(HI,xnγ) 1992Ku13,1981Ba33,1980Ba33

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. J. Martin	NDS 114, 1497 (2013)	31-Aug-2013

1992Ku13: ^{116}Sn(^{40}Ar,4nγ) E=180 MeV, also ^{144}Sm(^{12}C,4nγ) and ^{144}Sm(^{13}C,5nγ). Measured: Eγ, Iγ, γγ, γ(ce), γγ(θ), γγγ(t), γ(ce)(t); high energy resolution array with 21 Ge detectors, Si(Li) detectors.
1981Ba33: ^{108}Pd(^{48}Ti,4nγ) E=225 MeV; measured Eγ, Iγ, γ(t). Delayed transitions from the 32 ns isomeric state.
1981Ho05: ^{144}Sm(^{12}C,4nγ) E=65-95 MeV; ^{144}Sm(^{11}B,3nγ) E=40-70 MeV; ^{124}Te(^{32}S,4nγ) E=125-155 MeV; measured: Eγ, Iγ, γγ, γ(θ).
1980Ba33: ^{144}Sm(^{12}C,4nγ) E=86 MeV; measured Eγ, Iγ, γγ, γγ(θ), γγ(t).
1984AdZZ: ^{144}Sm(^{12}C,4nγ) E=80-90 MeV.

^{152}Er Levels

The level scheme is that proposed by 1992Ku13 and agrees, in general, with those proposed by earlier investigators. The configurations are also those proposed by 1992Ku13 and are deduced from shell model and comparison with ^{148}Gd and ^{150}Dy.

E(level)†	Jπ#	$T_{1/2}$	Comments
0.0&	0^+		
808.2& *1*	2^+		
1480.8& *2*	4^+		
1903.3& *2*	6^+		
2183.2 *2*	8^+	1.8 ns *3*	g=−0.07 *8* (1984AdZZ) Configuration=$(\nu,f_{7/2})(\nu,h_{9/2})$. $T_{1/2}$: from 1984AdZZ. Others: ≈2 ns (1981Ba33); 1.2 ns *3* (1980Ba33). g-factor: from γ(θ,H) with paramagnetic correction.
2947.5 *3*	10^+		Configuration=$(\pi,h_{11/2})^{+2}$.
3734.9[a] *3*	12^+		
4289.1[a] *3*	14^+		
4519.2[a] *3*	16^+	1.2 ns *3*	g=+0.29 *13* (1984AdZZ) $T_{1/2}$: from 1984AdZZ. Others: ≈1.5 ns (1992Ku13,1981Ba33), 0.8 ns 3 (1980Ba33). g-factor: from γ(θ,H) with paramagnetic correction.
4536.0 *4*	15^+		
4685.0 *4*	16^+	4.6 ns *14*	$T_{1/2}$: from 1980Ba33. Other: ≈6 ns (1992Ku13).
5080.4 *3*	18^+		Configuration=$(\pi,h_{11/2})^{+2}_{10+}(\nu,f_{7/2})(\nu,h_{9/2}))8^+$.
5414.7 *4*			
5459.8 *4*	17^-		
5635.2 *4*	18^-		
5810.8 *4*	19^-		
5966.6 *4*			
6036.7 *4*	19^-		
6176.3 *4*	20^-		
6407.3 *4*			
6477.3 *5*	20^-		
6486.9 *4*	21^-		
6555.0 *4*	21^-		
6734.2‡ *11*			
6756.8?‡			
6837.5 *4*	22		
7011.8 *4*	22^-		
7118.7 *4*	23^-		
7448.6 *4*	24^-		
8112.9 *5*			

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(HI,xnγ) 1992Ku13,1981Ba33,1980Ba33 (continued)

^{152}Er Levels (continued)

E(level)[†]	Jπ[#]	$T_{1/2}$	Comments
8233.2 *4*	26^-		
8350.3 *5*			
8489.8 *6*			
8514.6 *7*	25		
8527.8 *5*	27		
8659.8 *6*	26^-		Configuration=$((\pi,h_{11/2})^{+4}(\nu,f_{7/2})(\nu,i_{13/2}))26^-$.
8691.0 *7*			
8863.4 *5*			
9679.8 *7*			
9711.7 *5*	28^+	35 ns *4*	$T_{1/2}$: from 1992Ku13. Other: possibly the 32 ns *3* isomer at E(exc.)=8.5 *4* MeV seen by 1980Bo07. Configuration=$((\pi,h_{11/2})^{+4}_{16+}(\nu,i_{13/2})^{+2}_{12+})28^+$.
9725.5 *7*			
10082.8 *7*			
10306.5 *6*			
10394.2 *6*			
10548.2 *6*			
11121.4 *7*			
11399.8 *6*			
12121.2 *7*			
13029.4 *7*			
13387.2 *9*		11[@] ns *1*	
14944.9 *12*			

[†] From a least-squares fit to the Eγ data, and rounded off by the evaluator to one decimal digit.

[‡] Using the uncorrected energies of 1992Ku13, the authors′ level scheme shows transitions 256.0 and 278.0 connecting levels at 7001.4 and 6466.8; however, the sum, 534.0 is somewhat inconsistent with the energy of the crossover transition, 533.4. In table 1, these transitions are shown deexciting levels at 6722.8 and 6745.4, respectively. The 256γ from the 6722.8 level yields a final level at 6466.8, as shown in the authors′ level scheme; however, the 278.0γ from a 6745.4 level yields a final level at 6467.4, and no such level is listed by the authors. There thus appears to be a misprint in either the Eγ or E(level) value. The 6745.4 level (corrected energy 6756.8) is shown As questionable.

[#] Proposed by 1992Ku13, based on angular correlation and conversion coefficient measurements.

[@] From 1992Ku13. Other: <10 ns for E(exc.)>12.2 MeV (1980Bo07).

[&] Band(A): Configuration: $\nu,2f^{+2}_{7/2}$.

[a] Band(B): Configuration: $\pi,1h^{+2}_{11/2\ 10+}\nu,2f^{+2}_{7/2}$.

γ(^{152}Er)

Eγ[†]	Iγ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[a]	α[d]	Comments
(13.3)		9725.5		9711.7	28^+			Eγ: from level scheme.
68.6 *3*	1.7 *4*	6555.0	21^-	6486.9	21^-	M1	8.43 *16*	α(K)=7.06 *14*; α(L)=1.069 *21*; α(M)=0.237 *5*; α(N+..)=0.0637 *13* α(N)=0.0553 *11*; α(O)=0.00799 *16*; α(P)=0.000439 *9*
120.4 *3*	1.5 *4*	8233.2	26^-	8112.9				
140.4 *4*	0.6 *2*	6176.3	20^-	6036.7	19^-	M1	1.082 *18*	α(K)=0.908 *15*; α(L)=0.1356 *22*; α(M)=0.0301 *5*; α(N+..)=0.00808 *13* α(N)=0.00701 *12*; α(O)=0.001014 *17*; α(P)=5.59×10^{-5} *9*
147.5 *4*	0.5 *2*	6555.0	21^-	6407.3				
149.1 *3*	3.8 *4*	4685.0	16^+	4536.0	15^+	M1	0.913	α(K)=0.766 *12*; α(L)=0.1144 *18*; α(M)=0.0254 *4*;

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(HI,xnγ) 1992Ku13,1981Ba33,1980Ba33 (continued)

γ(^{152}Er) (continued)

E_γ †	I_γ &	E_i(level)	J_i^π	E_f	J_f^π	Mult. [a]	δ	α [d]	Comments
									α(N+..)=0.00682 *11* α(N)=0.00591 *9*; α(O)=0.000855 *13*; α(P)=4.72×10^{-5} *8*
154.2 *3*	4.2 *4*	10548.2		10394.2					Mult.: from α(K)exp=0.63 *19* (1992Ku13). Mult.: ΔJ=1 (1992Ku13).
165.8 *3*	2.3 *2*	4685.0	16$^+$	4519.2	16$^+$	M1+E2		0.50 *2*	α(K)=0.42 *15*; α(L)=0.12 *4*; α(M)=0.028 *9*; α(N+..)=0.0071 *21* α(N)=0.0063 *20*; α(O)=0.00082 *19*; α(P)=2.4×10^{-5} *12* Mult.: from α(K)exp=1.0 *8* (1992Ku13). δ: δ=+2.0 or −3.5 (1992Ku13). α: α=0.516 for δ=2.0 and 0.491 for δ=3.5.
175.5 *2*	20.1 *10*	5635.2	18$^-$	5459.8	17$^-$	M1+E2 [b]	+0.2	0.571 *9*	α(K)=0.476 *7*; α(L)=0.0740 *11*; α(M)=0.01650 *24*; α(N+..)=0.00442 *7* α(N)=0.00384 *6*; α(O)=0.000550 *8*; α(P)=2.91×10^{-5} *5* Mult.: from α(K)exp=0.536 *4* (1992Ku13). δ: other solution δ=7 (1992Ku13).
176.3 *3*	6.1 *6*	5810.8	19$^-$	5635.2	18$^-$	M1 [b]		0.571	α(K)=0.479 *7*; α(L)=0.0713 *11*; α(M)=0.01582 *24*; α(N+..)=0.00425 *7* α(N)=0.00369 *6*; α(O)=0.000534 *8*; α(P)=2.95×10^{-5} *5*
177.4 *4*	0.7 *3*	8527.8	27	8350.3					
209.6 *3*	4.8 *5*	6176.3	20$^-$	5966.6					
226.2 *3*	7.9 *8*	6036.7	19$^-$	5810.8	19$^-$	M1+E2	1.0	0.227	α(K)=0.177 *3*; α(L)=0.0388 *6*; α(M)=0.00893 *14*; α(N+..)=0.00234 *4* α(N)=0.00206 *3*; α(O)=0.000275 *4*; α(P)=1.013×10^{-5} *15* δ: −1.0 or +1.5 (1992Ku13). α: For the possible δ values with a 20% uncertainty in δ assumed by the evaluator.
230.1 *1*	65 *3*	4519.2	16$^+$	4289.1	14$^+$	E2 [b]		0.1588	α(K)=0.1079 *16*; α(L)=0.0392 *6*; α(M)=0.00929 *14*; α(N+..)=0.00239 *4* α(N)=0.00212 *3*; α(O)=0.000265 *4*; α(P)=5.25×10^{-6} *8* Mult.: from α(K)exp=0.138 *21* (1992Ku13).
247.0 *3*	3.8 *4*	4536.0	15$^+$	4289.1	14$^+$	M1		0.225	α(K)=0.190 *3*; α(L)=0.0280 *4*; α(M)=0.00620 *9*; α(N+..)=0.001668 *24* α(N)=0.001446 *21*; α(O)=0.000209 *3*; α(P)=1.160×10^{-5} *17*
256.5#	8.8# *9*	8489.8		8233.2	26$^-$				
256.9		6734.2		6477.3	20$^-$				Eγ: Doublet. Iγ: The transition is a doublet. No intensity is given by 1992Ku13.
278.4		11399.8		11121.4					
278.9 [e]		6756.8?		6477.3	20$^-$				Eγ: Multiplet. See comment on 6757 level.
279.9# *1*	101# *5*	2183.2	8$^+$	1903.3	6$^+$	E2 [bc]		0.0854	α(K)=0.0615 *9*; α(L)=0.0185 *3*; α(M)=0.00433 *6*; α(N+..)=0.001121 *16* α(N)=0.000991 *14*; α(O)=0.0001264 *18*; α(P)=3.12×10^{-6} *5*
281.3 *3*	5.7 *6*	7118.7	23$^-$	6837.5	22	M1		0.1585	α(K)=0.1334 *19*; α(L)=0.0196 *3*; α(M)=0.00435 *7*; α(N+..)=0.001169 *17* α(N)=0.001014 *15*; α(O)=0.0001468 *21*; α(P)=8.15×10^{-6} *12*

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(HI,xnγ) 1992Ku13,1981Ba33,1980Ba33 (continued)

γ(^{152}Er) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ	α[d]	Comments
294.6 *2*	18.1 *9*	8527.8	27	8233.2	26⁻				
310.7 *2*	16.0 *8*	6486.9	21⁻	6176.3	20⁻	M1[b]		0.1214	α(K)=0.1022 *15*; α(L)=0.01500 *22*; α(M)=0.00332 *5*; α(N+..)=0.000893 *13* α(N)=0.000774 *11*; α(O)=0.0001122 *16*; α(P)=6.23×10^{-6} *9*
329.9 *1*	47.2 *24*	7448.6	24⁻	7118.7	23⁻	M1		0.1035	α(K)=0.0871 *13*; α(L)=0.01276 *18*; α(M)=0.00283 *4*; α(N+..)=0.000760 *11* α(N)=0.000659 *10*; α(O)=9.55×10^{-5} *14*; α(P)=5.31×10^{-6} *8* Mult.: γ(θ) indicates a dipole transition (1980Ba33); γγ(θ) indicates δ=0 (1992Ku13) (mult.=E2 in table I of 1992Ku13 is possibly a misprint).
331.3 *3*	5.5 *6*	5966.6		5635.2	18⁻				
334.3 *3*	1.2 *3*	5414.7		5080.4	18⁺				
335.5 *3*	7.7 *8*	8863.4		8527.8	27				
358.2[#]	4.8[#] *5*	10082.8		9725.5					
358.9		13387.2		13029.4					I_γ: The transition is a doublet. No intensity is given by 1992Ku13.
365.5 *2*	16.2 *8*	6176.3	20⁻	5810.8	19⁻	M1+E2[b]	+4.0	0.0409	α(K)=0.0316 *5*; α(L)=0.00726 *11*; α(M)=0.001676 *24*; α(N+..)=0.000438 *7* α(N)=0.000385 *6*; α(O)=5.09×10^{-5} *8*; α(P)=1.710×10^{-6} *24* Mult.: from α(K)exp=0.034 *8* (1992Ku13).
373.6 *3*	6.9 *7*	8863.4		8489.8					
378.7 *3*	8.4 *9*	6555.0	21⁻	6176.3	20⁻	M1		0.0718	α(K)=0.0605 *9*; α(L)=0.00883 *13*; α(M)=0.00195 *3*; α(N+..)=0.000525 *8* α(N)=0.000456 *7*; α(O)=6.60×10^{-5} *10*; α(P)=3.68×10^{-6} *6*
395.3[#]	10.5[#] *11*	4685.0	16⁺	4289.1	14⁺	E2		0.0309	α(K)=0.0238 *4*; α(L)=0.00546 *8*; α(M)=0.001260 *18*; α(N+..)=0.000329 *5* α(N)=0.000290 *4*; α(O)=3.83×10^{-5} *6*; α(P)=1.284×10^{-6} *18*
395.9[#]	6.0[#] *6*	5080.4	18⁺	4685.0	16⁺	E2		0.0308	α(K)=0.0237 *4*; α(L)=0.00544 *8*; α(M)=0.001254 *18*; α(N+..)=0.000328 *5* α(N)=0.000288 *4*; α(O)=3.81×10^{-5} *6*; α(P)=1.279×10^{-6} *18* Mult.: from α(K)exp=0.052 *17* (1992Ku13).
401.4 *2*	14.3 *14*	6036.7	19⁻	5635.2	18⁻	M1		0.0617	α(K)=0.0520 *8*; α(L)=0.00757 *11*; α(M)=0.001674 *24*; α(N+..)=0.000450 *7* α(N)=0.000390 *6*; α(O)=5.66×10^{-5} *8*; α(P)=3.15×10^{-6} *5*
422.5 *1*	94 *5*	1903.3	6⁺	1480.8	4⁺	E2[bc]		0.0257	α(K)=0.0200 *3*; α(L)=0.00440 *7*; α(M)=0.001011 *15*; α(N+..)=0.000265 *4* α(N)=0.000233 *4*; α(O)=3.10×10^{-5} *5*; α(P)=1.089×10^{-6} *16* Mult.: Other: K/L=5.2 *14* (1992Ku13). Theory values are 6.88 (M1) and 4.56 (E2).
436.7 *2*	9.7 *10*	7448.6	24⁻	7011.8	22⁻	E2		0.0235	α(K)=0.0184 *3*; α(L)=0.00395 *6*; α(M)=0.000908 *13*; α(N+..)=0.000238 *4* α(N)=0.000209 *3*; α(O)=2.79×10^{-5} *4*; α(P)=1.004×10^{-6} *14*
456.9 *3*	5.2 *5*	7011.8	22⁻	6555.0	21⁻	M1		0.0440	α(K)=0.0371 *6*; α(L)=0.00538 *8*;

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(HI,xnγ) 1992Ku13,1981Ba33,1980Ba33 (continued)

γ(^{152}Er) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ	α[d]	Comments
									α(M)=0.001190 *17*; α(N+..)=0.000320 *5* α(N)=0.000278 *4*; α(O)=4.03×10^{-5} *6*; α(P)=2.25×10^{-6} *4*
465.6 *3*	3.7 *4*	10548.2		10082.8					
518.1 *2*	28.5 *15*	6555.0	21$^-$	6036.7	19$^-$	E2		0.01502	α(K)=0.01200 *17*; α(L)=0.00234 *4*; α(M)=0.000533 *8*; α(N+..)=0.0001404 *20* α(N)=0.0001230 *18*; α(O)=1.670×10^{-5} *24*; α(P)=6.66×10^{-7} *10*
524.8 *3*	3.6 *4*	7011.8	22$^-$	6486.9	21$^-$	M1+E2	+1.0	0.0227	α(K)=0.0188 *3*; α(L)=0.00300 *5*; α(M)=0.000671 *10*; α(N+..)=0.000179 *3* α(N)=0.0001559 *22*; α(O)=2.21×10^{-5} *4*; α(P)=1.108×10^{-6} *16*
534.3 *3*	3.0 *3*	7011.8	22$^-$	6477.3	20$^-$	E2		0.01389	α(K)=0.01114 *16*; α(L)=0.00214 *3*; α(M)=0.000486 *7*; α(N+..)=0.0001282 *18* α(N)=0.0001123 *16*; α(O)=1.528×10^{-5} *22*; α(P)=6.20×10^{-7} *9*
554.2 *1*	94 *5*	4289.1	14$^+$	3734.9	12$^+$	E2[b]		0.01268	α(K)=0.01020 *15*; α(L)=0.00192 *3*; α(M)=0.000437 *7*; α(N+..)=0.0001152 *17* α(N)=0.0001009 *15*; α(O)=1.377×10^{-5} *20*; α(P)=5.69×10^{-7} *8* α(L)=0.00193
561.1 *1*	49.0 *25*	5080.4	18$^+$	4519.2	16$^+$	E2[b]		0.01230	α(K)=0.00991 *14*; α(L)=0.00186 *3*; α(M)=0.000421 *6*; α(N+..)=0.0001112 *16* α(N)=9.73×10^{-5} *14*; α(O)=1.330×10^{-5} *19*; α(P)=5.53×10^{-7} *8* Mult.: α(K)exp=0.012 *2* (1992Ku13) stretched E2 from γγ(θ) (1992Ku13,1980Ba33).
563.8 *1*	47.5 *24*	7118.7	23$^-$	6555.0	21$^-$	E2[b]		0.01215	α(K)=0.00980 *14*; α(L)=0.00183 *3*; α(M)=0.000416 *6*; α(N+..)=0.0001097 *16* α(N)=9.60×10^{-5} *14*; α(O)=1.313×10^{-5} *19*; α(P)=5.47×10^{-7} *8* Mult.: from α(K)exp=0.009 *3* (1992Ku13).
577.0 *3*	7.2 *7*	6036.7	19$^-$	5459.8	17$^-$	E2		0.01148	α(K)=0.00927 *13*; α(L)=0.001715 *25*; α(M)=0.000389 *6*; α(N+..)=0.0001027 *15* α(N)=8.98×10^{-5} *13*; α(O)=1.231×10^{-5} *18*; α(P)=5.19×10^{-7} *8*
596.4 *3*	1.9 *4*	6407.3		5810.8	19$^-$				
626.8 *3*	1.6 *5*	10306.5		9679.8					
631.8 *2*	14.0 *14*	7118.7	23$^-$	6486.9	21$^-$	E2		0.00923	α(K)=0.00751 *11*; α(L)=0.001335 *19*; α(M)=0.000301 *5*; α(N+..)=7.98×10^{-5} *12* α(N)=6.97×10^{-5} *10*; α(O)=9.62×10^{-6} *14*; α(P)=4.23×10^{-7} *6*
661.3 *3*	3.8 *4*	6837.5	22	6176.3	20$^-$	E2		0.00829	α(K)=0.00677 *10*; α(L)=0.001181 *17*; α(M)=0.000266 *4*; α(N+..)=7.05×10^{-5} *10* α(N)=6.16×10^{-5} *9*; α(O)=8.53×10^{-6} *12*; α(P)=3.82×10^{-7} *6*
664.4 *3*	3.2 *3*	8112.9		7448.6	24$^-$				
672.6 *1*	97 *5*	1480.8	4$^+$	808.2	2$^+$	E2[bc]		0.00797	α(K)=0.00652 *10*; α(L)=0.001129 *16*; α(M)=0.000254 *4*; α(N+..)=6.74×10^{-5} *10* α(N)=5.89×10^{-5} *9*; α(O)=8.16×10^{-6} *12*; α(P)=3.68×10^{-7} *6*
682.7 *3*	3.7 *4*	10394.2		9711.7	28$^+$				
721.4 *2*	17.0 *9*	12121.2		11399.8					Mult.: ΔJ=2 (1992Ku13).

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(HI,xnγ) 1992Ku13,1981Ba33,1980Ba33 (continued)

γ(^{152}Er) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ	α[d]	Comments
730.4 *2*	39.2 *20*	5810.8	19⁻	5080.4	18⁺	E1[b]		0.00251	α(K)=0.00214 *3*; α(L)=0.000293 *4*; α(M)=6.42×10⁻⁵ *9*; α(N+..)=1.717×10⁻⁵ *24* α(N)=1.491×10⁻⁵ *21*; α(O)=2.14×10⁻⁶ *3*; α(P)=1.162×10⁻⁷ *17* Mult.: α(K)exp=0.007 *3* (1992Ku13).
744.2 *2*	10.7 *11*	6555.0	21⁻	5810.8	19⁻	E2		0.00633	α(K)=0.00521 *8*; α(L)=0.000870 *13*; α(M)=0.000195 *3*; α(N+..)=5.18×10⁻⁵ *8* α(N)=4.52×10⁻⁵ *7*; α(O)=6.31×10⁻⁶ *9*; α(P)=2.95×10⁻⁷ *5* E_γ: Value of 243.3 in table I of 1992Ku13 is a misprint.
[x]744.9[@]									
764.3 *1*	96 *5*	2947.5	10⁺	2183.2	8⁺	E2[bc]		0.00597	α(K)=0.00492 *7*; α(L)=0.000813 *12*; α(M)=0.000182 *3*; α(N+..)=4.84×10⁻⁵ *7* α(N)=4.23×10⁻⁵ *6*; α(O)=5.91×10⁻⁶ *9*; α(P)=2.79×10⁻⁷ *4*
774.9 *2*	11.5 *12*	5459.8	17⁻	4685.0	16⁺	E1		0.00223	α(K)=0.00190 *3*; α(L)=0.000259 *4*; α(M)=5.69×10⁻⁵ *8*; α(N+..)=1.522×10⁻⁵ *22* α(N)=1.321×10⁻⁵ *19*; α(O)=1.90×10⁻⁶ *3*; α(P)=1.035×10⁻⁷ *15* Mult.: from α(K)exp=0.0038 *11* (1992Ku13).
784.6 *2*	25.5 *13*	8233.2	26⁻	7448.6	24⁻	E2		0.00563	α(K)=0.00465 *7*; α(L)=0.000762 *11*; α(M)=0.0001707 *24*; α(N+..)=4.54×10⁻⁵ *7* α(N)=3.96×10⁻⁵ *6*; α(O)=5.54×10⁻⁶ *8*; α(P)=2.64×10⁻⁷ *4*
787.4 *1*	97 *5*	3734.9	12⁺	2947.5	10⁺	E2[bc]		0.00559	α(K)=0.00462 *7*; α(L)=0.000755 *11*; α(M)=0.0001692 *24*; α(N+..)=4.50×10⁻⁵ *7* α(N)=3.92×10⁻⁵ *6*; α(O)=5.49×10⁻⁶ *8*; α(P)=2.62×10⁻⁷ *4*
808.2 *1*	100 *5*	808.2	2⁺	0.0	0⁺	E2[bc]		0.00528	α(K)=0.00437 *7*; α(L)=0.000708 *10*; α(M)=0.0001586 *23*; α(N+..)=4.22×10⁻⁵ *6* α(N)=3.68×10⁻⁵ *6*; α(O)=5.16×10⁻⁶ *8*; α(P)=2.48×10⁻⁷ *4*
814.9 *3*	2.1 *2*	11121.4		10306.5					
822.6 *3*	2.5 *3*	10548.2		9725.5					
848.3 *3*	3.8 *4*	9711.7	28⁺	8863.4					
852.0 *3*	9.3 *10*	11399.8		10548.2					Mult.: ΔJ=2 (1992Ku13).
901.6 *3*	2.7 *3*	8350.3		7448.6	24⁻				
908.3 *3*	1.7 *4*	13029.4		12121.2					
940.7 *2*	23.5 *12*	5459.8	17⁻	4519.2	16⁺	E1[b]		1.53×10⁻³	α(K)=0.001308 *19*; α(L)=0.0001769 *25*; α(M)=3.88×10⁻⁵ *6*; α(N+..)=1.038×10⁻⁵ *15* α(N)=9.01×10⁻⁶ *13*; α(O)=1.298×10⁻⁶ *19*; α(P)=7.16×10⁻⁸ *10* Mult.: From α(K)exp=0.0012 *4* (1992Ku13).

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(HI,xnγ) 1992Ku13,1981Ba33,1980Ba33 (continued)

γ(^{152}Er) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ	α[d]	Comments
1021.0 *7*	1.1 *3*	9711.7	28^+	8691.0					
1051.9 *6*	9.6 *10*	9711.7	28^+	8659.8	26^-	M2+E3	−1.5	0.00864 *13*	α(K)=0.00711 *10*; α(L)=0.001190 *17*; α(M)=0.000268 *4*; α(N+..)=7.15×10^{-5} *10* α(N)=6.23×10^{-5} *9*; α(O)=8.83×10^{-6} *13*; α(P)=4.41×10^{-7} *7*
1066.5 *7*	2.7 *3*	8514.6	25	7448.6	24^-	D			
1152.6 *7*	2.5 *3*	9679.8		8527.8	27				
1184.1 *6*	5.7 *6*	9711.7	28^+	8527.8	27				
1211.2 *5*	12.3 *12*	8659.8	26^-	7448.6	24^-	E2		0.00229	α(K)=0.00192 *3*; α(L)=0.000283 *4*; α(M)=6.26×10^{-5} *9*; α(N+..)=2.31×10^{-5} *4* α(N)=1.456×10^{-5} *21*; α(O)=2.08×10^{-6} *3*; α(P)=1.096×10^{-7} *16*; α(IPF)=6.32×10^{-6} *11*
1242.6 *7*	1.1 *3*	8691.0		7448.6	24^-				
1265.5 *6*	7.1 *7*	13387.2		12121.2					Mult.: ΔJ=3 (1992Ku13).
1316.1 *7*	2.3 *3*	11399.8		10082.8					
1394.9[‡]		8514.6	25	7118.7	23^-	Q			I_γ: The 1395γ is a doublet. No intensity is given by 1992Ku13.
1395.3[#]	5.0[#] *5*	6477.3	20^-	5080.4	18^+	M2		0.00650	α(K)=0.00546 *8*; α(L)=0.000804 *12*; α(M)=0.0001783 *25*; α(N+..)=6.37×10^{-5} *9* α(N)=4.16×10^{-5} *6*; α(O)=6.04×10^{-6} *9*; α(P)=3.38×10^{-7} *5*; α(IPF)=1.575×10^{-5} *22*
1409.6 *7*	2.5 *3*	11121.4		9711.7	28^+				
1557.7 *8*	0.7 *3*	14944.9		13387.2					
[x]1579.1[@]									
1596.5 *8*	1.0 *3*	7011.8	22^-	5414.7					
1687.1 *7*	2.2 *3*	11399.8		9711.7	28^+				
1777.9 *8*	1.0 *3*	10306.5		8527.8	27				

[†] From 1992Ku13. The authors state, based on a comparison with energies from the earlier in-beam work of 1981Ba33 and 1980Ba33, that their values May have a systematic deviation of about −1.0 keV. Based on a comparison with energies of 1980Li18 in ε decay, the evaluator has increased the energies of 1992Ku13 by 0.9 keV. on the basis of the authors′ general statement that the uncertainties are less than 0.1 keV for strong transitions, and up to 0.8 keV for weak high-energy transitions, the evaluator has assigned uncertainties as follows: for transitions below Eγ=1000 keV, ΔE=0.1 for Iγ>40, 0.2 for Iγ=10-40, 0.3 for Iγ=1-10, and 0.4 for Iγ<1. For transitions with Eγ>1000 keV, ΔE=0.6 for Iγ=5-10, 0.7 for Iγ=1-5, and 0.8 for Iγ<1.

[‡] γ is part of a doublet.

[#] Doublet. E and Iγ determined from coincidence spectra.

[@] γ seen by 1981Ba33, not seen by 1992Ku13.

[&] From 1992Ku13; from a spectrum in coin with the 764.6γ.

[a] From 1992Ku13, based on angular correlation and conversion coefficient measurements, unless otherwise noted. The conversion coefficients were determined from relative Iγ and Ice data normalized to α(K)(423γ) taken as E2, based on its placement from 6^+ to 4^+ in the g.s. rotational band. Note, however, that the theory value for α(K)(423γ) is not given, and the theory values listed in the authors′ table II are larger than those from 2008Ki07 by factors ranging from 3% to 14%. IT is not clear whose theory values the authors have used and thus it is not possible to reanalyze the α(K)exp to conform to our standard from 2008Ki07.

[b] Assignment supported by γ(θ) (1980Ba33).

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(HI,xnγ) 1992Ku13,1981Ba33,1980Ba33 (continued)

$\gamma(^{152}Er)$ (continued)

[c] From reference 6 (thesis) of 1992Ku13. The method is not given.
[d] 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.
[e] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

(HI,xnγ) 1992Ku13,1981Ba33,1980Ba33

Level Scheme

Intensities: Relative I_γ

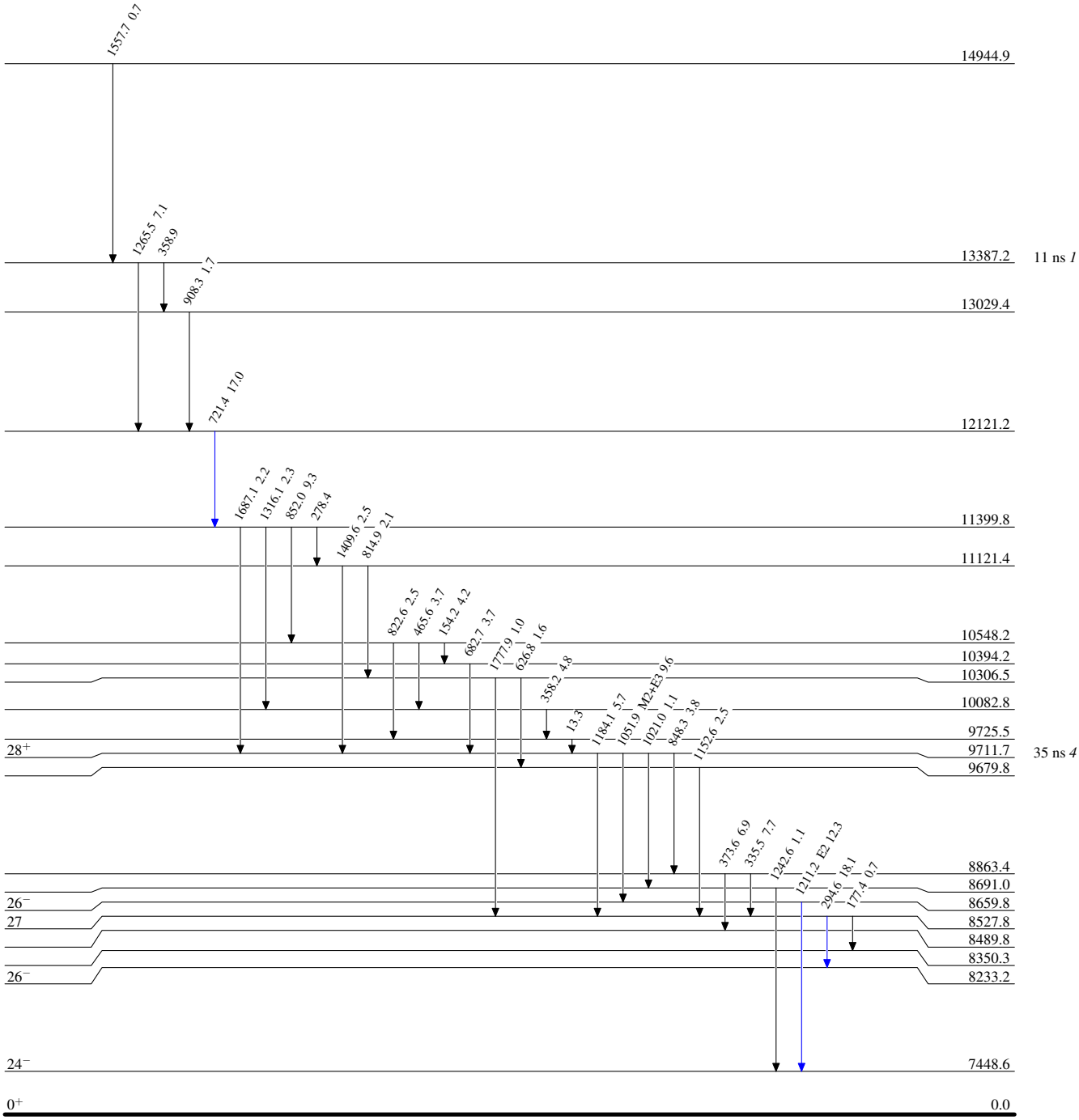
Legend

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

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

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

γ Decay (Uncertain)



$^{152}_{68}Er_{84}$

(HI,xnγ) 1992Ku13,1981Ba33,1980Ba33

Level Scheme (continued)

Intensities: Relative I_γ

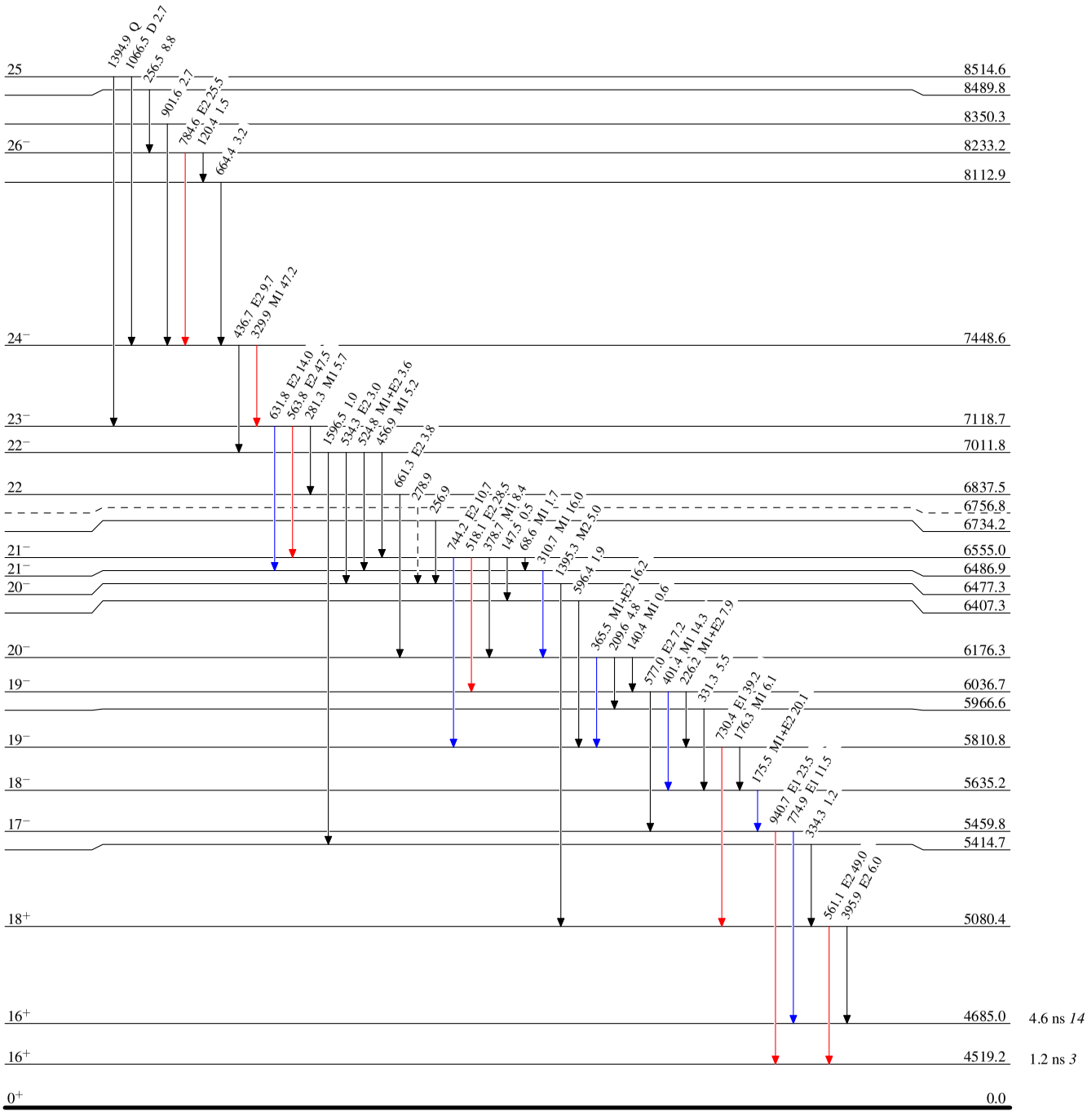
Legend

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

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

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

γ Decay (Uncertain)

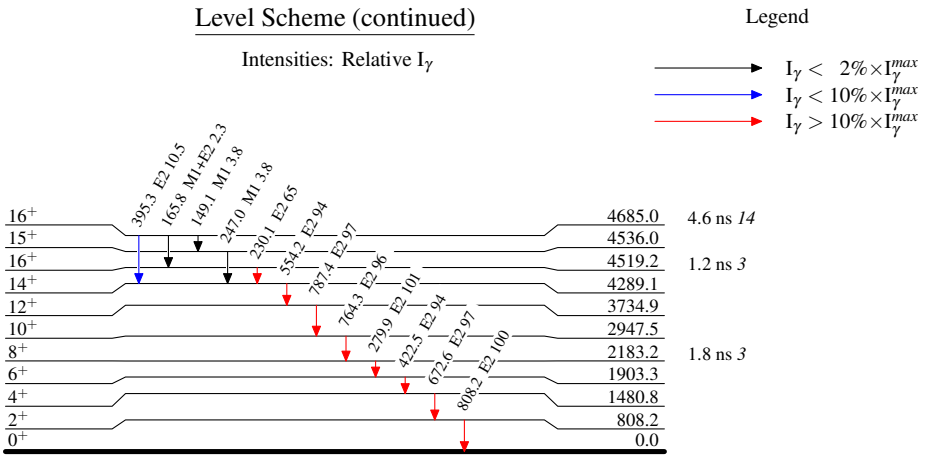


$^{152}_{68}Er_{84}$

(HI,xnγ) 1992Ku13,1981Ba33,1980Ba33

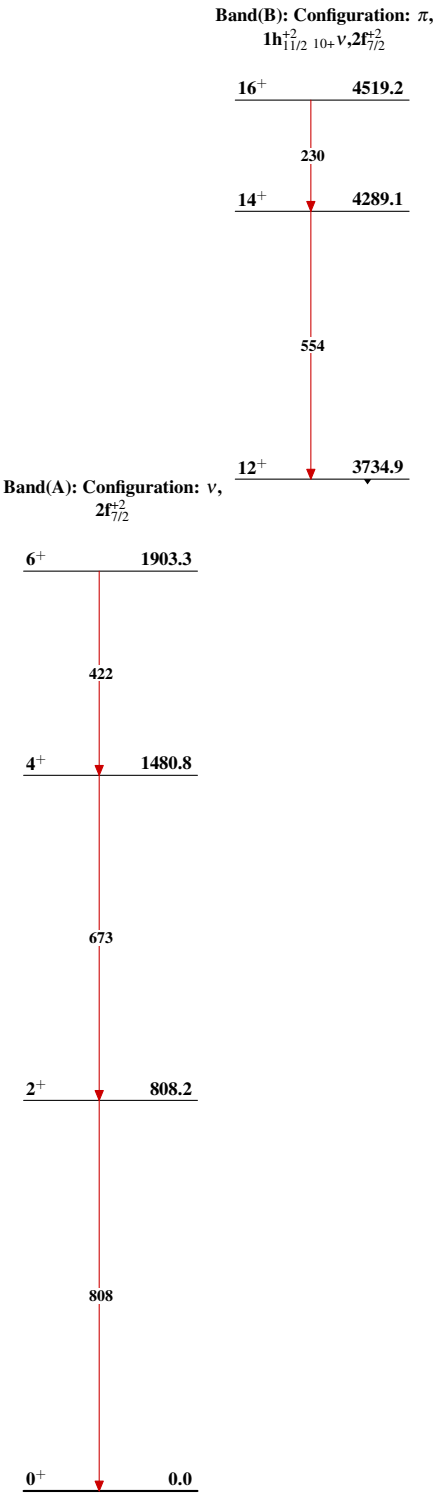
Level Scheme (continued)

Intensities: Relative I_γ



$^{152}_{68}Er_{84}$

(HI,xnγ) 1992Ku13,1981Ba33,1980Ba33



$^{152}_{68}Er_{84}$