(HI,xnγ) 1985Ho04,1984Si05,1994Si10

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 141, 1 (2017)	1-Feb-2017

The lower energy portion of this scheme is that of 1984Si05 and the higher energy portion is from 1984Si10 and 1994Si10. For discussion of band terminations, see 1994Si10.

Additional information 1.

Continuum γ-spectra measurements: 1986Bo16, 1985Bo37, 1985Th05, 1984Co26, 1984Ny03, 1984Ny04, 1983De40, 1983Ya03, 1982El01, 1981Ya10, 1979Tr08.

(HI,xnγ) measurements:

2013DiZZ: ^{150}Sm(^{12}C,4nγ), E=65 MeV; measured Eγ, Iγ, γγ-coin using AFRODITE γ-ray spectrometer with escape-suppressed clover detectors and deduced levels, J, π, high spin, γ transitions, multipolarities (by DCO ratio method), rotational bands.

2002Sh09: ^{122}Sn(^{40}Ar,4nγ) E=185 MeV; measured $T_{1/2}$ in ground-state band up to 20^+ by recoil distance method.

2001St09: ^{130}Te(^{32}S,4nγ) E=138 MeV; determined g-factors from perturbed γγ directional correlations for levels up to 16^+ in ground-state band.

1994Si10: ^{48}Ca(^{114}Cd,4nγ) E=210 MeV; measured E_γ, γ(θ).

1988Be43: ^{122}Sn(^{40}Ar,4nγ) E=181 MeV; measured $T_{1/2}$ by Doppler-shift recoil distance method in ground-state band from J of 12 to 40.

1986Os02: ^{128}Te(^{34}S,4nγ) E=155 MeV; measured $T_{1/2}$ by Doppler-shift recoil distance method within 3 bands.

1985Tj02: ^{122}Sn(^{40}Ar,5nγ) E=175 MeV; measured E_γ, I_γ with arrays of 14 and 21 detectors.

1985Ho04: ^{122}Sn(^{40}Ar,5nγ) E=182 MeV; measured precise E_γ, I_γ, γ(θ) in ground-state band to 38^+.

1984Si10: ^{114}Cd(^{48}Ca,4nγ) E=200 MeV; measured E_γ, I_γ and extends bands of 1984Si05 to 42^+ and 41^-.

1984Si05: ^{145}Nd(^{16}O,3nγ) E=75 MeV and ^{146}Nd(^{16}O,4nγ) E=84 MeV; measured E_γ, I_γ, γγ coincidence, γ(θ), and linear polarization with an array of 5 detectors. Report 6 bands with highest J values of 10 to 26.

1984Ri04: ^{114}Cd(^{48}Ca,4nγ) E=200 MeV; observed bands to 38^+ and 41^- and give backbending curves, but to E_γ data.

1983Si04: ^{146}Nd(^{16}O,4nγ) E=84 MeV; measured linear polarization for 10 γ's.

1982Bu28: ^{122}Sn(^{40}Ar,4nγ) E=170 MeV; measured E_γ, I_γ, γ(θ) to $J^\pi=38^+$ in ground-state band.

1977Le10: ^{122}Sn(^{40}Ar,4nγ) E=166 MeV; measured E_γ, I_γ, γ(θ) to $J^\pi=32^+$ in ground-state band.

1973An23, 1973Wa06: ^{130}Te(^{32}S,4nγ) E=135 MeV; measured E_γ, and level $T_{1/2}$ limits by recoil-distance Doppler-shift method up to 18^+ level in ground-state band.

1972Be39,1972Li34: ^{162}Dy(α,8nγ) E ≈ 95 MeV; measured E_γ and γ(θ) to deduce γ multipolarities for E2 γ's in ground-state band to 18^+. Also, all level $T_{1/2} < 2$ ns.

1970No01: ^{122}Sn(^{40}Ar,4nγ) E=148 MeV; measured γ(θ,H,t) and deduced average g-factor for $J^\pi \le 8^+$ levels in ground-state band.

1969Di02: ^{122}Sn(^{40}Ar,4nγ) measured E_γ and level $T_{1/2}$ by recoil-distance Doppler-shift method to 8^+ level in ground-state band.

1967Wa18: ^{122}Sn(^{40}Ar,4nγ) E=143 MeV; measured E_γ to 12^+ level in ground-state band, no uncertainties.

^{158}Er Levels

The $K^\pi=0^+$ β-vibrational band and the 3rd positive-parity, signature=0 band share levels 6^+, 8^+, and 10^+ having same excitation energies and decay patterns. The first band has lower 0^+, 2^+, and 4^+ levels (also assigned to this band in ^{158}Tm ε decay dataset) and continues with higher 12^+ to 18^+ levels, while the second band terminates at 10^+ level. The evaluator adopted the common 6^+, 8^+, and 10^+ levels for the $K^\pi=0^+$ β-vibrational band (found by the most recent work, 2013DiZZ) and marked as tentative the three levels and their decay transitions for the 3rd positive-parity, signature=0 band (presuming that the authors of 2013DiZZ considered the previous assignments).

E(level)[†‡]	Jπ[#]	$T_{1/2}$	Comments
0.0[&]	0^+		
192.13[&] *3*	2^+	257 ps *18*	$T_{1/2}$: Weighted average of 236 ps *7* (2002Sh09), 257 ps *14* (1986Os02), and 300 ps *15* (1969Di02) with uncertainty in 2002Sh09 value increased to 10 ps in averaging process.

Continued on next page (footnotes at end of table)

(HI,xnγ) 1985Ho04,1984Si05,1994Si10 (continued)

^{158}Er Levels (continued)

E(level)[†‡]	Jπ[#]	$T_{1/2}$	Comments
			Values are inconsistent since the final reduced-χ^2 is still 6.2.
527.23[&] *5*	4^+	13.5 ps *4*	$T_{1/2}$: Weighted average of 13.1 ps *3* (2002Sh09), 14.1 ps *5* (1986Os02), and 14.4 ps *7* (1969Di02) with reduced-χ^2 of 2.4.
806.1[g] *8*	0^+		
820.53[e] *21*	2^+		
970.36[&] *6*	6^+	2.59 ps *8*	$T_{1/2}$: Weighted average of 2.5 ps *2* (2002Sh09), 2.7 ps *3* (1986Os02), and 2.8 ps *5* (1969Di02).
989.4[g] *6*	2^+		
1043.24[d] *18*	3^+		
1184.03[e] *21*	$(4)^+$		
1257.4[g] *7*	4^+		
1438.48[d] *17*	$5^{(+)}$		
1493.49[&] *6*	8^+	0.94 ps *3*	$T_{1/2}$: Weighted average of 0.94 ps *6* (2002Sh09), 0.83 ps *16* (1986Os02), 1.1 ps *3* (1973Wa06), and 1.2 ps *5* (1969Di02).
1589.09?[e] *15*	(6^+)		
1589.5[g] *6*	6^+		
1853.04 *17*			
1913.25[d] *19*	(7^+)		
2019.0?[e] *5*	(8^+)		
2019.1[g] *7*	8^+		
2072.56[&] *7*	10^+	0.68 ps *9*	$T_{1/2}$: Weighted average of 0.75 ps *8* (2002Sh09), 0.47 ps *13* (1986Os02), and 0.8 ps *4* (1973Wa06).
2273.00[f] *17*	9^-		
2333.53[c] *15*	8^-		
2431.65[b] *16*	9^-		
2487.6?[e] *3*	(10^+)		
2488.0[g] *7*	10^+		
2570.00[c] *16*	10^-	56 ps *5*	$T_{1/2}$: From 1986Os02.
2680.82[&] *8*	12^+	0.51 ps *6*	$T_{1/2}$: Weighted average of 0.51 ps *6* (2002Sh09) and 0.4 ps *3* (1986Os02); others: ≤ 0.7 ps (1973Wa06), < 0.46 ps (1988Be43).
2731.34[b] *16*	11^-	12.4 ps *+9−11*	$T_{1/2}$: From 1986Os02.
2760.71[f] *17*	11^-		
2881.55[a] *15*	12^+		
2954.70[c] *19*	12^-	7.7 ps *+1−5*	$T_{1/2}$: From 1986Os02.
3109.3[g] *7*	12^+		
3154.87[b] *17*	13^-	4.7 ps *3*	$T_{1/2}$: From 1986Os02.
3190.53[a] *10*	14^+	2.9 ps *3*	$T_{1/2}$: Weighted average of 3.4 ps *3* (2002Sh09), 3.0 ps *10* (1988Be43), 2.6 ps *3* (1986Os02), and 2.1 ps *5* (1973Wa06) with reduced-χ^2 of 2.1.
3304.5[f] *3*	(13^-)		
3374.49[&] *19*	14^+		
3474.8[c] *3*	14^-		
3663.27[a] *11*	16^+	2.32 ps *14*	$T_{1/2}$: Weighted average of 2.3 ps *2* (2002Sh09), 1.7 ps *5* (1988Be43), 2.5 ps *2* (1986Os02), and 1.7 ps *6* (1973Wa06).
3668.2[g] *7*	14^+		
3695.47[b] *20*	15^-	1.1 ps *+2−3*	$T_{1/2}$: From 1986Os02.
3906.5[f] *5*	(15^-)		
4026.5[&] *3*	(16^+)		
4103.7[c] *4*	(16^-)	0.83 ps *+21−28*	$T_{1/2}$: From 1986Os02.
4229.54[a] *12*	18^+	0.95 ps *6*	$T_{1/2}$: Weighted average of 0.89 ps *14* (2002Sh09), 0.90 ps *21* (1988Be43), and 1.1 ps

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(HI,xnγ) 1985Ho04,1984Si05,1994Si10 (continued)

^{158}Er Levels (continued)

E(level)[†‡]	Jπ[#]	$T_{1/2}$	Comments
			2 (1986Os02); other: < 1.5 ps (1973Wa06).
4272.4[g] *7*	16^+		
4329.6[b] *3*	(17^-)	0.97 ps *+14−21*	$T_{1/2}$: From 1986Os02.
4680.2[&] *4*	(18^+)		
4812.8[c] *4*	(18^-)	0.89 ps *+12−17*	$T_{1/2}$: From 1986Os02.
4888.42[a] *14*	20^+	0.55 ps *8*	$T_{1/2}$: Weighted average of 0.46 ps *10* (2002Sh09), 0.54 ps *8*, (1988Be43), and 0.78 ps *+15−13* (1986Os02).
4948.9[g] *9*	18^+		
5021.9[b] *4*	(19^-)		
5328.4[&] *4*	(20^+)		
5538.2[c] *5*	(20^-)		
5628.84[a] *17*	22^+	0.24 ps *+21−12*	$T_{1/2}$: From 1988Be43; other: 0.39 ps *+15−28* (1986Os02).
5739.4[b] *4*	(21^-)		
6028.0[&] *5*	(22^+)		
6219.7[c] *6*	(22^-)		
6434.5[a] *5*	24^+	0.22 ps *+28−11*	$T_{1/2}$: From 1988Be43.
6475.9[b] *5*	(23^-)		
6999.7[@c] *12*	(24^-)		
7249.3[b] *12*	(25^-)		
7280.1[a] *5*	26^+	0.30 ps *+42−11*	$T_{1/2}$: From 1988Be43.
7799.7[@c] *16*	(26^-)		
8069.9[b] *15*	(27^-)		
8138.6[a] *6*	28^+	0.28 ps *+10−11*	$T_{1/2}$: From 1988Be43.
8601.7[c] *19*	(28^-)		
8933.7[b] *18*	(29^-)		
9014.1[a] *7*	30^+	0.34 ps *+42−12*	$T_{1/2}$: From 1988Be43.
9455.7[c] *21*	(30^-)		
9476.8[i] *10*	(30^+)		
9820.1[b] *21*	(31^-)		
9920.3[a] *8*	32^+	0.12 ps *+21−10*	$T_{1/2}$: From 1988Be43.
10284.1[i] *10*	(32^+)		
10335.7[c] *23*	(32^-)		
10716.9[b] *23*	(33^-)		
10879.2[a] *11*	34^+	0.10 ps *+12−8*	$T_{1/2}$: From 1988Be43.
11219.3[i] *10*	(34^+)		
11234[c] *3*	(34^-)		
11637.4[b] *25*	(35^-)		
11897.7[a] *13*	36^+	0.35 ps *+55−28*	$T_{1/2}$: From 1988Be43.
12173[c] *3*	(36^-)		
12235.6[i] *12*	(36^+)		
12601[b] *3*	(37^-)		
12956.1[a] *16*	38^+	0.4 ps *+8−3*	$T_{1/2}$: From 1988Be43.
13158[c] *3*	(38^-)		
13173.4[i] *13*	(38^+)		
13622[b] *3*	(39^-)		
13782.7[i] *16*	(40^+)	1.1 ps *+29−8*	$T_{1/2}$: From 1988Be43.
14158.1[a] *19*	(40^+)		
14184[c] *3*	(40^-)		
14695[b] *3*	(41^-)		

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(HI,xnγ) 1985Ho04,1984Si05,1994Si10 (continued)

^{158}Er Levels (continued)

E(level)[†‡]	Jπ[#]	E(level)[†‡]	Jπ[#]	E(level)[†‡]	Jπ[#]	E(level)[†‡]	Jπ[#]
15063.7[i] *19*	(42+)	16358[c] *4*	(44−)	17664[a] *3*	(46+)	18600?	
15195[c] *4*	(42−)	16511.1[a] *24*	(44+)	17998[h] *4*	(47−)	18663?	
15368.1[a] *22*	(42+)	17010[h] *4*	(45−)	18132[c] *4*	(48−)	18718?	
15680[h] *4*	(43−)	17065.7[i] *23*	(46+)	18343[b] *4*	(47−)	18807[h] *4*	(49−)
15871[b] *4*	(43−)	17119[b] *4*	(45−)	18441?		18869?[a]	(48+)
16094.7[i] *21*	(44+)	17368[c] *4*	(46−)	18515?		20143?[a]	(50+)

† From fit to γ energies.
‡ Additional information 2.
# Assignments are generally based on γ(θ), linear polarization and ce measurements of 1984Si05, 1985Ho04, 1985Tj02, 1982Bu28 and 1977Le10. For weak transitions, J^π are based on rotational band structure expected.
@ Estimated by evaluator to connect lower and upper portions of a band.
& Band(A): ground-state band, positive-parity, signature=0.
a Band(B): S band, positive-parity, signature=0.
b Band(C): negative-parity, signature=1 band.
c Band(D): negative-parity, signature=0 band.
d Band(E): positive-parity, signature=1 band.
e Band(F): 3rd positive-parity, signature=0 band.
f Band(G): 2nd negative-parity, signature=1 band.
g Band(h): $K^\pi=0^+$ β-vibrational band.
h Band(H): 3rd negative-parity, signature=1 band.
i Band(I): 4th positive-parity, signature=0 band.

γ(^{158}Er)

Listed in comments are the angular correlation coefficients A(90°,52.5°,90°) and A(90°,142.5°,90°) from Table 1 of 1984Si05 and respectively $I_\gamma(0°)/I_\gamma(90°)$ and $I_\gamma(30°)/I_\gamma(90°)$ from Table 2 of 1985Ho04 (see the papers for definitions); also listed are the polarization values P(90°) measured by 1984Si05.

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
183.3		989.4	2+	806.1	0+	(E2)	
192.13 *3*	100	192.13	2+	0.0	0+	E2	1.06 *5*, 1.06 *5* (1985Ho04), P(90°)=+0.59 *6* (1984Si05).
200.8 *4*	0.4 *1*	2881.55	12+	2680.82	12+	E2+M1	I_γ: 9 *2* (1984Si05).
236.3 *2*	5.7 *1*	2570.00	10−	2333.53	8−	E2	I_γ: 65 *2* (1984Si05). −0.02 *5*, −0.04 *4* (1984Si05), P(90°)=+0.66 *24* (1984Si05).
243.9 *4*	0.4 *1*	2731.34	11−	2487.6?	(10+)	(E1)	I_γ: 4 *1* (1984Si05).
268.3		1257.4	4+	989.4	2+	E2	DCO=0.99 *2* (2013DiZZ).
297.0 *4*	0.5 *2*	2570.00	10−	2273.00	9−	E2+M1	I_γ: 6 *2* (1984Si05).
299.5 *2*	8.1 *1*	2731.34	11−	2431.65	9−	E2	I_γ: 70 *2* (1984Si05). 0.06 *4*, 0.00 *8* (1984Si05), P(90°)=+0.46 *10* (1984Si05).
308.7 *2*	2.6 *2*	3190.53	14+	2881.55	12+	E2	I_γ: 8 *1* (1984Si05).
332.8		1589.5	6+	1257.4	4+	E2	DCO=1.02 *6* (2013DiZZ).
335.10 *3*	100	527.23	4+	192.13	2+	E2	1.19 *4*, 1.12 *4* (1985Ho04), P(90°)=+0.50 *6* (1984Si05).
384.7 *1*	9.2 *1*	2954.70	12−	2570.00	10−	E2	−0.02 *4*, 0.01 *3* (1984Si05), P(90°)=+0.48 *7* (1984Di05).
393.8 *3*	0.2 *1*	2881.55	12+	2487.6?	(10+)	(E2)	I_γ: 4 *2* (1984Si05).
395.0 *3*	1.8[b] *1*	1438.48	5(+)	1043.24	3+	(E2)	I_γ: 43 *2* (1984Si05).

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(HI,xnγ) 1985Ho04,1984Si05,1994Si10 (continued)

γ(^{158}Er) (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult. #	Comments
404.8 d 3	1.1 1	1589.09?	(6^+)	1184.03	$(4)^+$	(E2)	I_γ: 21 2 (1984Si05).
412.6 4	0.4 1	2431.65	9^-	2019.0?	(8^+)	(E1)	I_γ: 5 1 (1984Si05).
420.1 2	1.6 1	2333.53	8^-	1913.25	(7^+)	(E1)	I_γ: 26 1 (1984Si05).
423.5 1	10.4 1	3154.87	13^-	2731.34	11^-	E2	I_γ: 84 1 (1984Si05). P(90°)=+0.50 10 (1984Si05).
429.4 d 4	0.6 1	2019.0?	(8^+)	1589.09?	(6^+)	(E2)	I_γ: 17 3 (1984Si05).
430.0		2019.1	8^+	1589.5	6^+	E2	DCO=1.07 4 (2013DiZZ).
443.13 3	95.0 3	970.36	6^+	527.23	4^+	E2	1.36 5, 1.31 4 (1985Ho04), P(90°)=+0.51 6 (1984Si05).
468.2 d 4	0.5 1	2487.6?	(10^+)	2019.0?	(8^+)	(E2)	
469.2		2488.0	10^+	2019.1	8^+	E2	DCO=1.03 4 (2013DiZZ).
472.75 5	23.2 2	3663.27	16^+	3190.53	14^+	E2	1.44 7, 1.48 6 (1985Ho04), P(90°)=+0.45 6 (1984Si05).
474.3 3	2.0 2	3154.87	13^-	2680.82	12^+	E1	I_γ: 16 1 (1984Si05).
474.4 3	1.0 2	1913.25	(7^+)	1438.48	$5^{(+)}$	(E2)	I_γ: 40 6 (1984Si05).
480.3 4	0.4 1	2333.53	8^-	1853.04			I_γ: 7 2 (1984Si05).
487.6 2	0.6 1	2760.71	11^-	2273.00	9^-	E2	I_γ: 20 3 (1984Si05).
492.8 4	0.2 2	3374.49	14^+	2881.55	12^+	E2	I_γ: 3 3 (1984Si05).
497.6 2	2.6 1	2570.00	10^-	2072.56	10^+	E1(+M2)	I_γ: 29 1 (1984Si05). 0.01 10, −0.11 8 (1984Si05), P(90°)=−0.04 22 (1984Si05). δ: −0.18 +41−12 (1984Si05) seems too large to be realistic in view of expected short half-life of level and Recommended Upper Limits (RUL).
509.75 6	29.4 5	3190.53	14^+	2680.82	12^+	E2	I_γ: 92 1 (1984Si05).
520.1 2	8.6 3	3474.8	14^-	2954.70	12^-	E2	
523.14 3	75.0 3	1493.49	8^+	970.36	6^+	E2	1.37 6 (1985Ho04, first coefficient), P(90°)=+0.44 6 (1984Si05).
540.6 1	7.7 3	3695.47	15^-	3154.87	13^-	E2	
543.6 4	0.6 2	3304.5	(13^-)	2760.71	11^-	(E2)	I_γ: 35 10 (1984Si05).
559.0		3668.2	14^+	3109.3	12^+	E2	DCO=1.09 4 (2013DiZZ).
566.28 5	17.4 1	4229.54	18^+	3663.27	16^+	E2	1.38 12, 1.44 13 (1985Ho04), P(90°)=+0.35 7 (1984Si05).
578.3 3	1.8 2	2431.65	9^-	1853.04			I_γ: 20 2 (1984Si05).
579.08 3	56.5 3	2072.56	10^+	1493.49	8^+	E2	1.38 15, 1.40 16 (1985Ho04), P(90°)=+0.42 5 (1984Si05).
602.0 4	0.2 1	3906.5	(15^-)	3304.5	(13^-)	(E2)	
604.1		4272.4	16^+	3668.2	14^+	E2	DCO=1.20 10 (2013DiZZ).
608.28 4	35.6 1	2680.82	12^+	2072.56	10^+	E2	1.31 4, 1.36 6 (1985Ho04), P(90°)=+0.36 6 (1984Si05).
609		13782.7	(40^+)	13173.4	(38^+)		
614.0		806.1	0^+	192.13	2^+		
618.8 d 2	1.8 2	1589.09?	(6^+)	970.36	6^+	(E2,M1)	I_γ: 34 2 (1984Si05).
618.9		1589.5	6^+	970.36	6^+		
621.5		3109.3	12^+	2488.0	10^+	E2	DCO=1.20 8 (2013DiZZ).
623.8 3	1.1 3	3304.5	(13^-)	2680.82	12^+	(E1)	I_γ: 65 10 (1984Si05).
628.4 2	2.1 4	820.53	2^+	192.13	2^+	E2(+M1)	
628.9 2	6.5 3	4103.7	(16^-)	3474.8	14^-	(E2)	
634.1 2	4.6 3	4329.6	(17^-)	3695.47	15^-	(E2)	
647.9 3	1.0 1	5328.4	(20^+)	4680.2	(18^+)	(E2)	
651.8 2	4.2 1	4026.5	(16^+)	3374.49	14^+	(E2)	
653.2 3		4680.2	(18^+)	4026.5	(16^+)		γ ray inferred at (18^+) by 2013DiZZ with previously assigned 647.9γ moved at (20^+) (ΔEγ postulated by evaluator).
656.8 2	2.0 3	1184.03	$(4)^+$	527.23	4^+	E2(+M1)	
658.8 2	3.0 3	2731.34	11^-	2072.56	10^+	E1	I_γ: 26 2 (1984Si05).
658.89 6	11.0 3	4888.42	20^+	4229.54	18^+	E2	1.56 17, 1.58 18 (1985Ho04), P(90°)=+0.20 7 (1984Si05).
676.4		4948.9	18^+	4272.4	16^+	E2	DCO=1.20 4 (2013DiZZ).

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(HI,xnγ) 1985Ho04,1984Si05,1994Si10 (continued)

γ(^{158}Er) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	Comments
681.5 *3*	1.0 *2*	6219.7	(22$^-$)	5538.2	(20$^-$)	(E2)		
688.2 *2*	2.4 *1*	2760.71	11$^-$	2072.56	10$^+$	E1(+M2)	0.06 *6*	I_γ: 80 *3* (1984Si05). 0.16 *7*, 0.32 *5* (1984Si05), P(90°)=+0.28 *6* (1984Si05).
692.3 *2*	3.3 *2*	5021.9	(19$^-$)	4329.6	(17$^-$)	(E2)		
693.5 *2*	7.4 *1*	3374.49	14$^+$	2680.82	12$^+$	E2		I_γ: 97 *3* (1984Si05). −0.04 *4*, −0.01 *3* (1984Si05), P(90°)=+0.50 *9* (1984Si05).
699.4 *3*	0.8 *2*	6028.0	(22$^+$)	5328.4	(20$^+$)	(E2)		
709.1 *2*	3.4 *2*	4812.8	(18$^-$)	4103.7	(16$^-$)	(E2)		
717.5 *2*	1.8 *1*	5739.4	(21$^-$)	5021.9	(19$^-$)	(E2)		
725.4 *2*	1.5 *2*	5538.2	(20$^-$)	4812.8	(18$^-$)	(E2)		
736.5 *3*	0.6 *2*	6475.9	(23$^-$)	5739.4	(21$^-$)	(E2)		
740.42 *10*	6.2 *1*	5628.84	22$^+$	4888.42	20$^+$	E2		1.32 *22*, 1.35 *20* (1985Ho04).
764		18132	(48$^-$)	17368	(46$^-$)			
773.4		7249.3	(25$^-$)	6475.9	(23$^-$)			
779.4 *2*	2.6 *1*	2273.00	9$^-$	1493.49	8$^+$	E1		0.17 *5*, 0.24 *5* (1984Si05).
780[&]		6999.7	(24$^-$)	6219.7	(22$^-$)			
786.6		3668.2	14$^+$	2881.55	12$^+$			
797.3		989.4	2$^+$	192.13	2$^+$			
800[&]		7799.7	(26$^-$)	6999.7	(24$^-$)			
802[&]		8601.7	(28$^-$)	7799.7	(26$^-$)			
805.7 *4*	3.4 *2*	6434.5	24$^+$	5628.84	22$^+$	E2		
807		10284.1	(32$^+$)	9476.8	(30$^+$)			
808.7 *2*	4.1 *3*	2881.55	12$^+$	2072.56	10$^+$	E2		I_γ: 87 *3* (1984Si05).
809		18807	(49$^-$)	17998	(47$^-$)			
820.6		8069.9	(27$^-$)	7249.3	(25$^-$)			
827		13782.7	(40$^+$)	12956.1	38$^+$			
840.1 *2*	4.1 *1*	2333.53	8$^-$	1493.49	8$^+$	E1		I_γ: 67 *2* (1984Si05).
845.6 *2*	1.4 *2*	7280.1	26$^+$	6434.5	24$^+$	E2		1.28 *9*, 1.09 *10* (1985Ho04).
851.0 *2*	1.2 *4*	1043.24	3$^+$	192.13	2$^+$	E2(+M1)		
854		9455.7	(30$^-$)	8601.7	(28$^-$)			
858.4 *3*		8138.6	28$^+$	7280.1	26$^+$	E2		1.51 *12*, 1.73 *20* (1985Ho04).
863.8		8933.7	(29$^-$)	8069.9	(27$^-$)			
875.6 *4*		9014.1	30$^+$	8138.6	28$^+$	E2		1.61 *23*, 1.50 *24* (1985Ho04).
880		10335.7	(32$^-$)	9455.7	(30$^-$)			
882.5 *2*	2.5 *3*	1853.04		970.36	6$^+$			0.08 *10*, 0.34 *9* (1984Si05).
886.4		9820.1	(31$^-$)	8933.7	(29$^-$)			
896.8		10716.9	(33$^-$)	9820.1	(31$^-$)			
897.9		4272.4	16$^+$	3374.49	14$^+$			
898		11234	(34$^-$)	10335.7	(32$^-$)			
906.2 *4*		9920.3	32$^+$	9014.1	30$^+$	E2		1.80 *28*, 1.85 *37* (1985Ho04).
911.2 *2*	2.4 *2*	1438.48	5$^{(+)}$	527.23	4$^+$	E2+M1	0.47 *+28−14*	I_γ: 57 *2* (1984Si05). 0.14 *9*, 0.42 *8* (1984Si05), P(90°)=+0.03 *20* (1984Si05).
920.5		11637.4	(35$^-$)	10716.9	(33$^-$)			
922.5		4948.9	18$^+$	4026.5	(16$^+$)			
935		11219.3	(34$^+$)	10284.1	(32$^+$)			
937		13173.4	(38$^+$)	12235.6	(36$^+$)			
938.1 *2*	6.7 *3*	2431.65	9$^-$	1493.49	8$^+$	E1	*c*	I_γ: 75 *2* (1984Si05). 0.13 *4*, 0.25 *4* (1984Si05), P(90°)=+0.31 *11* (1984Si05).
939		12173	(36$^-$)	11234	(34$^-$)			
939[d]		17998	(47$^-$)	17065.7	(46$^+$)			
942.8 *4*	1.5 *2*	1913.25	(7$^+$)	970.36	6$^+$	(E2,M1)		I_γ: 60 *6* (1984Si05).

Continued on next page (footnotes at end of table)

(HI,xnγ) 1985Ho04,1984Si05,1994Si10 (continued)

γ(^{158}Er) (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	Comments
959.1 *8*		10879.2	34^+	9920.3	32^+	E2	1.79 *54*, 1.44 *42* (1985Ho04).
963.9		12601	(37^-)	11637.4	(35^-)		
971		17065.7	(46^+)	16094.7	(44^+)		
985		13158	(38^-)	12173	(36^-)		
985		15680	(43^-)	14695	(41^-)		
988		17998	(47^-)	17010	(45^-)		
989.7		989.4	2^+	0.0	0^+		
994.6		2488.0	10^+	1493.49	8^+		
1010		17368	(46^-)	16358	(44^-)		
1011		15195	(42^-)	14184	(40^-)		
1016		12235.6	(36^+)	11219.3	(34^+)		
1018.0		4680.2	(18^+)	3663.27	16^+		
1019.1 *9*		11897.7	36^+	10879.2	34^+	E2	1.57 *46*, 1.15 *34* (1985Ho04).
1020.4		13622	(39^-)	12601	(37^-)		
1026		14184	(40^-)	13158	(38^-)		
1031		16094.7	(44^+)	15063.7	(42^+)		
1036.5		3109.3	12^+	2072.56	10^+		E_γ: 1028 listed for this γ on the level scheme (Fig. 1) of 2013DiZZ differs from ΔE(levels), which was adopted here.
1048.2[d] *2*	2.9 *3*	2019.0?	(8^+)	970.36	6^+	(E2)	I_γ: 83 *3* (1984Si05).
1048.2		2019.1	8^+	970.36	6^+		
1059.2 *15*		12956.1	38^+	11897.7	36^+	E2	1.27 *64*, 1.47 *68* (1985Ho04).
1061.8[d] *3*	2.4 *2*	1589.09?	(6^+)	527.23	4^+	(E2)	I_γ: 45 *2* (1984Si05).
1062.5		1589.5	6^+	527.23	4^+		
1065.6		1257.4	4^+	192.13	2^+		
1073.2		14695	(41^-)	13622	(39^-)		
1101.2		5328.4	(20^+)	4229.54	18^+		
1139		17010	(45^-)	15871	(43^-)		
1141.4		6028.0	(22^+)	4888.42	20^+		
1143		16511.1	(44^+)	15368.1	(42^+)		
1153		17664	(46^+)	16511.1	(44^+)		
1163		16358	(44^-)	15195	(42^-)		
1176		15871	(43^-)	14695	(41^-)		
1202		14158.1	(40^+)	12956.1	38^+		
1210		15368.1	(42^+)	14158.1	(40^+)		
1210[d]		18869?	(48^+)	17664	(46^+)		
1224		18343	(47^-)	17119	(45^-)		
1248		17119	(45^-)	15871	(43^-)		
1270		10284.1	(32^+)	9014.1	30^+		
1274[d]		20143?	(50^+)	18869?	(48^+)		
1276		13173.4	(38^+)	11897.7	36^+		
1281		15063.7	(42^+)	13782.7	(40^+)		
1299		11219.3	(34^+)	9920.3	32^+		
1330		17010	(45^-)	15680	(43^-)		
1338		9476.8	(30^+)	8138.6	28^+		
1356		12235.6	(36^+)	10879.2	34^+		
1380[ad]		18441?		17065.7	(46^+)		
1439		17119	(45^-)	15680	(43^-)		
1454[ad]		18515?		17065.7	(46^+)		
1539[ad]		18600?		17065.7	(46^+)		
1602[ad]		18663?		17065.7	(46^+)		
1657[ad]		18718?		17065.7	(46^+)		

Continued on next page (footnotes at end of table)

(HI,xnγ) 1985Ho04,1984Si05,1994Si10 (continued)

$\gamma(^{158}Er)$ (continued)

† Most values for the lower energy levels are from 1984Si05, except from 1985Ho04 for ground-state band to J=38. Values for higher energy levels are from 1984Si10 and 1994Si10. Values from 1984Si05 are lower than those of 1985Ho04 and those from 1982Bu28 are higher than those of 1985Ho04. Transitions in $K^{\pi}=0^{+}$ β-vibrational band and linking transitions to other bands are from 2013DiZZ. Others: 1985Sh27, 1985Tj02.

‡ From 1984Si05. Same source lists also branching ratios from level summed to 100% (given in comments).

For E2 γ's in ground-state band, assignments are from $\gamma(\theta)$ (1972Be39,1972Li34,1977Le10,1982Bu28,1984Si05,1985Ho04). For most others, assignments are from 1984Si05 and are based on analysis of data for the whole scheme including the deduced J^{π}. For $K^{\pi}=0^{+}$ β-vibrational band the Q, ΔJ=2 character for in-band transitions was measured by DCO ratios by 2013DiZZ and adopted as E2 based on band assignment. Linear polarization data is given by 1984Si05 for γ's of 497, 688, 911, and 938 keV.

@ From 1984Si05.

& Estimated by evaluator to connect lower and upper portions of a band.

a Tentative placements by 1994Si10.

b $I_{\gamma}(395)/I_{\gamma}(911)=0.75$ *8* and 0.17 *3* in ^{158}Te ε decay.

c 1984Si05 report δ(M2/E1)=0.00 *4*.

d Placement of transition in the level scheme is uncertain.

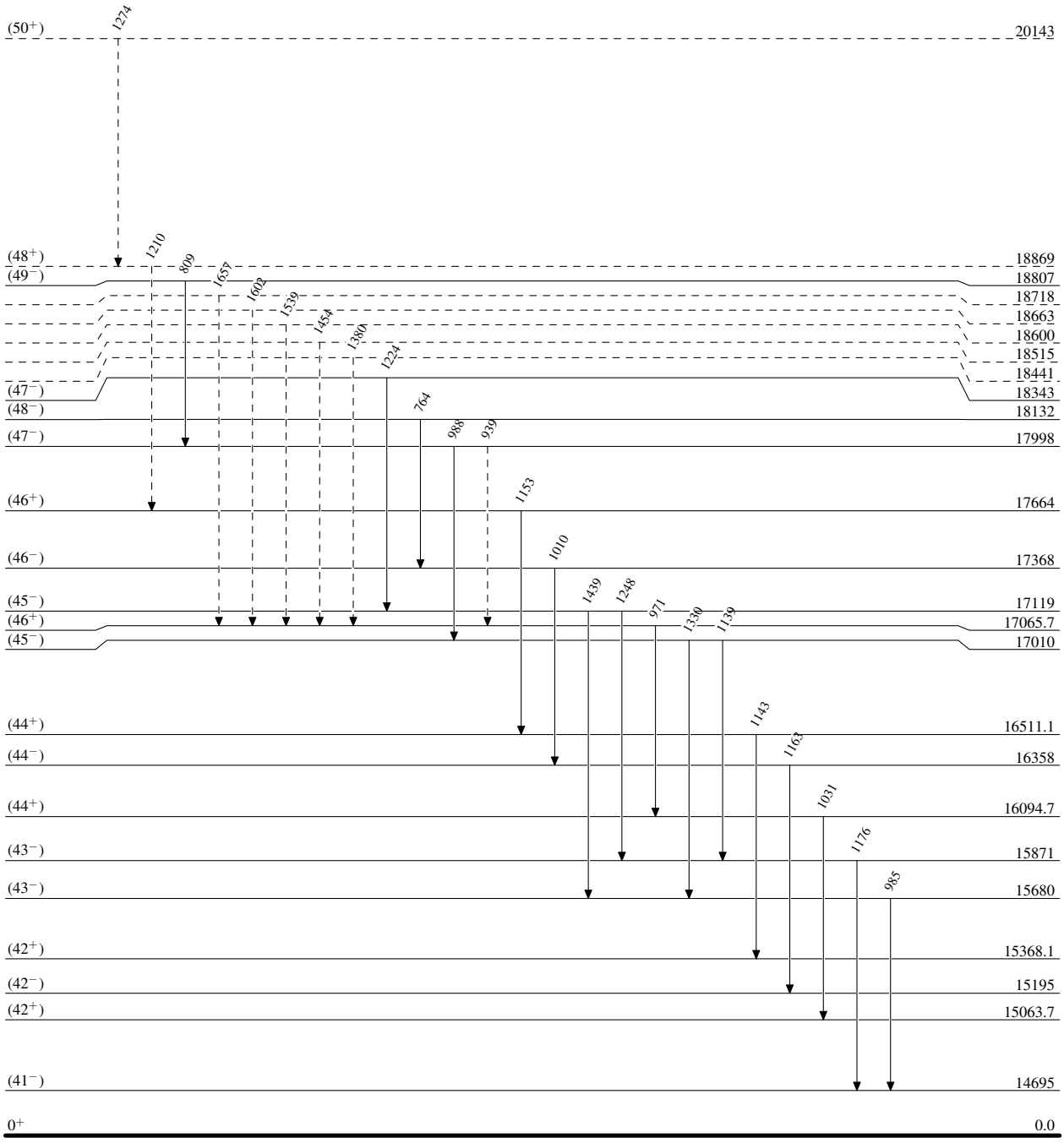
(HI,xnγ) 1985Ho04,1984Si05,1994Si10

Legend

Level Scheme

Intensities: Relative I_γ

γ Decay (Uncertain)

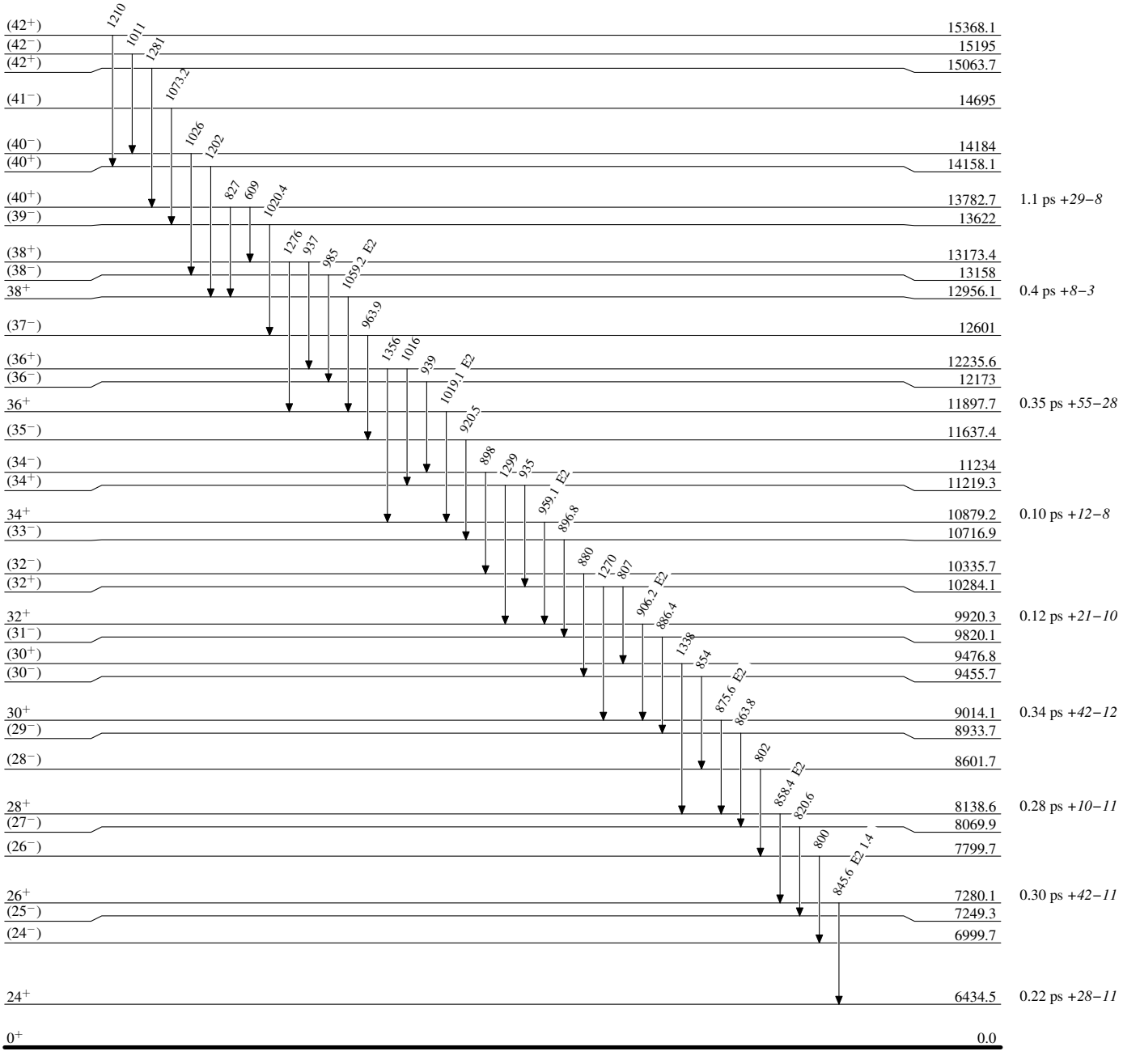


$^{158}_{68}Er_{90}$

(HI,xnγ) 1985Ho04,1984Si05,1994Si10

Level Scheme (continued)

Intensities: Relative I_γ



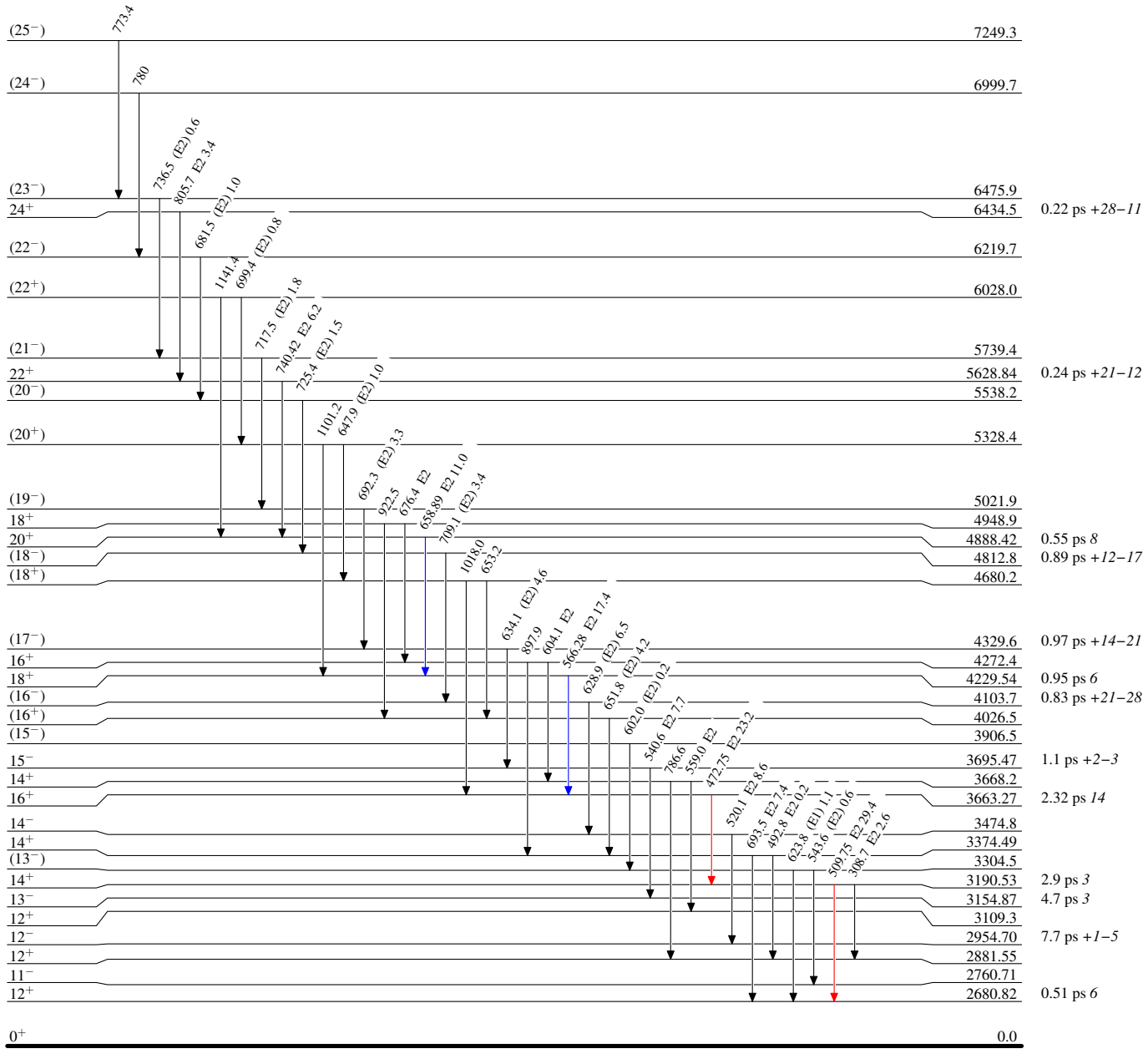
$^{158}_{68}Er_{90}$

(HI,xnγ) 1985Ho04,1984Si05,1994Si10

Level Scheme (continued)

Intensities: Relative I_γ

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



$^{158}_{68}Er_{90}$

(HI,xnγ) 1985Ho04,1984Si05,1994Si10

Level Scheme (continued)

Intensities: Relative I_γ

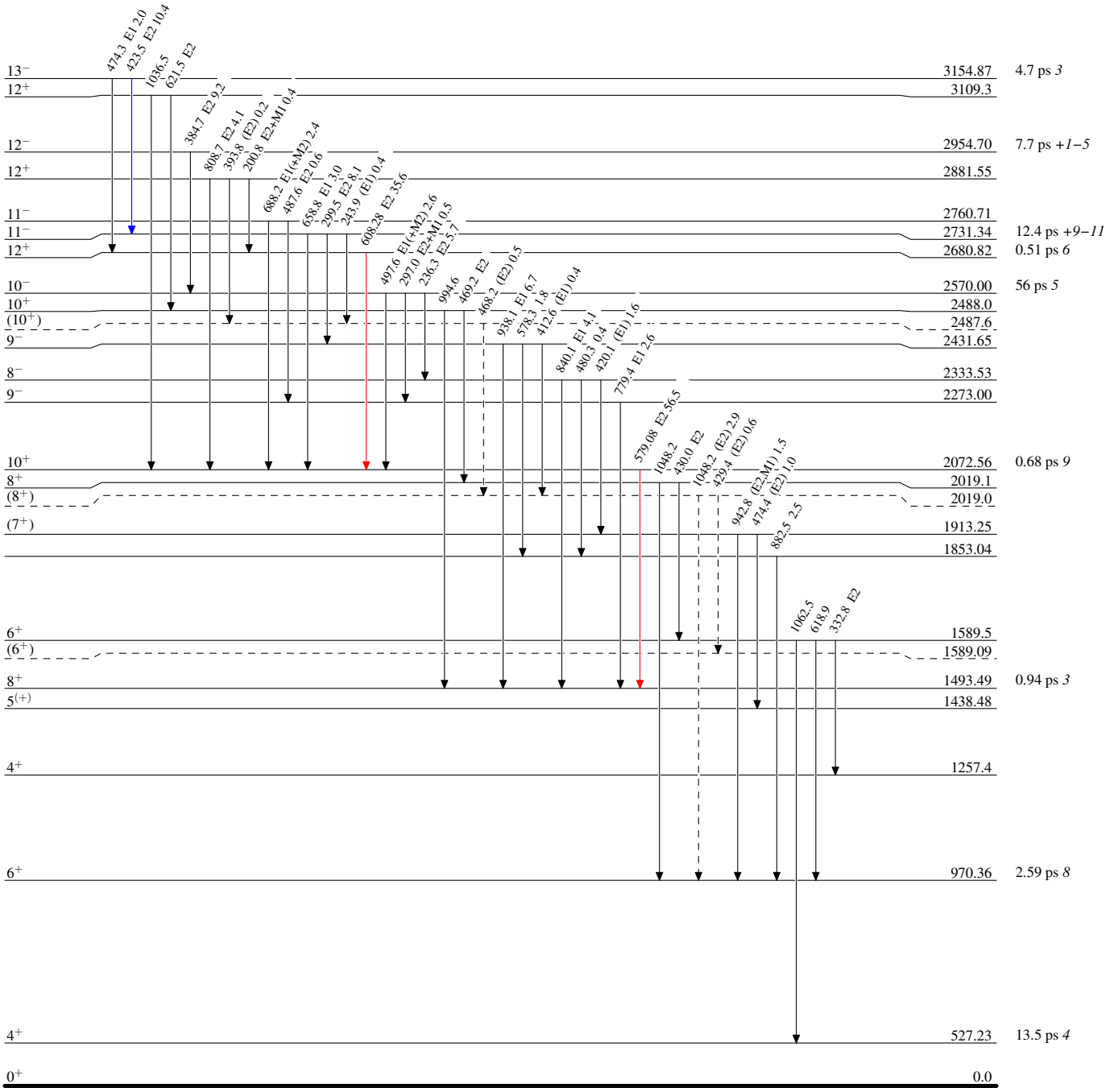
Legend

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

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

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

γ Decay (Uncertain)

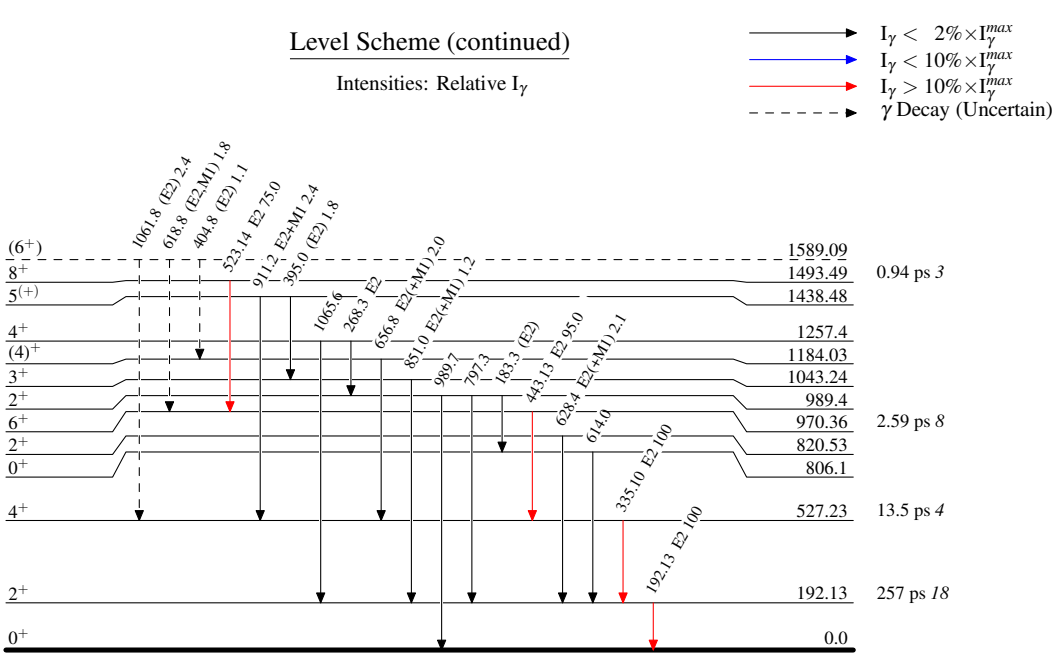


$^{158}_{68}Er_{90}$

(HI,xnγ) 1985Ho04,1984Si05,1994Si10

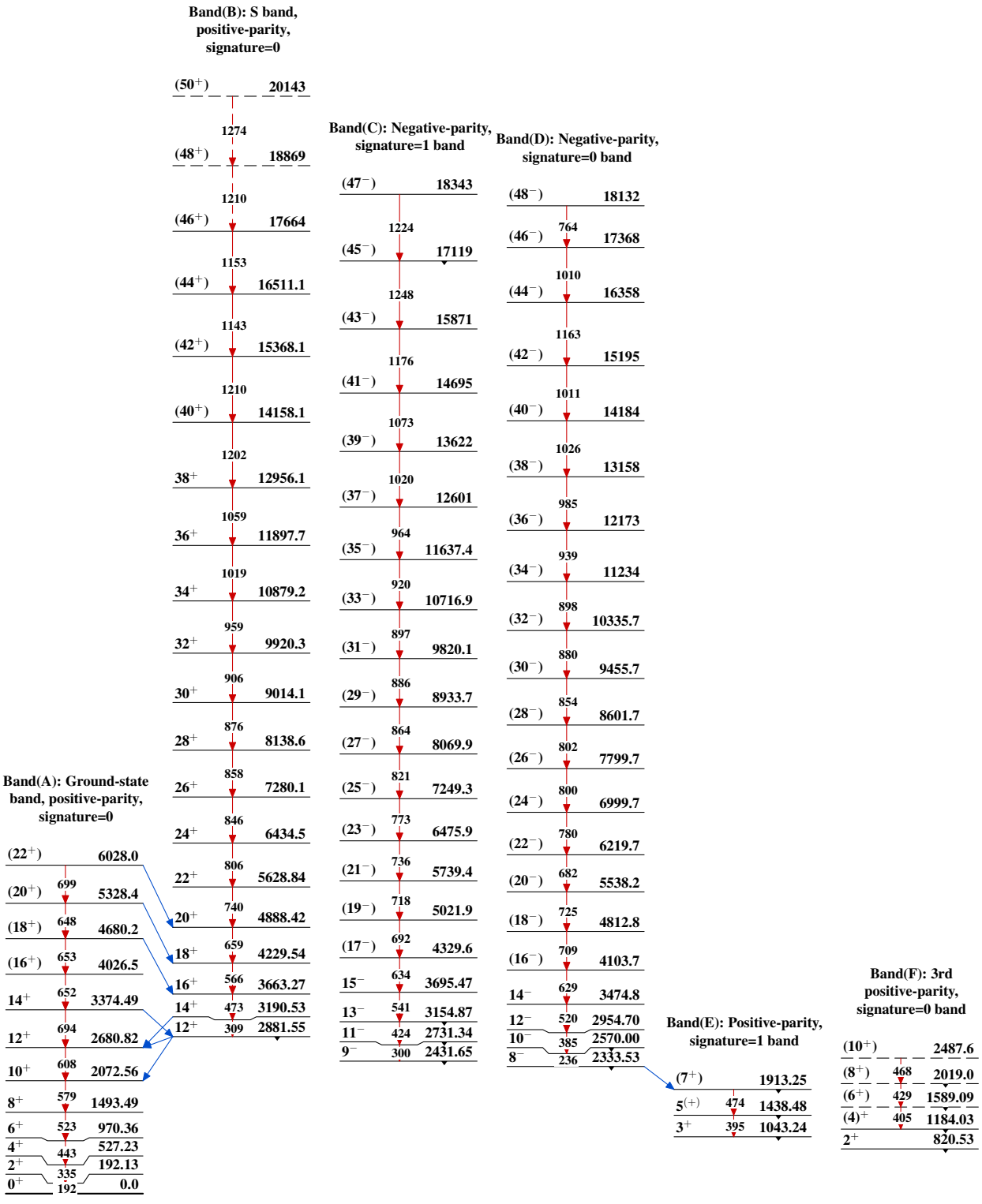
Level Scheme (continued)

Intensities: Relative I_γ



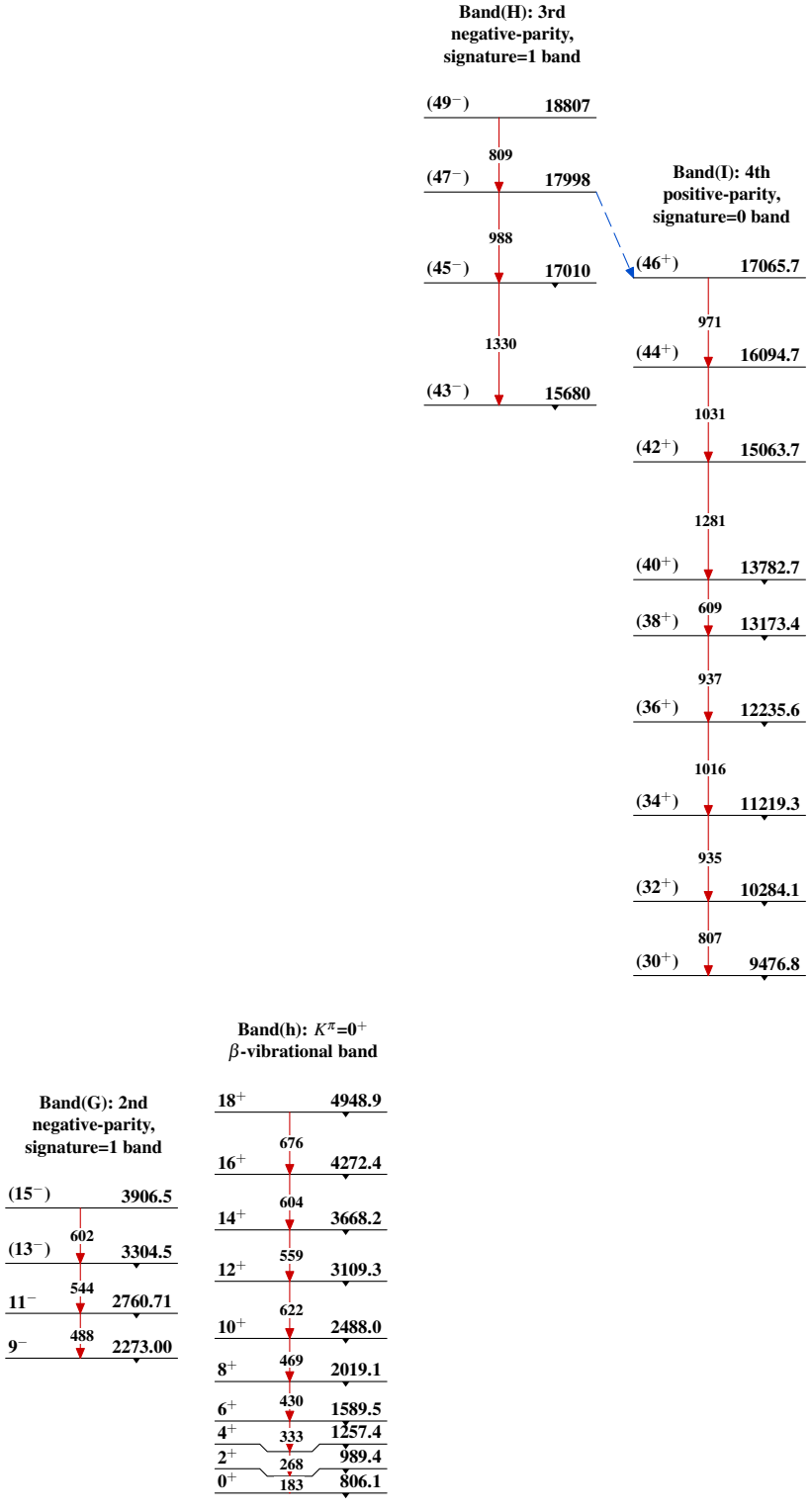
$^{158}_{68}Er_{90}$

(HI,xnγ) 1985Ho04,1984Si05,1994Si10



$^{158}_{68}Er_{90}$

(HI,xnγ) 1985Ho04,1984Si05,1994Si10 (continued)



$^{158}_{68}Er_{90}$