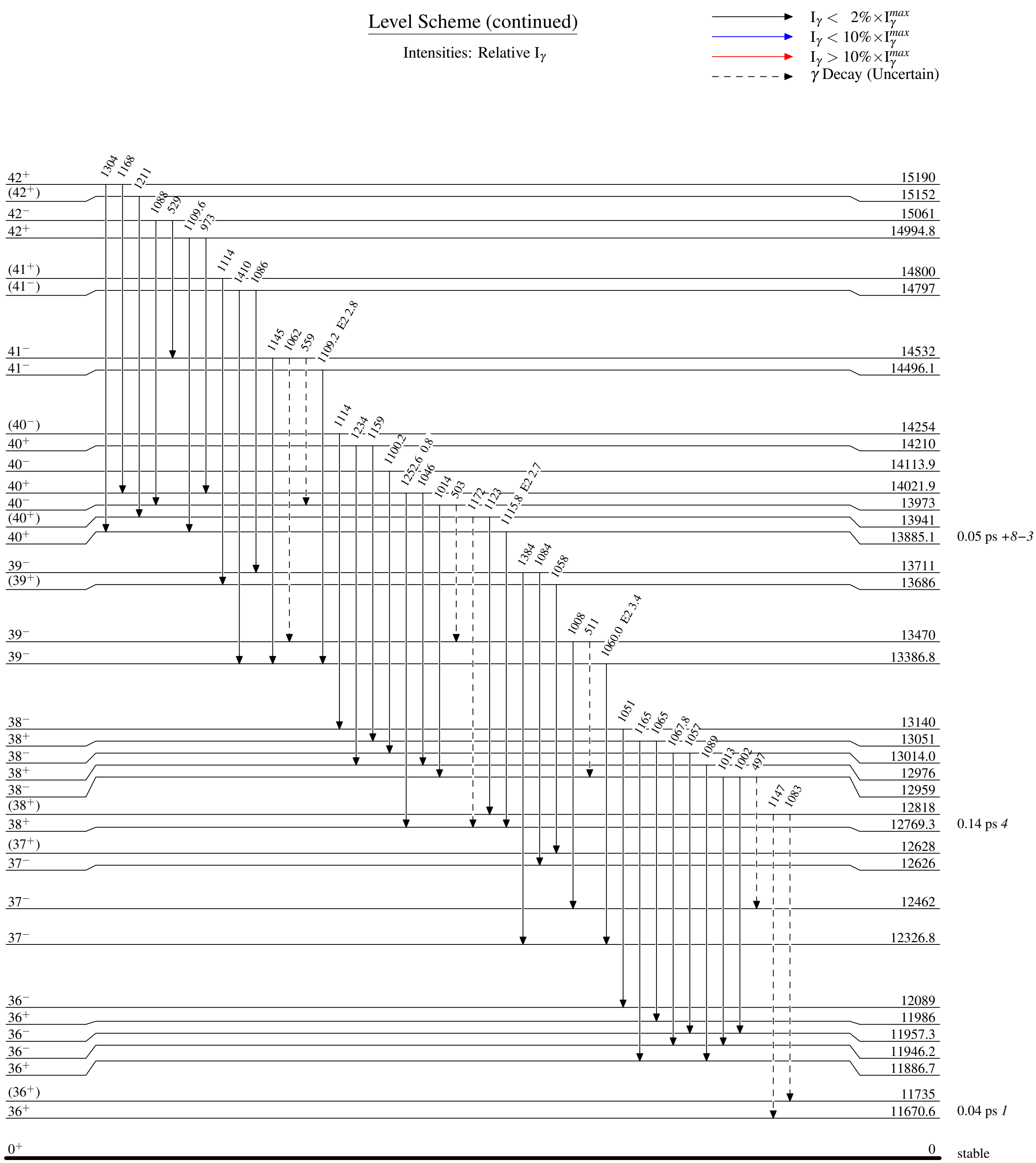


$^{156}_{66}Dy_{90}$

(HI,xnγ)

Level Scheme (continued)

Intensities: Relative I_γ



$^{156}_{66}Dy_{90}$

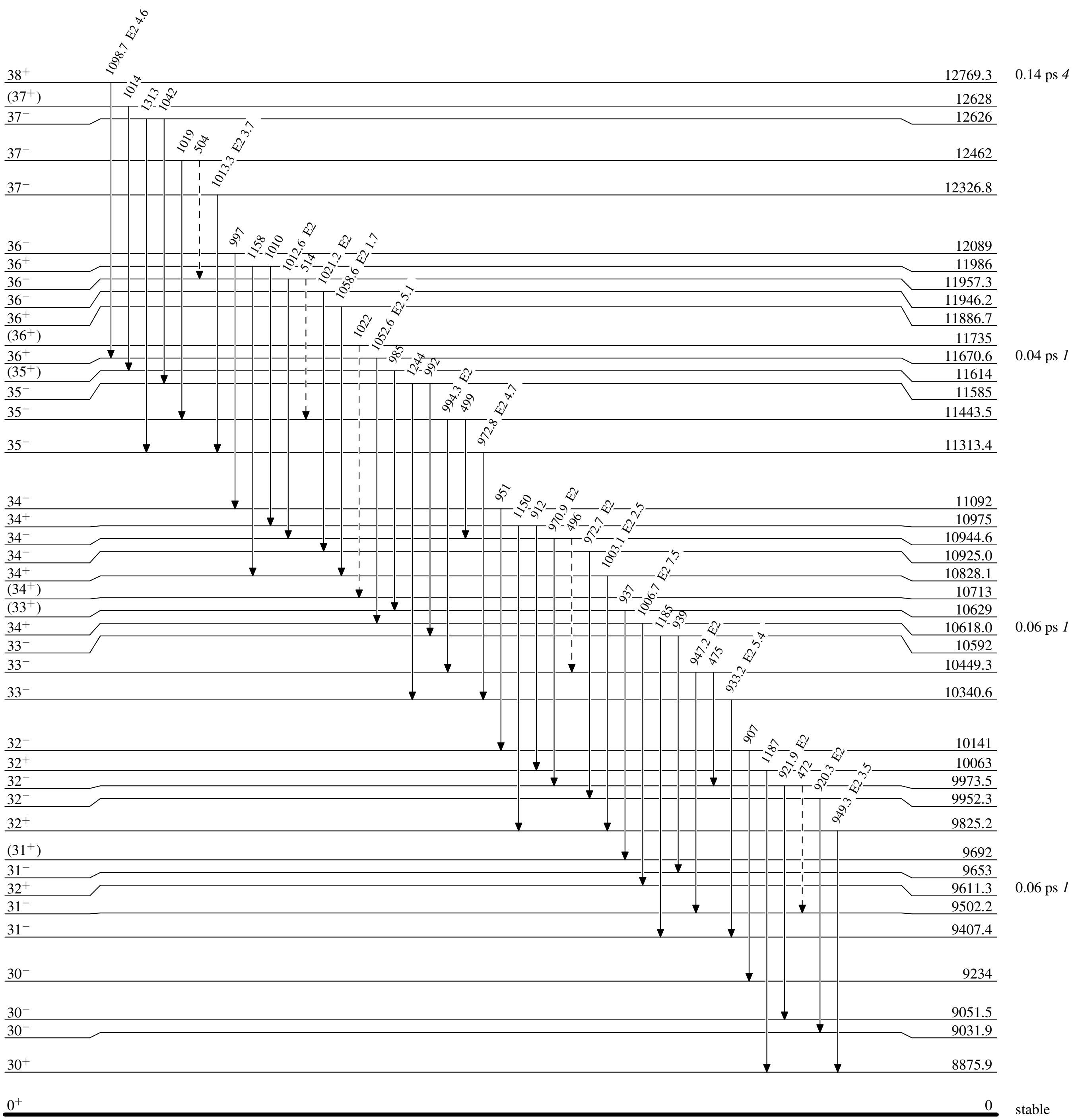
(HI,xnγ)

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)

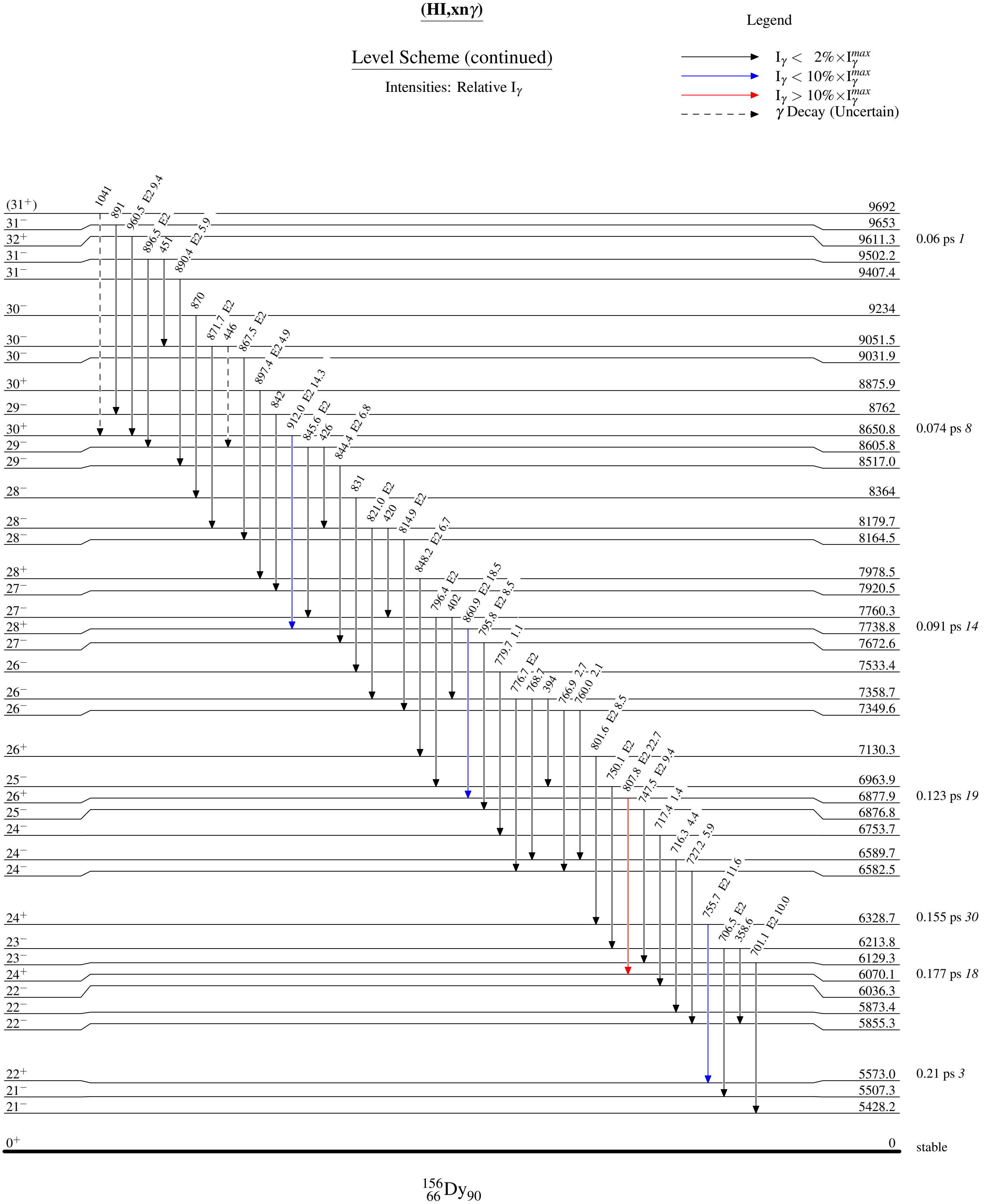


$^{156}_{66}Dy_{90}$

(HI,xnγ)

Level Scheme (continued)

Intensities: Relative I_γ



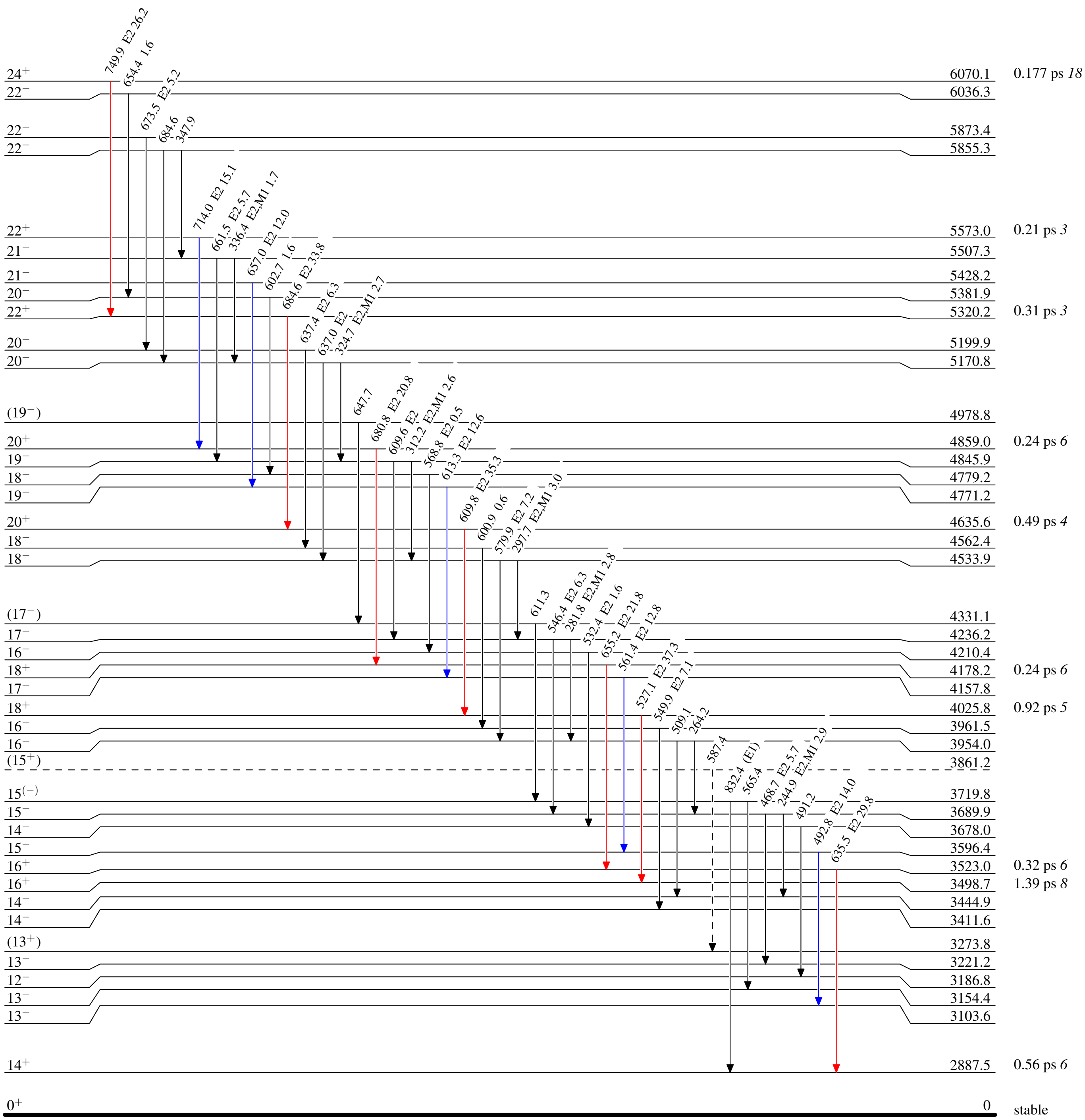
(HI,xnγ)

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)

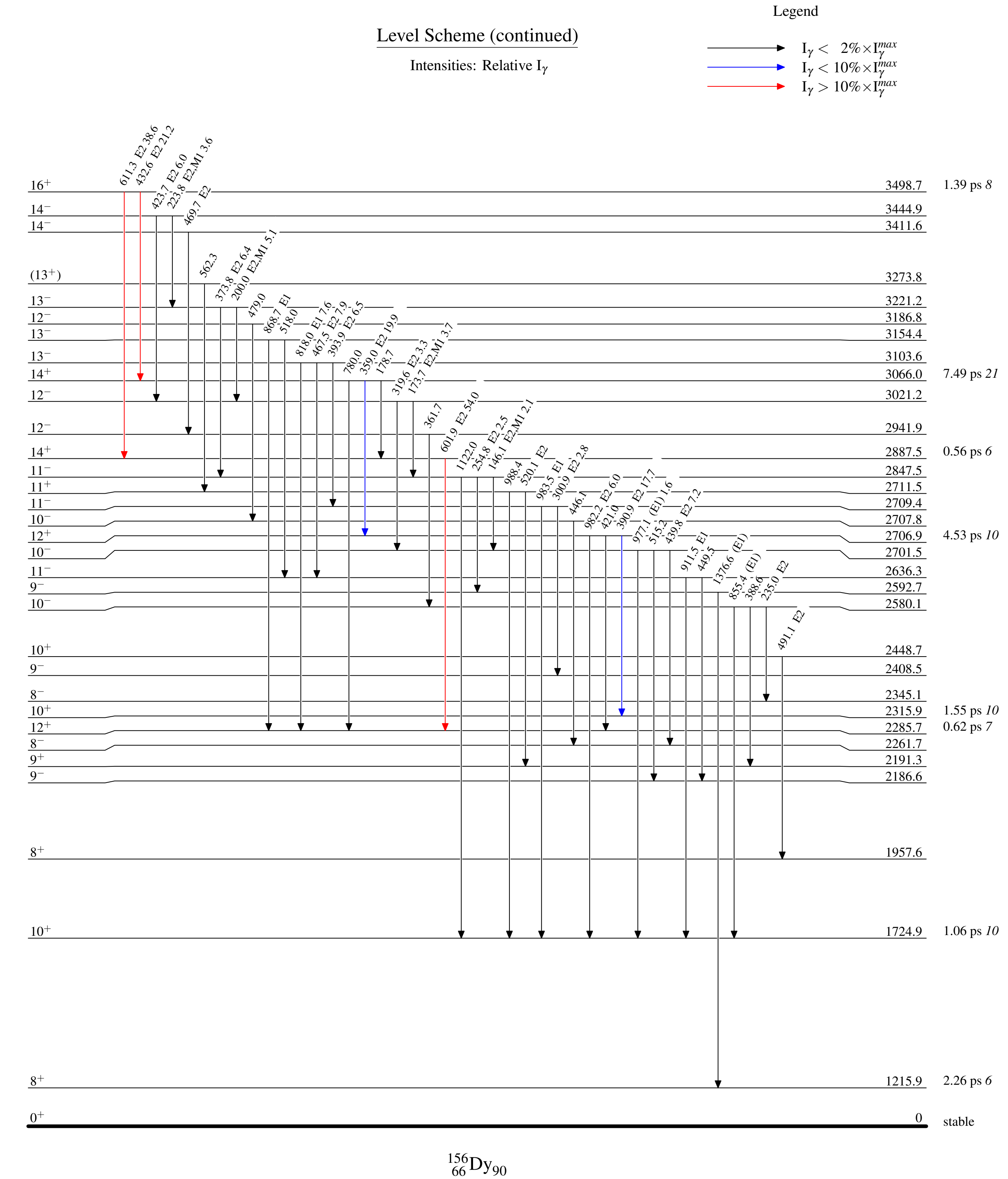


$^{156}_{66}Dy_{90}$

(HI,xnγ)

Level Scheme (continued)

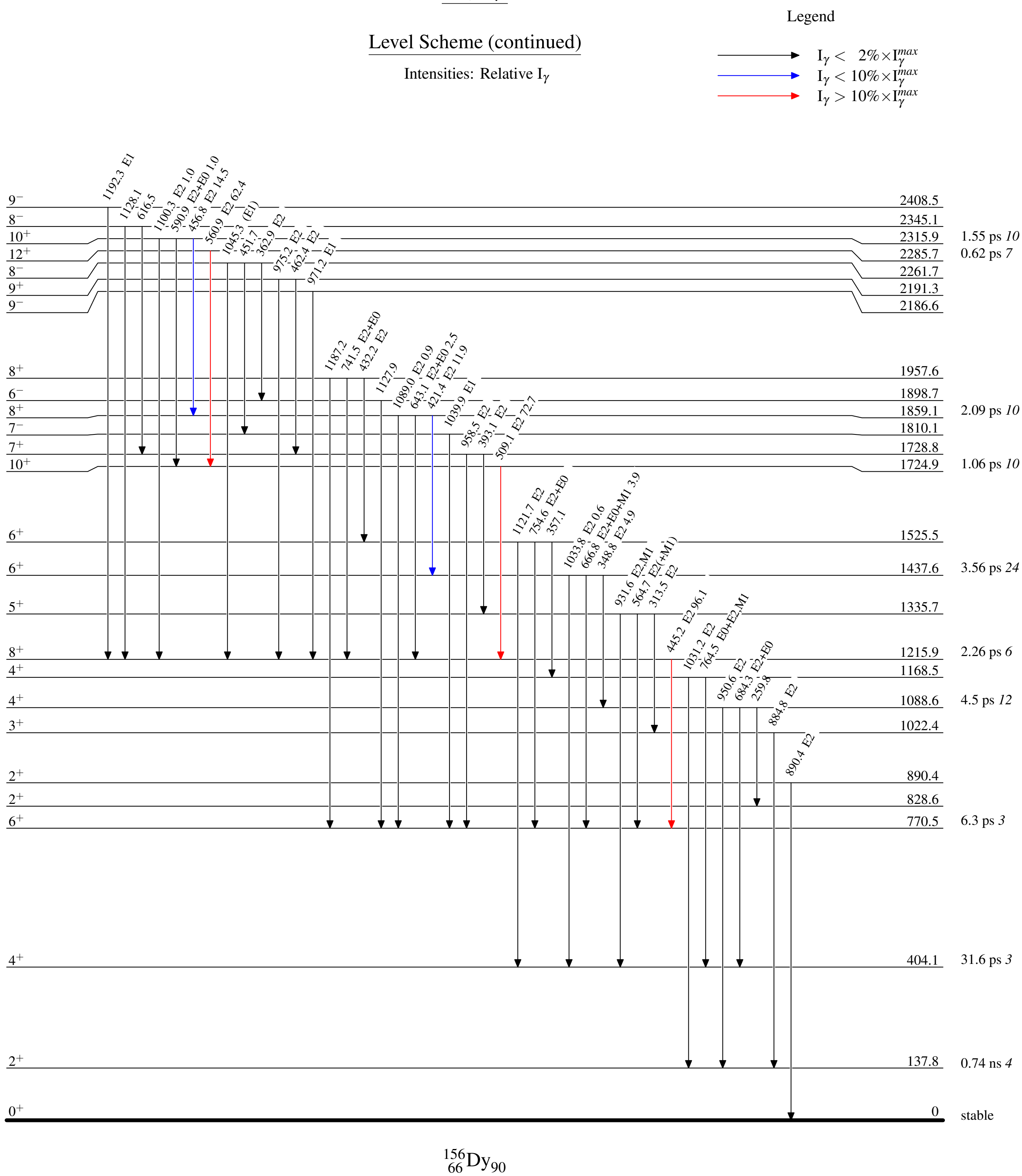
Intensities: Relative I_γ



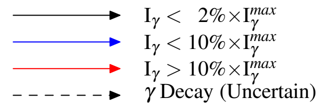
(HI,xnγ)

Level Scheme (continued)

Intensities: Relative I_γ

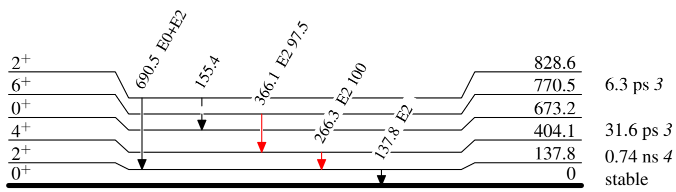


(HI,xnγ)



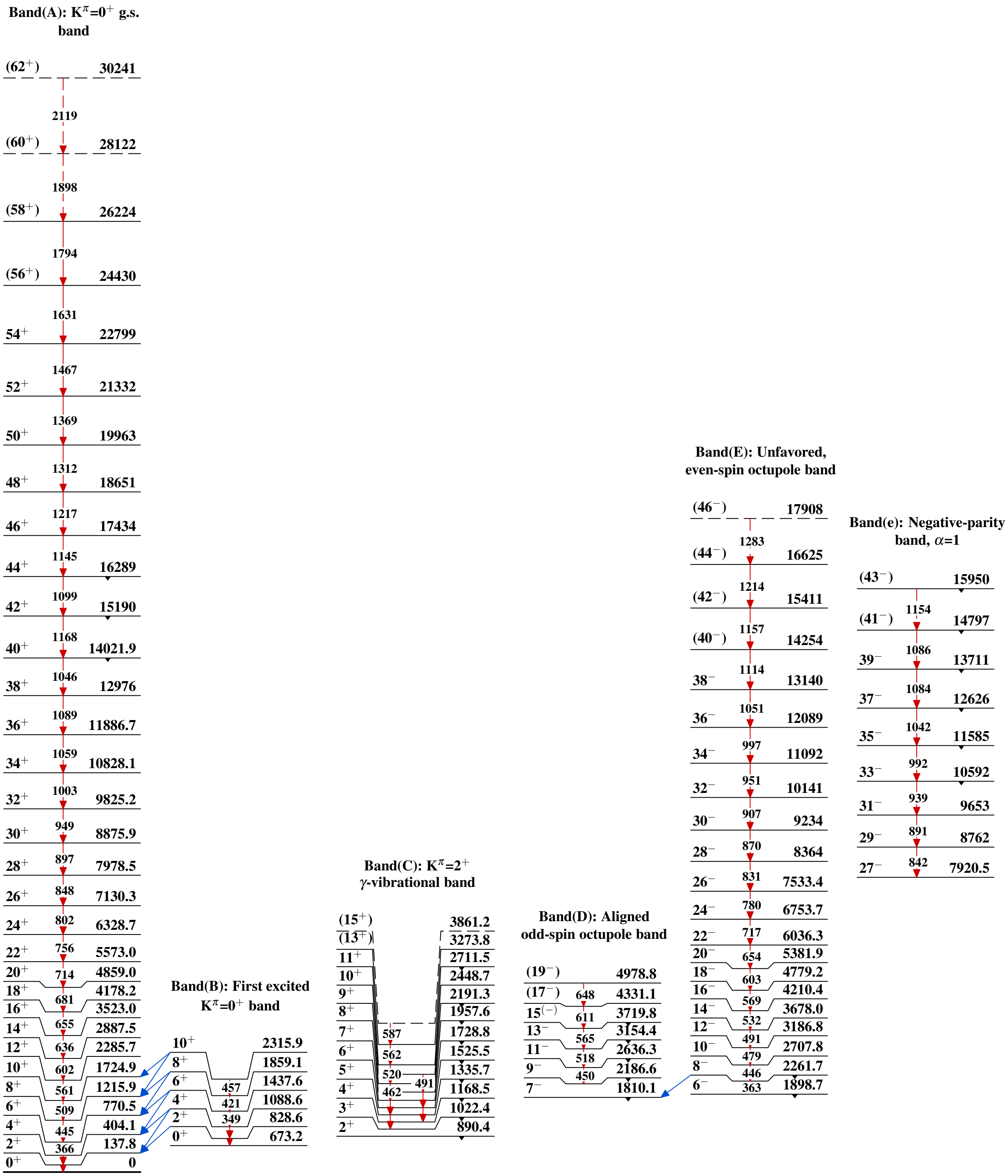
Level Scheme (continued)

Intensities: Relative I_γ



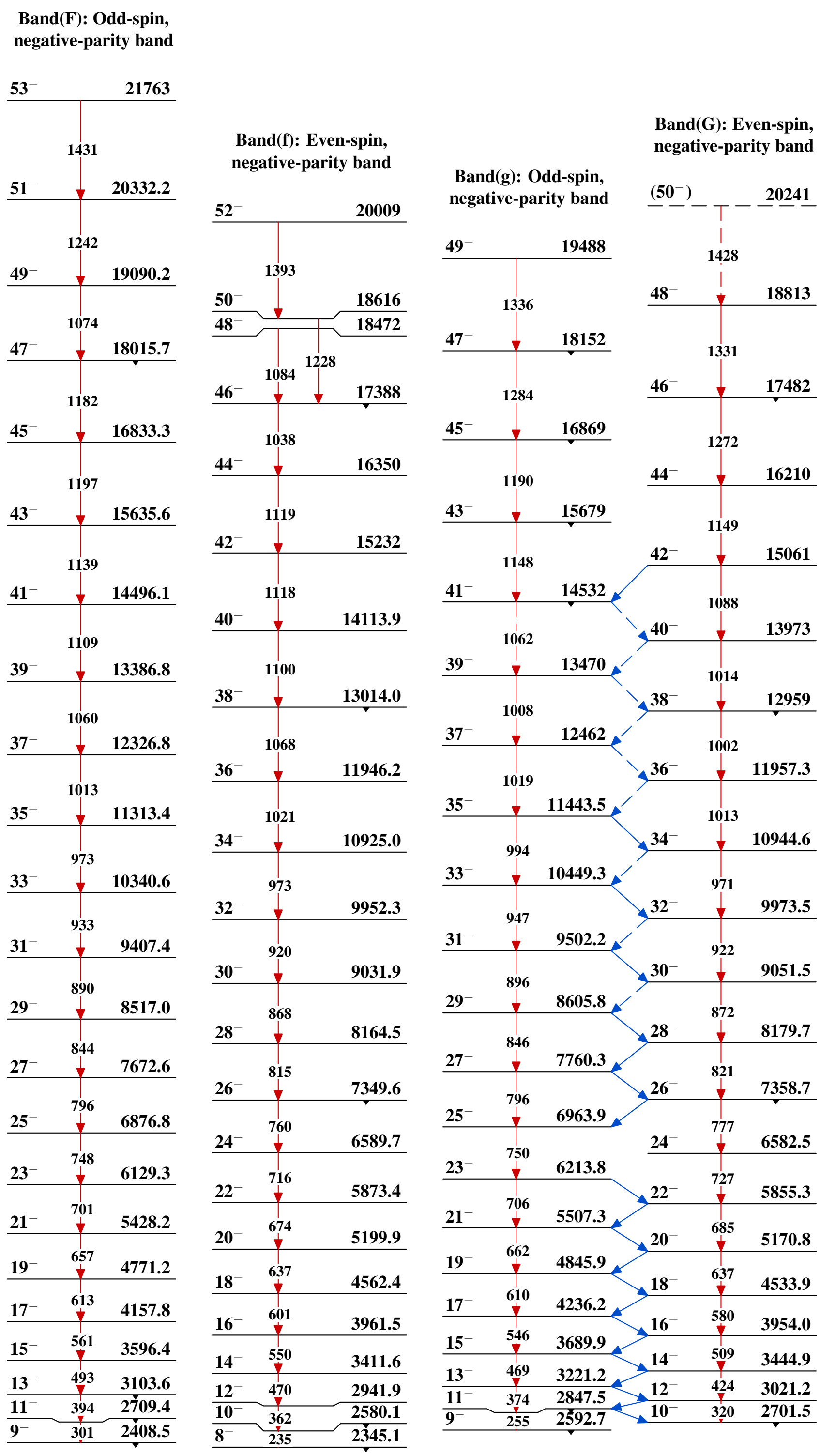
$^{156}_{66}Dy_{90}$

(HI,xnγ)



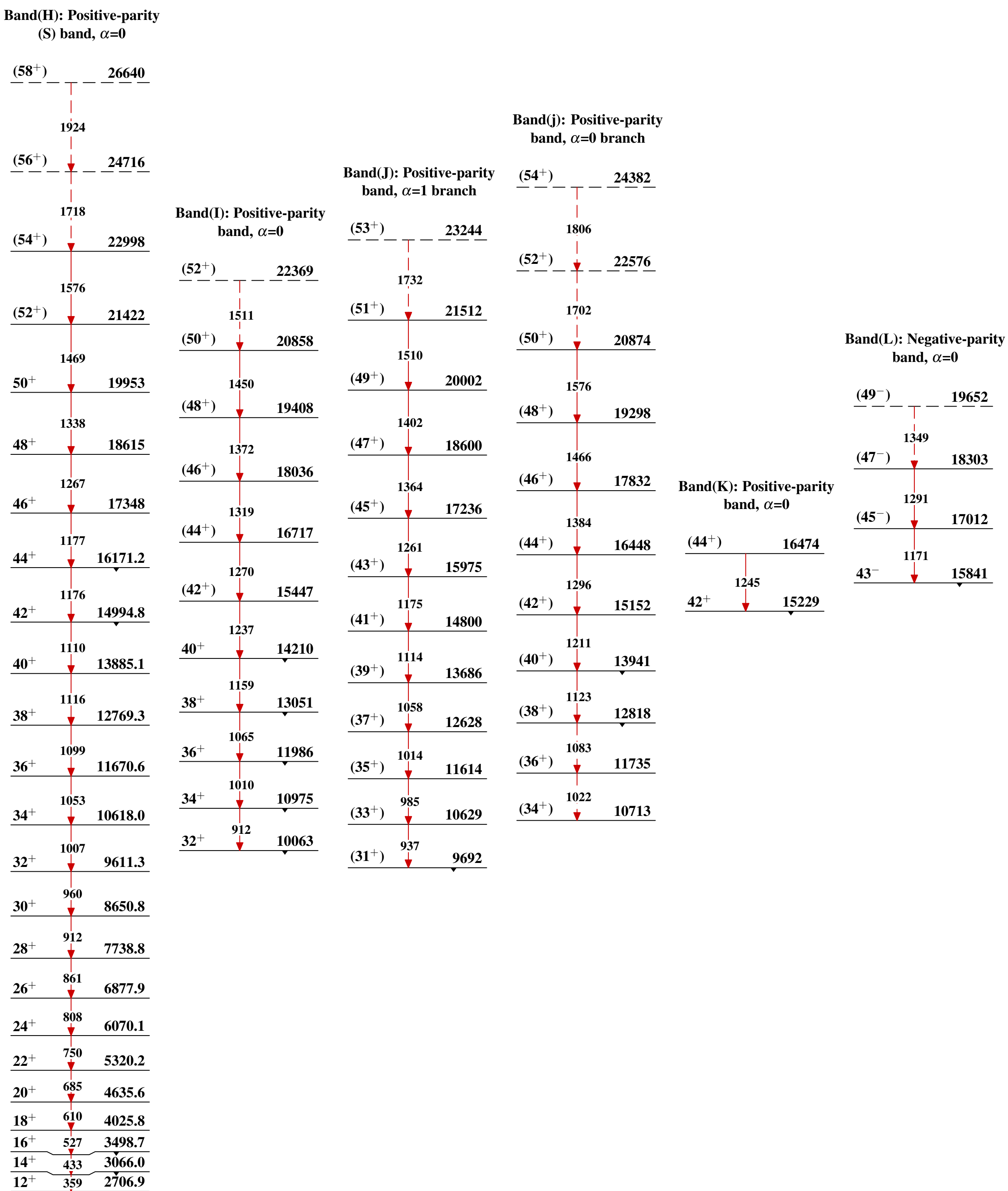
$^{156}_{66}Dy_{90}$

(HI,xnγ) (continued)



$^{156}_{66}Dy_{90}$

(HI,xnγ) (continued)



$^{156}_{66}Dy_{90}$