(HI,xnγ) 1995Ga13,1986Os02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 132, 1 (2016)	4-Dec-2015

The scheme is from 1995Ga13 with modifications from 2002Br52 (these papers have several authors in common). Earlier scheme by some of same authors is 1989Si03, and a less extensive scheme is given by 1985Ho04. (A compiled dataset for the paper 2002Br52 is available in the XUNDL database.).

Measurements have been made of γ singles, γ(θ), γγ(θ), γγ coincidences, excitation functions, and level lifetimes with NaI, Ge, and BGO detectors including a 44 detector array (1995Ga13). 2002Br52 gives a reanalysis of some of the lowest levels of 1995Ga13.

Experimental methods:

1971LeYU: ^{148}Sm(^{12}C,3nγ) and ^{120}Sn(^{40}Ar,3nγ) on enriched targets. Measured γ singles and γγ coincidences with Ge detectors. ce measured in magnetic spectrometer and level lifetime measured from delay of ce with respect to beam pulse. Positive-parity band seen to 29/2$^+$.

Additional information 1.

1973Gr24: ^{150}Sm(^{12}C,5nγ) with E(^{12}C)=92 MeV. Measured γ singles, γ(θ) and γγ coincidences. Positive-parity band seen to 41/2$^+$.

1974BeXW: progress report; see 1975Be34.

1974GrZJ: progress report; see 1973Gr24.

1974Na08: ^{122}Sn(^{40}Ar,5nγ) with E(^{40}Ar)=171 MeV. Lifetimes measured by recoil-distance, Doppler-shift method. Analyzed earlier perturbed γ(θ) data to obtain μ for the 17/2$^+$ level.

1975NaZM: progress report; see 1974Na08.

1975Be34: ^{160}Dy(α,7nγ) with E(α)=95 and 108 MeV on enriched (96.2%) target. Measured γ singles, γ(θ), γγ(t) coincidences. Positive-parity band seen to 41/2$^+$.

1983Ho10: ^{122}Sn(^{40}Ar,5nγ) with E(^{40}Ar)=182 MeV. Measured γ excitation functions and γγ(θ). Positive-parity band seen to 53/2$^+$. See 1985Ho04 for more complete results.

1984Ri04: ^{114}Cd(^{48}Ca,5nγ) with E(^{48}Ca)=200 MeV. Measured γ(θ) and γγ coincidences in array of 6 Ge and 50 BGO detectors. Positive-parity band seen to 65/2$^+$ and negative-parity band from 33/2$^-$ to 73/2$^-$. But, no data given, just backbending plot.

1985Ho04: ^{122}Sn(^{40}Ar,5nγ) with E(^{40}Ar)=160-200 MeV. Measured γ excitation functions, γ multiplicity, γ(θ), γγ(θ), γγ coincidences with Ge and NaI detectors. Positive-parity band seen to 53/2$^+$ and negative-parity band from 25/2$^-$ to 61/2$^-$.

1986Os02: ^{128}Te(^{34}S,5nγ) with E(^{34}S)=155 MeV. Lifetimes measured by Doppler-shift, recoil-distance method.

1989Si03: ^{114}Cd(^{48}Ca,5nγ) at 200 MeV. Measured various γ spectra with array of 6 Ge and 50 BGO detectors.

1995Ga13: ^{114}Cd(^{48}Ca,5nγ) at 210 MeV. Measured various γ coincidence spectra including γγ(θ) with array of 44 escape-suppressed Ge detectors.

2002Br52: reanalyzed some data from measurements reported in 1995Ga13; only part of level scheme reported.

^{157}Er Levels

Model calculations of possible interest related to level energies and backbending are 1974Ka12, 1984Ri04, and 1989Hs01.

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	Comments
0.0	3/2$^-$		Jπ: Adopted value.
155.4? *3*	(9/2$^+$)	76 ms *6*	Jπ: Adopted value. $T_{1/2}$: From 1971LeYU.
x[a]	(5/2$^-$)		
x+25	(7/2$^-$)		
x+178[@]	(13/2$^+$)		
x+182[a]	(9/2$^-$)		
x+444[@]	(17/2$^+$)	54 ps *4*	$T_{1/2}$: Weighted average of 49.0 ps *25* (1974Na08) and 57 ps *2* (1986Os02).
x+560[a]	(13/2$^-$)		

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(HI,xnγ) 1995Ga13,1986Os02 (continued)

^{157}Er Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	Comments
x+859[@]	(21/2+)	4.6 ps *8*	$T_{1/2}$: Weighted average of 5.3 ps *5* (1974Na08) and 3.7 ps *6* (1986Os02).
x+1072[a]	(17/2−)		
x+1080	(17/2−)		
x+1207[d]	(19/2+)		
x+1208	(17/2−)		
x+1386[@]	(25/2+)	2.6 ps *+2−3*	$T_{1/2}$: From 1986Os02.
x+1485[c]	(19/2)		
x+1665[a]	(21/2−)		
x+1697[&]	(21/2−)		
x+1739[d]	(23/2+)		
x+1907[c]	(23/2)		
x+2009[@]	(29/2+)	1.4 ps *3*	$T_{1/2}$: From 1986Os02.
x+2102[&]	(25/2−)		
x+2298[a]	(25/2−)		
x+2349[d]	(27/2+)		
x+2422[c]	(27/2)		
x+2425	(25/2−)		
x+2575[e]	(23/2−)		
x+2580[&]	(29/2−)		
x+2683[e]	(25/2−)		
x+2713[@]	(33/2+)		
x+2791[a]	(29/2−)		
x+2829[e]	(27/2−)		
x+2841[b]	(31/2−)		
x+3023[e]	(29/2−)		
x+3024[c]	(31/2)		
x+3094[&]	(33/2−)		
x+3248[e]	(31/2−)		
x+3334[a]	(33/2−)		
x+3378[b]	(35/2−)		
x+3479[@]	(37/2+)		
x+3510[e]	(33/2−)		
x+3669[&]	(37/2−)		
x+3702[c]	(35/2)		
x+3794[e]	(35/2−)		
x+3947[a]	(37/2−)		
x+4008[b]	(39/2−)		
x+4103[e]	(37/2−)		
x+4282[@]	(41/2+)		
x+4320[&]	(41/2−)		
x+4435[e]	(39/2−)		
x+4437[c]	(39/2)		
x+4622[a]	(41/2−)		
x+4724[b]	(43/2−)		
x+4784[e]	(41/2−)		
x+5049[&]	(45/2−)		
x+5091[@]	(45/2+)		
x+5154[e]	(43/2−)		

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(HI,xnγ) 1995Ga13,1986Os02 (continued)

^{157}Er Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
x+5188[c]	(43/2)	x+6764[e]	(51/2⁻)	x+9397[@]	(65/2⁺)	x+11902	(75/2⁺)
x+5373[a]	(45/2⁻)	x+6829[c]	(51/2)	x+9658[b]	(67/2⁻)	x+12170[@]	(77/2⁺)
x+5523[b]	(47/2⁻)	x+7189[e]	(53/2⁻)	x+10104[&]	(69/2⁻)	x+12213	(77/2⁻)
x+5532[e]	(45/2⁻)	x+7190[b]	(55/2⁻)	x+10232[@]	(69/2⁺)	x+12479[b]	(79/2⁻)
x+5850[&]	(49/2⁻)	x+7483[&]	(57/2⁻)	x+10553[b]	(71/2⁻)	x+12942	(79/2⁺)
x+5897[@]	(49/2⁺)	x+7524[@]	(57/2⁺)	x+10830	(71/2⁺)	x+13062[@]	(81/2⁺)
x+5935[e]	(47/2⁻)	x+7753[c]	(55/2)	x+11044[&]	(73/2⁻)	x+13125[&]	(81/2⁻)
x+5972[c]	(47/2)	x+8000[b]	(59/2⁻)	x+11086	(73/2⁻)	x+13199	(81/2⁺)
x+6175[a]	(49/2⁻)	x+8275[&]	(61/2⁻)	x+11312[@]	(73/2⁺)	x+13404[b]	(83/2⁻)
x+6341[e]	(49/2⁻)	x+8439[@]	(61/2⁺)	x+11343	(73/2⁺)	x+14046[&]	(85/2⁻)
x+6351[b]	(51/2⁻)	x+8723[c]	(59/2)	x+11492[b]	(75/2⁻)	x+14054[b]	(87/2⁻)
x+6679[&]	(53/2⁻)	x+8790[b]	(63/2⁻)	x+11721	(73/2⁺)	x+14296[@]	(85/2⁺)
x+6690[@]	(53/2⁺)	x+9151[&]	(65/2⁻)	x+11809[&]	(77/2⁻)	x+14860[&]	(89/2⁻)

† From least-squares fit to γ energies and are relative to level at x. Since the γ′s to the level at x do not have energy uncertainties, no level energies have uncertainties. In ^{159}Er the 13/2⁺ level is at 226 keV (13/2⁺).

‡ From 1995Ga13 with modifications from 2002Br52 and based on their (1995Ga13) measurements, previous measurements, and systematics of similar structures in other nuclei. Angular correlation information was extracted for "most" of the γ transitions.

From in-beam studies only. See ^{157}Er Adopted Levels for measurements for other levels.

@ Band(A): Yrast, positive-parity, signature=+1/2 band.

& Band(B): Negative-parity, signature=+1/2 band.

a Band(C): Negative-parity, signature=+1/2 band.

b Band(D): Negative-parity, signature=−1/2 band.

c Band(E): Sequence of signature=−1/2 levels.

d Band(F): Sequence of positive-parity, signature=−1/2 levels.

e Band(G): Negative-parity, strongly coupled band.

γ(^{157}Er)

Eγ†	Iγ‡	Ei(level)	Jiπ	Ef	Jfπ	Mult.#	Comments
104.8		x+2683	(25/2⁻)	x+2580	(29/2⁻)		
155.4 *3*	100	155.4?	(9/2⁺)	0.0	3/2⁻	E3	
156.8	>2.1[@]	x+182	(9/2⁻)	x+25	(7/2⁻)		
182		x+182	(9/2⁻)	x	(5/2⁻)		Eγ: from 2002Br52.
192.9	100[a]	x+3023	(29/2⁻)	x+2829	(27/2⁻)		
225.4	94[a] *3*	x+3248	(31/2⁻)	x+3023	(29/2⁻)		
231.9	7.3[@] *3*	x+2580	(29/2⁻)	x+2349	(27/2⁺)	(D)	
252.9	11.5[@] *4*	x+3094	(33/2⁻)	x+2841	(31/2⁻)	(D)	
254.1		x+2829	(27/2⁻)	x+2575	(23/2⁻)		
261.2	79[a] *3*	x+3510	(33/2⁻)	x+3248	(31/2⁻)		
266.36 *3*	>100	x+444	(17/2⁺)	x+178	(13/2⁺)	E2	
278.7	3.9[@] *4*	x+13404	(83/2⁻)	x+13125	(81/2⁻)		
285.3	74[a] *3*	x+3794	(35/2⁻)	x+3510	(33/2⁻)		
290.4	8.3[@] *4*	x+3669	(37/2⁻)	x+3378	(35/2⁻)	(D)	
307.9	62[a] *3*	x+4103	(37/2⁻)	x+3794	(35/2⁻)		
313.1	5.2[@] *4*	x+4320	(41/2⁻)	x+4008	(39/2⁻)	(D)	

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(HI,xnγ) 1995Ga13,1986Os02 (continued)

γ(^{157}Er) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
316.8	2.4[@] *4*	x+11809	(77/2$^-$)	x+11492	(75/2$^-$)		
325.3	9.4[@] *4*	x+5049	(45/2$^-$)	x+4724	(43/2$^-$)		
332.0	47[a] *3*	x+4435	(39/2$^-$)	x+4103	(37/2$^-$)		
342.2	12[a] *2*	x+3023	(29/2$^-$)	x+2683	(25/2$^-$)		
347.9	39[a] *2*	x+4784	(41/2$^-$)	x+4435	(39/2$^-$)		
362.6	19.8[@] *1*	x+2102	(25/2$^-$)	x+1739	(23/2$^+$)		
366.		x+2791	(29/2$^-$)	x+2425	(25/2$^-$)		E_γ: from 2002Br52.
370.4	19[a] *1*	x+5154	(43/2$^-$)	x+4784	(41/2$^-$)		
378.1	15[a] *1*	x+5532	(45/2$^-$)	x+5154	(43/2$^-$)		
378.7	2.1[@] *5*	x+560	(13/2$^-$)	x+182	(9/2$^-$)		
381.6	2.1[@] *4*	x+3094	(33/2$^-$)	x+2713	(33/2$^+$)		
401.9	9[a] *1*	x+5935	(47/2$^-$)	x+5532	(45/2$^-$)		
404.7	18.8[@] *7*	x+2102	(25/2$^-$)	x+1697	(21/2$^-$)	(D)	
405.9		x+6341	(49/2$^-$)	x+5935	(47/2$^-$)		
414.91 *3*	100.0 *7*	x+859	(21/2$^+$)	x+444	(17/2$^+$)	E2	
418.3		x+3248	(31/2$^-$)	x+2829	(27/2$^-$)		
422.7	16.5[&] *17*	x+1907	(23/2)	x+1485	(19/2)	(E2)	
423.2		x+6764	(51/2$^-$)	x+6341	(49/2$^-$)		
437.3	1.0[@] *3*	x+2102	(25/2$^-$)	x+1665	(21/2$^-$)	(E2)	
441.8		x+4724	(43/2$^-$)	x+4282	(41/2$^+$)		
474.4	16.7[b] *8*	x+5523	(47/2$^-$)	x+5049	(45/2$^-$)		
478.33 *5*	100.0[@] *19*	x+2580	(29/2$^-$)	x+2102	(25/2$^-$)	E2	
486.7	17[a] *2*	x+3510	(33/2$^-$)	x+3023	(29/2$^-$)		
490.0	5.2[@] *11*	x+1697	(21/2$^-$)	x+1208	(17/2$^-$)	(E2)	
493.		x+2791	(29/2$^-$)	x+2298	(25/2$^-$)		E_γ: from 2002Br52.
512.		x+1072	(17/2$^-$)	x+560	(13/2$^-$)		E_γ: from 2002Br52.
513.97 *5*	150.0[@] *25*	x+3094	(33/2$^-$)	x+2580	(29/2$^-$)	E2	
515.5	61[&] *3*	x+2422	(27/2)	x+1907	(23/2)	(E2)	
527.36 *5*	95.0[@] *7*	x+1386	(25/2$^+$)	x+859	(21/2$^+$)	E2	
530.3	37.8[b] *13*	x+4008	(39/2$^-$)	x+3479	(37/2$^+$)	(D)	
531.1	22[@] *6*	x+1739	(23/2$^+$)	x+1207	(19/2$^+$)	(E2)	
536.9	41.8[b] *13*	x+3378	(35/2$^-$)	x+2841	(31/2$^-$)	E2	
543.		x+3334	(33/2$^-$)	x+2791	(29/2$^-$)		E_γ: from 2002Br52.
544.9	29[a] *3*	x+3794	(35/2$^-$)	x+3248	(31/2$^-$)		
570.9	36.5[@] *9*	x+2580	(29/2$^-$)	x+2009	(29/2$^+$)		
574.73 *6*	145.8[@] *24*	x+3669	(37/2$^-$)	x+3094	(33/2$^-$)	(E2)	
593.2	1.3[@] *3*	x+1665	(21/2$^-$)	x+1072	(17/2$^-$)	(E2)	
593.2	31[a] *3*	x+4103	(37/2$^-$)	x+3510	(33/2$^-$)		
598.4	6.7 *3*	x+10830	(71/2$^+$)	x+10232	(69/2$^+$)	(D)	
602.6	108[&] *3*	x+3024	(31/2)	x+2422	(27/2)		
612.7	34.6[@] *14*	x+2349	(27/2$^+$)	x+1739	(23/2$^+$)	(E2)	
613.		x+3947	(37/2$^-$)	x+3334	(33/2$^-$)		E_γ: from 2002Br52.
622.76 *4*	90.0 *7*	x+2009	(29/2$^+$)	x+1386	(25/2$^+$)	E2	
625.		x+1697	(21/2$^-$)	x+1072	(17/2$^-$)		E_γ: from 2002Br52.
630.2	97.2[b] *13*	x+4008	(39/2$^-$)	x+3378	(35/2$^-$)	E2	
633.		x+2298	(25/2$^-$)	x+1665	(21/2$^-$)		E_γ: from 2002Br52.
639.9	27[a] *3*	x+4435	(39/2$^-$)	x+3794	(35/2$^-$)		
649.9	32.6[@] *17*	x+14054	(87/2$^-$)	x+13404	(83/2$^-$)	(E2)	
651.7 *5*	170[@] *3*	x+4320	(41/2$^-$)	x+3669	(37/2$^-$)	E2	

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(HI,xnγ) 1995Ga13,1986Os02 (continued)

γ(^{157}Er) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
665.3	51.0[b] *16*	x+3378	(35/2$^-$)	x+2713	(33/2$^+$)	(D)	
671.2	21.0[@] *10*	x+12479	(79/2$^-$)	x+11809	(77/2$^-$)	(D)	
675.		x+4622	(41/2$^-$)	x+3947	(37/2$^-$)		E_γ: from 2002Br52.
678.4	100[&] *4*	x+3702	(35/2)	x+3024	(31/2)		
679.9	17[a] *2*	x+4784	(41/2$^-$)	x+4103	(37/2$^-$)		
703.16 *5*	74.2 *6*	x+2713	(33/2$^+$)	x+2009	(29/2$^+$)	E2	
715.5 *2*	33.3[@] *12*	x+2102	(25/2$^-$)	x+1386	(25/2$^+$)		
716.1	100[b] *3*	x+4724	(43/2$^-$)	x+4008	(39/2$^-$)	E2	
717.8	17[a] *2*	x+5154	(43/2$^-$)	x+4435	(39/2$^-$)		
722.9	15.2[@] *10*	x+11809	(77/2$^-$)	x+11086	(73/2$^-$)	(E2)	
728.2 *2*	142.7[@] *24*	x+5049	(45/2$^-$)	x+4320	(41/2$^-$)	E2	
737.9	79[&] *4*	x+4437	(39/2)	x+3702	(35/2)	(E2)	
748.6	13[a] *2*	x+5532	(45/2$^-$)	x+4784	(41/2$^-$)		
750.6	57[&] *4*	x+5188	(43/2)	x+4437	(39/2)	(E2)	
751.		x+5373	(45/2$^-$)	x+4622	(41/2$^-$)		E_γ: from 2002Br52.
760.		x+2425	(25/2$^-$)	x+1665	(21/2$^-$)		E_γ: from 2002Br52.
763.2	10[@] *6*	x+1207	(19/2$^+$)	x+444	(17/2$^+$)	(D)	
763.2	[@]	x+1208	(17/2$^-$)	x+444	(17/2$^+$)	(D)	
764.2		x+11809	(77/2$^-$)	x+11044	(73/2$^-$)		
766.21 *13*	61.1 *7*	x+3479	(37/2$^+$)	x+2713	(33/2$^+$)	E2	E_γ: From 1985Ho04; other: 764.6 (1989Si03).
780.9	11[a] *2*	x+5935	(47/2$^-$)	x+5154	(43/2$^-$)		
783.2	56[&] *6*	x+5972	(47/2)	x+5188	(43/2)	(E2)	
790.2	68.7[b] *19*	x+8790	(63/2$^-$)	x+8000	(59/2$^-$)	(E2)	
792.0	87.5[@] *19*	x+8275	(61/2$^-$)	x+7483	(57/2$^-$)	(E2)	
792.5 *3*	37.2 *14*	x+6690	(53/2$^+$)	x+5897	(49/2$^+$)	E2	
798.3	96[b] *3*	x+5523	(47/2$^-$)	x+4724	(43/2$^-$)	(E2)	
801.3 *4*	133[@] *3*	x+5850	(49/2$^-$)	x+5049	(45/2$^-$)		
802.		x+6175	(49/2$^-$)	x+5373	(45/2$^-$)		E_γ: from 2002Br52.
803.3	53.2 *14*	x+4282	(41/2$^+$)	x+3479	(37/2$^+$)	(E2)	
804.1 *5*	87.5[@] *23*	x+7483	(57/2$^-$)	x+6679	(53/2$^-$)	(E2)	
806.1	33 *5*	x+5897	(49/2$^+$)	x+5091	(45/2$^+$)	(E2)	
807.8		x+6341	(49/2$^-$)	x+5532	(45/2$^-$)		
809.6	70.8[b] *24*	x+8000	(59/2$^-$)	x+7190	(55/2$^-$)	(E2)	
809.9 *3*	33 *5*	x+5091	(45/2$^+$)	x+4282	(41/2$^+$)	(E2)	
814.6	4.9[@] *5*	x+14860	(89/2$^-$)	x+14046	(85/2$^-$)	(E2)	
827.9	108[b] *3*	x+6351	(51/2$^-$)	x+5523	(47/2$^-$)	(E2)	
829.0 *10*	110.4[@] *25*	x+6679	(53/2$^-$)	x+5850	(49/2$^-$)	(E2)	
829.0		x+6764	(51/2$^-$)	x+5935	(47/2$^-$)		
833.4	29.5[b] *22*	x+2841	(31/2$^-$)	x+2009	(29/2$^+$)	(D)	
833.9[c]	37.3[c] *10*	x+7524	(57/2$^+$)	x+6690	(53/2$^+$)	(E2)	
834.8[c]	37.3[c] *10*	x+10232	(69/2$^+$)	x+9397	(65/2$^+$)	(E2)	
837.9		x+1697	(21/2$^-$)	x+859	(21/2$^+$)		
838.8	88.4[b] *22*	x+7190	(55/2$^-$)	x+6351	(51/2$^-$)	(E2)	
848.0		x+7189	(53/2$^-$)	x+6341	(49/2$^-$)		
857.2	54[&] *5*	x+6829	(51/2)	x+5972	(47/2)	(E2)	
858.1	6.2 *6*	x+12170	(77/2$^+$)	x+11312	(73/2$^+$)		
867.8	63.6[b] *12*	x+9658	(67/2$^-$)	x+8790	(63/2$^-$)	(E2)	
876.4	69.8[@] *15*	x+9151	(65/2$^-$)	x+8275	(61/2$^-$)	(E2)	

Continued on next page (footnotes at end of table)

(HI,xnγ) 1995Ga13,1986Os02 (continued)

γ(^{157}Er) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]
881.7	32.2[@] *15*	x+1739	(23/2$^+$)	x+859	(21/2$^+$)	(D)
891.2	2.8 *9*	x+11721	(73/2$^+$)	x+10830	(71/2$^+$)	(D)
892.6	4.5 *10*	x+13062	(81/2$^+$)	x+12170	(77/2$^+$)	(E2)
894.9	58.4[@] *17*	x+10553	(71/2$^-$)	x+9658	(67/2$^-$)	(E2)
915.1	17.8 *5*	x+8439	(61/2$^+$)	x+7524	(57/2$^+$)	(E2)
921.0	25.7[@] *12*	x+14046	(85/2$^-$)	x+13125	(81/2$^-$)	(E2)
923.6	49[&] *4*	x+7753	(55/2)	x+6829	(51/2)	(E2)
925.9	46.7[@] *16*	x+13404	(83/2$^-$)	x+12479	(79/2$^-$)	(E2)
939.4	37.4[@] *15*	x+11492	(75/2$^-$)	x+10553	(71/2$^-$)	(E2)
940.6	36.4[@] *15*	x+11044	(73/2$^-$)	x+10104	(69/2$^-$)	(E2)
952.5	61.5[@] *13*	x+10104	(69/2$^-$)	x+9151	(65/2$^-$)	(E2)
957.8	15.6 *6*	x+9397	(65/2$^+$)	x+8439	(61/2$^+$)	(E2)
962.4	16.3[@] *13*	x+2349	(27/2$^+$)	x+1386	(25/2$^+$)	
970.4	20.0[&] *26*	x+8723	(59/2)	x+7753	(55/2)	(E2)
982.4	29.5[@] *14*	x+11086	(73/2$^-$)	x+10104	(69/2$^-$)	(E2)
986.4	25.3[@] *14*	x+12479	(79/2$^-$)	x+11492	(75/2$^-$)	(E2)
990.6		x+3702	(35/2)	x+2713	(33/2$^+$)	
1015.5		x+3024	(31/2)	x+2009	(29/2$^+$)	
1029.6	1.3 *1*	x+13199	(81/2$^+$)	x+12170	(77/2$^+$)	
1035.7	65[&] *5*	x+2422	(27/2)	x+1386	(25/2$^+$)	
1039.4	1.3 *1*	x+12942	(79/2$^+$)	x+11902	(75/2$^+$)	
1041.0	6.3[&] *13*	x+1485	(19/2)	x+444	(17/2$^+$)	
1048.3	30[&] *4*	x+1907	(23/2)	x+859	(21/2$^+$)	(D)
1072.4	1.9 *5*	x+11902	(75/2$^+$)	x+10830	(71/2$^+$)	(E2)
1079.9	7.4 *6*	x+11312	(73/2$^+$)	x+10232	(69/2$^+$)	(E2)
1111.3	1.8 *2*	x+11343	(73/2$^+$)	x+10232	(69/2$^+$)	
1127		x+12213	(77/2$^-$)	x+11086	(73/2$^-$)	
1233.8	2.3 *2*	x+14296	(85/2$^+$)	x+13062	(81/2$^+$)	(E2)
1236.4		x+3248	(31/2$^-$)	x+2009	(29/2$^+$)	
1315.5	21.9[@] *12*	x+13125	(81/2$^-$)	x+11809	(77/2$^-$)	(E2)
1440.9		x+2829	(27/2$^-$)	x+1386	(25/2$^+$)	
1714.7		x+2575	(23/2$^-$)	x+859	(21/2$^+$)	

[†] Values with uncertainties are from 1985Ho04 and others are from 1995Ga13, with additions from 2002Br52. Other sets: 1971LeYU, 1973Gr24, 1975Be34 (1974BeXW), and 1989Si03.

[‡] From 1995Ga13 and given in groups relative to one of five different γ′s. The unflagged values are relative to I_γ(414.8)=100, and the flagged sets are relative to one of the γ′s 192.9, 478.6, 678.4, or 716.1. Other sets: 1989Si03, 1985Ho04 (1983Ho10), 1973Gr24, and 1975Be34.

[#] From γ(θ) data in these (HI,xnγ) studies (1985Ho04,1989Si03,1995Ga13). Others: 1973Gr24 and 1975Be34.

[@] Relative to 100 for I_γ(478.6).

[&] Relative to 100 for I_γ(678.4).

[a] Relative to 100 for I_γ(192.9).

[b] Relative to 100 for I_γ(716.1).

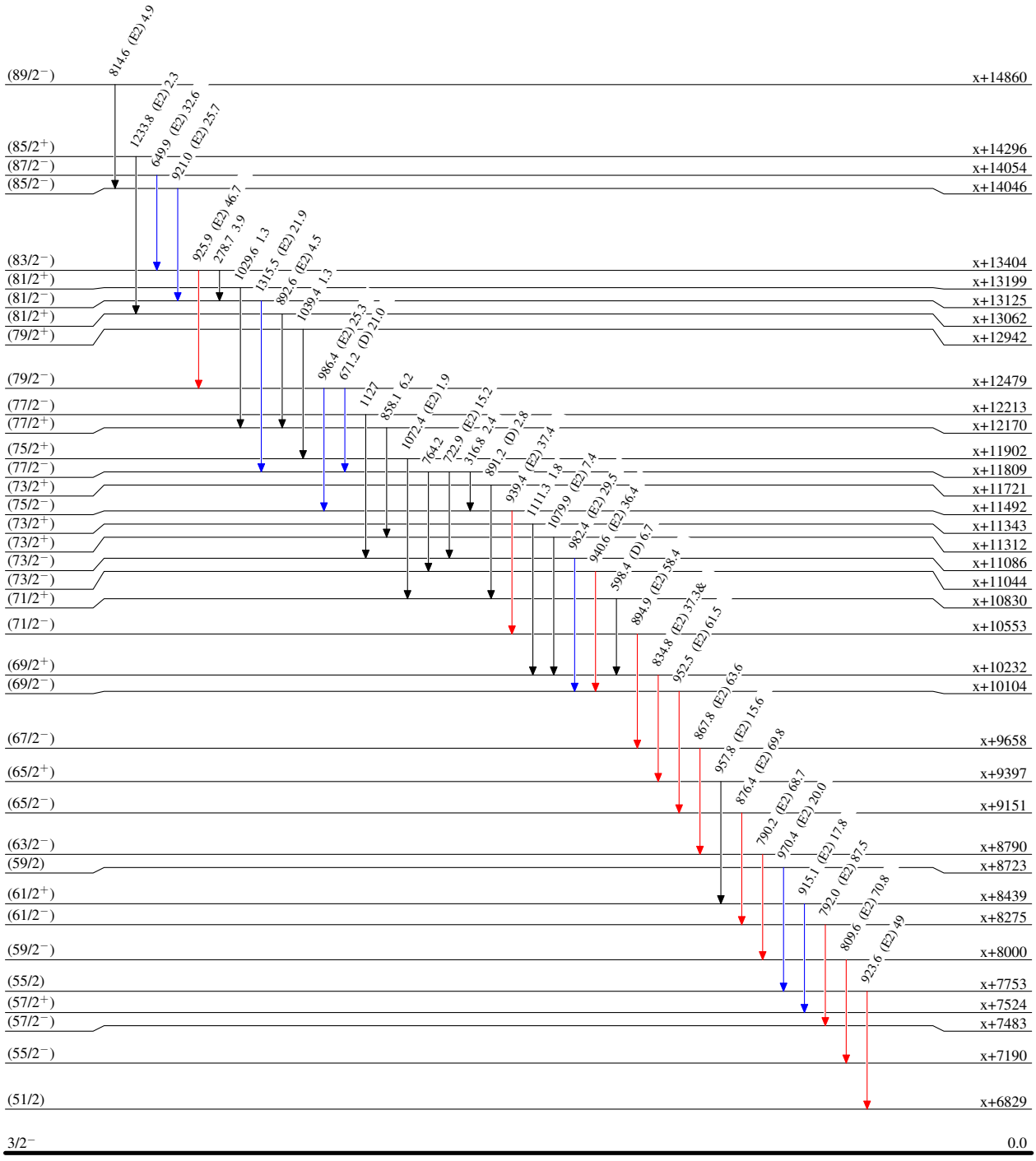
[c] Multiply placed with undivided intensity.

(HI,xnγ) 1995Ga13,1986Os02

Level Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



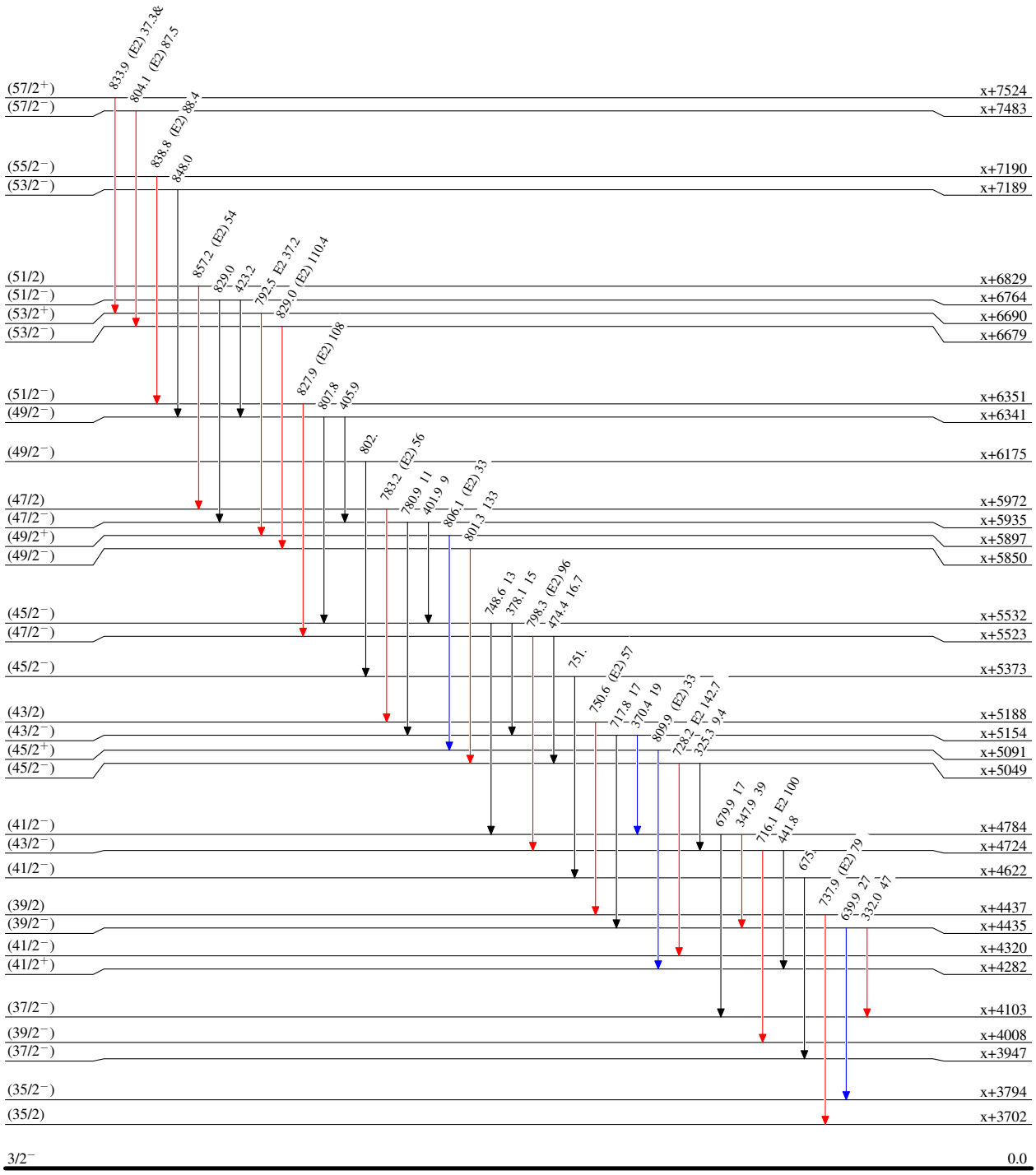
$^{157}_{68}Er_{89}$

(HI,xnγ) 1995Ga13,1986Os02

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



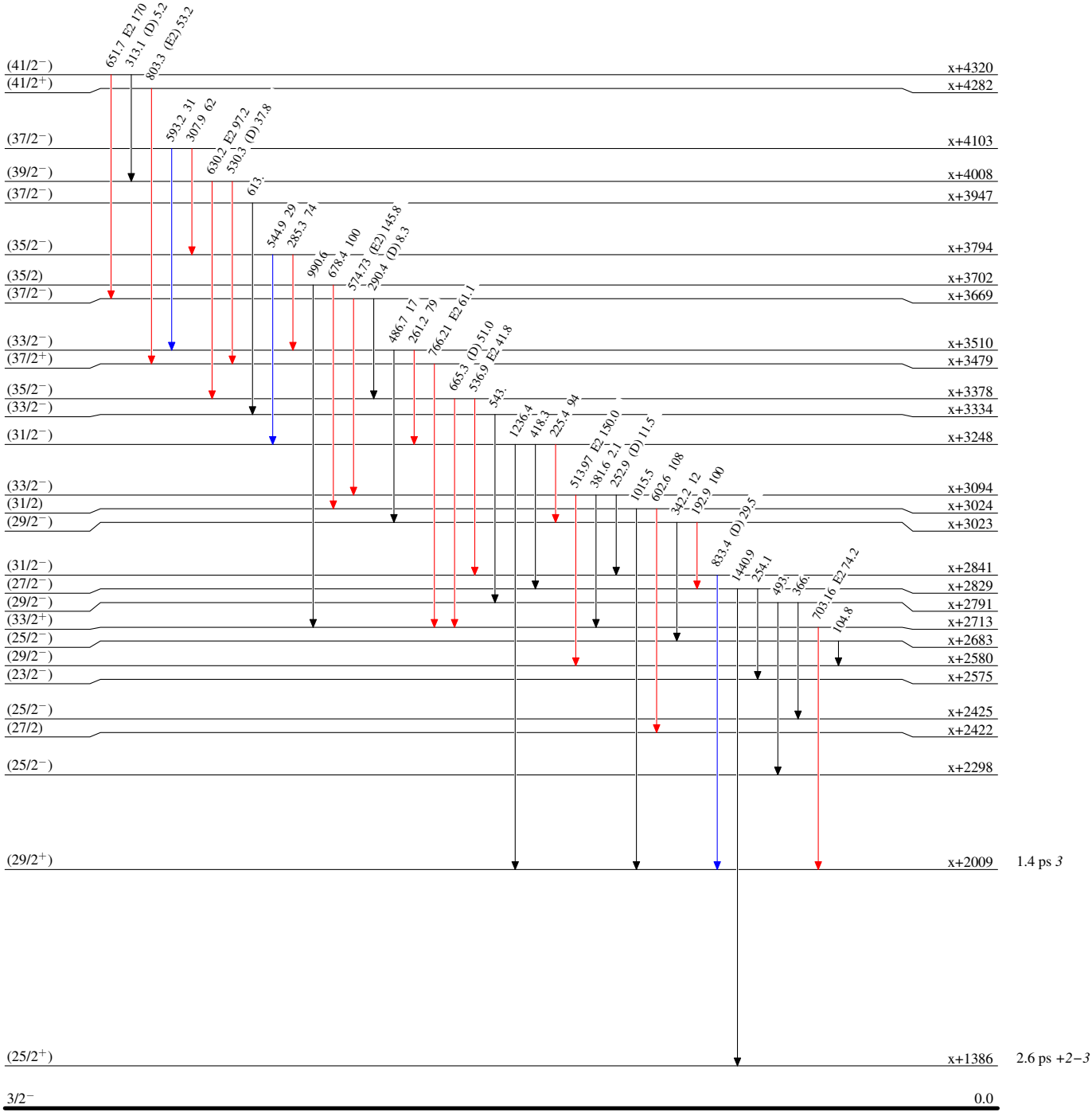
$^{157}_{68}Er_{89}$

(HI,xnγ) 1995Ga13,1986Os02

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



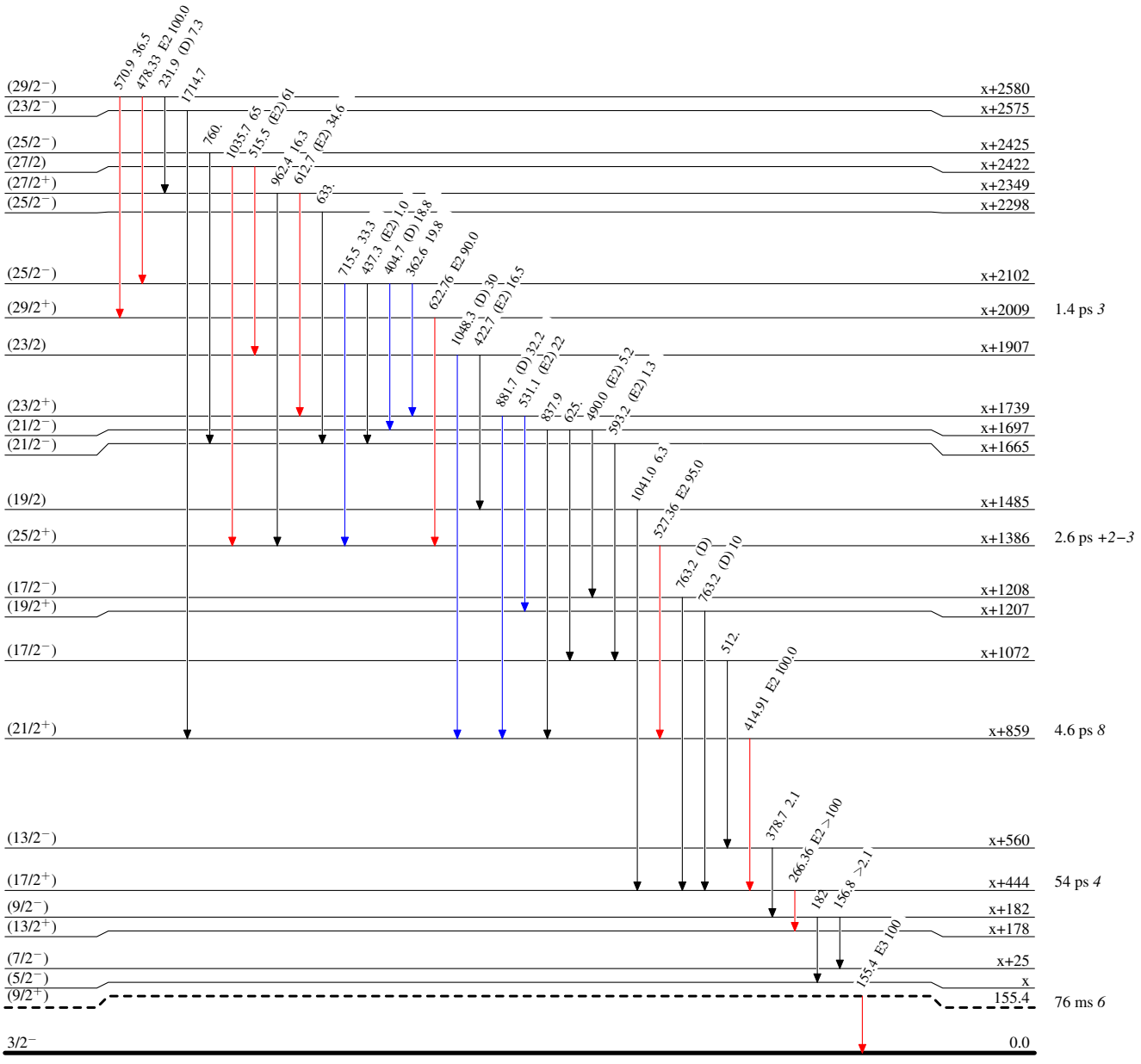
$^{157}_{68}Er_{89}$

(HI,xnγ) 1995Ga13,1986Os02

Level Scheme (continued)

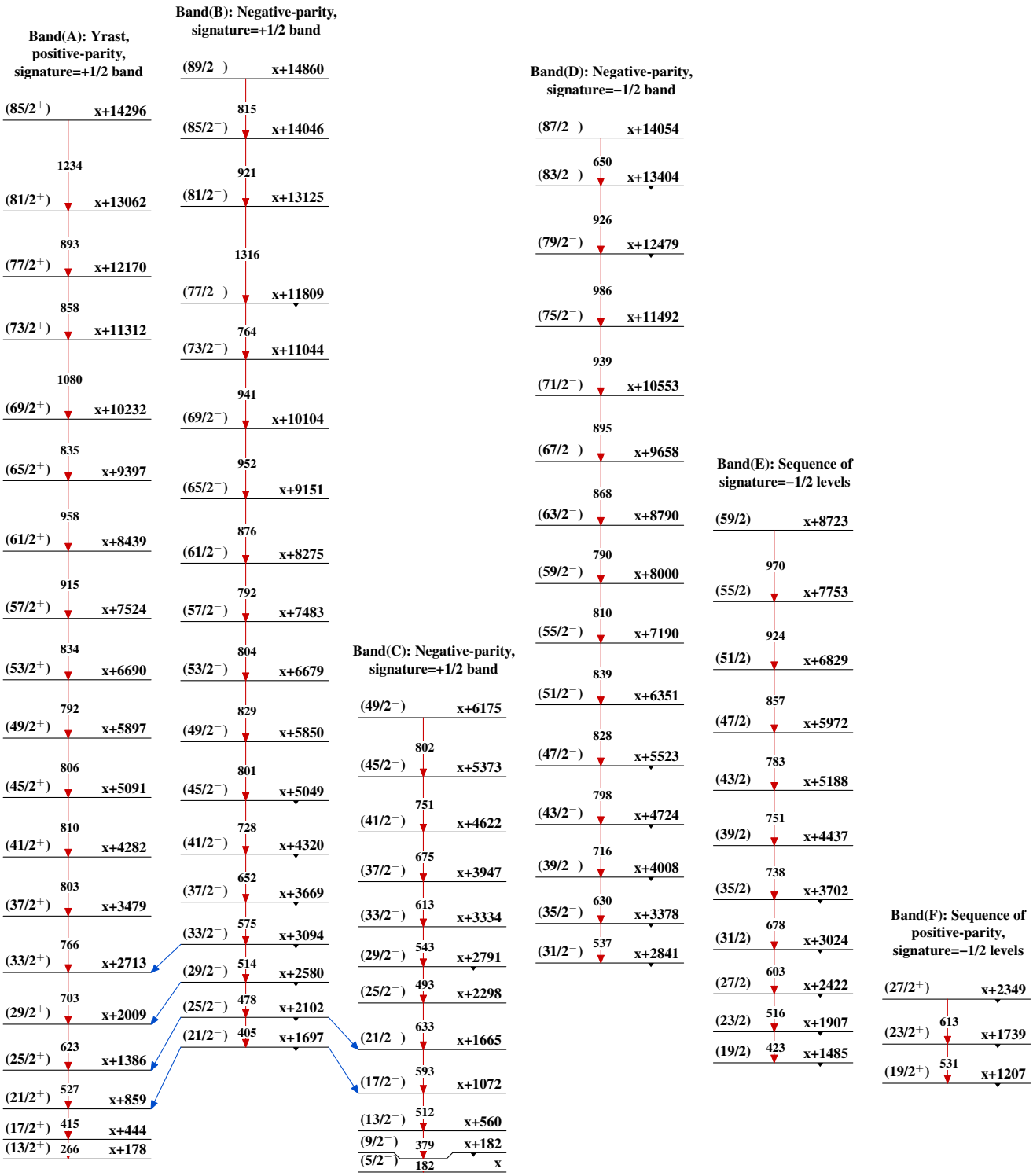
Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



$^{157}_{68}Er_{89}$

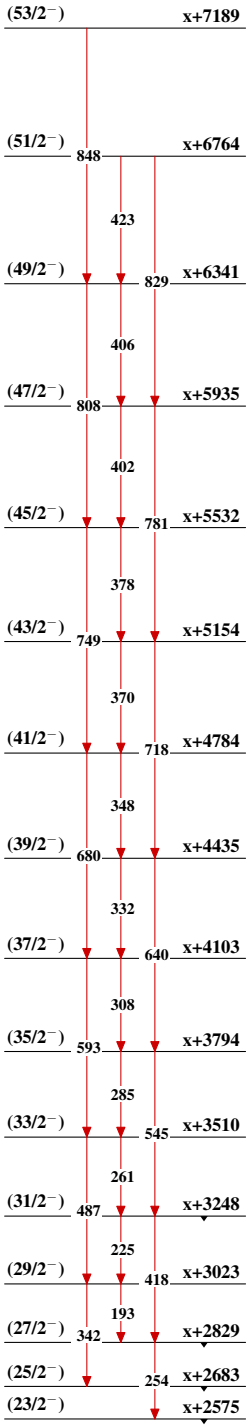
(HI,xnγ) 1995Ga13,1986Os02



$^{157}_{68}Er_{89}$

(HI,xnγ) 1995Ga13,1986Os02 (continued)

Band(G): Negative-parity, strongly coupled band



$^{157}_{68}Er_{89}$