^{165}Ho(^{16}O,5nγ) 1999Ca08,1995Kr01,1994Kr09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia	NDS 107, 791 (2006)	15-Sep-2005

1999Ca08: Target: Ho rolled foil. Projectile: ^{16}O, E=101 MeV. Detector: GASP array, consists of 39 Compton suppressed large volume Ge detectors, a planar detector and multiplicity filter of 80 bismuth germinate (BGO) elements. Measured: Eγ, Iγ, DCO ratio, γγ coin, γ(θ), α.

1994Kr09, 1995Kr01: E(^{16}O)=101 MeV, measured Eγ, Iγ, γγ coin. Detectors: 40 Compton suppressed germanium, 80 BGO-element filter. Other: 1987ChZC.

^{176}Re Levels

E(level)[†]	Jπ[‡]	$T_{1/2}$	Comments
0.0[a]	3+		Jπ: configuration: π(1/2[541])⊗ν1/2[521] with a band head at 3+. Deduced experimental alignment is in good agreement with theory.
0.0+x[@]	(5−)		Jπ: configuration: π(1/2[541])⊗ν(7/2[633]). Measured B(M1)/B(E2) value and calculation result are consistent with the configuration.
0.0+y[b]	J		Jπ: J=4+ or 5+, from similarities with the bands in ^{174}Lu and ^{176}Ta.
14.8+x[c]	(7+)		Jπ: Possible configuration: π9/2[514]⊗ν5/2[512]. 99.5γ E1 from (8−) state.
37.5+x[@]	(6−)		
44.1+y[b]	J+1		
76.2[a]	5+		Jπ: Inband 76.2γ E2 to 3+ g.s.
93.7+x[@]	(7−)		
114.1+y[b]	J+2		
114.8+x[#]	(8−)	30 ns *3*	Jπ: 99.5γ E1 to (7+) state at 14.8+x. $T_{1/2}$: From time spectrum, setting a gate on the 99.5γ in 1999Ca08.
141.3[a]	4+		Jπ: 65.0γ M1+(E2) to 5+ state.
156.4+x[@]	(8−)		
184.8+x[#]	(9−)		Jπ: 70.5γ M1+(E2) to (8−) state.
194.5+x[c]	(8+)		
208.7+x[d]	(7+)		
211.5+y[b]	J+3		
247.5[a]	7+		
263.6+x[@]	(9−)		
300.6+x[d]	(8+)		
303.7[a]	6+		Jπ: 56.0γ M1+E2 to 7+ state. 227.3γ M1+E2 to 5+ state.
307.2+x[#]	(10−)		
333.5+y[b]	J+4		
356.9+x[@]	(10−)		
394.5+x[c]	(9+)		
439.7+x[d]	(9+)		
468.1+x[#]	(11−)		
482.6+y[b]	J+5		
515.3[a]	9+		
533.1+x[@]	(11−)		
562.0[a]	8+		
602.3+x[d]	(10+)		
621.4+x[c]	(10+)		
654.3+y[b]	J+6		
657.4+x[@]	(12−)		

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^{165}Ho(^{16}O,5nγ) 1999Ca08,1995Kr01,1994Kr09 (continued)

^{176}Re Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	E(level)[†]	J$^{\pi}$[‡]	E(level)[†]	J$^{\pi}$[‡]	E(level)[†]	J$^{\pi}$[‡]
665.3+x[#]	(12$^-$)	1531.1+x[d]	(14$^+$)	2378.7+x[d]	(17$^+$)	3654.3+x[d]	(21$^+$)
803.6+x[d]	(11$^+$)	1566.3+y[b]	J+10	2378.7[a]	17$^+$	3655.3+x[&]	(19,21)
851.5+y[b]	J+7	1577.3+x[@]	(16$^-$)	2390.6+x[&]	(15,17)	3765.0+x[#]	(22$^-$)
852.9+x[c]	(11$^+$)	1630.0+x[c]	(14$^+$)	2423.3+y[b]	J+13	4025.6+x[&]	(20,22)
874.6[a]	11$^+$	1691.3+x[&]	(12,14)	2511.3+x[c]	(17$^+$)	4040.8+x[@]	(23$^-$)
887.9+x[#]	(13$^-$)	1709.0+x[#]	(16$^-$)	2572.8+x[@]	(19$^-$)	4146.0+x[#]	(23$^-$)
907.5+x[@]	(13$^-$)	1801.7+x[d]	(15$^+$)	2678.4+x[&]	(16,18)	4206.9[a]	23$^+$
911.3[a]	10$^+$	1825.7[a]	15$^+$	2686.9+x[d]	(18$^+$)	4452.2+x[@]	(24$^-$)
1027.8+x[d]	(12$^+$)	1841.3+y[b]	J+11	2690.7+x[#]	(19$^-$)	4533.5+x[#]	(24$^-$)
1066.3+x[@]	(14$^-$)	1842.8[a]	14$^+$	2762.4+x[c]	(18$^+$)	4861.3+x[@]	(25$^-$)
1068.8+y[b]	J+8	1892.6+x[&]	(13,15)	2869.7+x[@]	(20$^-$)	4932.1[a]	25$^+$
1100.8+x[c]	(12$^+$)	1907.3+x[c]	(15$^+$)	2944.5[a]	19$^+$	5321.3+x[#]	(25$^-$)
1140.5+x[#]	(14$^-$)	1936.8+x[@]	(17$^-$)	2987.7+x[&]	(17,19)	5322.6+x[@]	(26$^-$)
1253.9+x[&]	(10,12)	2022.4+x[#]	(17$^-$)	2996.2+x[d]	(19$^+$)	5715.8[a]	27$^+$
1268.4+x[d]	(13$^+$)	2087.7+x[d]	(16$^+$)	3037.5+x[#]	(20$^-$)	5729.3+x[@]	(27$^-$)
1309.0+y[b]	J+9	2127.5+x[&]	(14,16)	3277.5+x[@]	(21$^-$)	6127.7+x[#]	(26$^-$)
1315.9[a]	13$^+$	2132.3+y[b]	J+12	3315.5+x[&]	(18,20)	6221.6+x[@]	(28$^-$)
1342.3[a]	12$^+$	2181.5+x[@]	(18$^-$)	3318.1+x[d]	(20$^+$)	6555.9[a]	29$^+$
1360.2+x[c]	(13$^+$)	2190.8+x[c]	(16$^+$)	3401.0+x[#]	(21$^-$)	6959.7+x[#]	(27$^-$)
1377.3+x[@]	(15$^-$)	2347.9+x[#]	(18$^-$)	3545.3[a]	21$^+$	7822.7+x[#]	(28$^-$)
1414.8+x[#]	(15$^-$)	2376.0[a]	16$^+$	3629.2+x[@]	(22$^-$)		

[†] Energy levels from 1999Ca08, except otherwise noted. Energy levels of bands A, B, C, F, G; and band E; were based on 0.0+x; and 0.0+Y levels, respectively (by evaluator).
[‡] J$^{\pi}$ assignment from measured DCO ratios in 1999Ca08 and rotational band structure, unless otherwise specified.
[#] Band A: configuration: π9/2[514]$\otimes\nu$7/2[633].
[@] Band B: configuration: π(1/2[541])$\otimes\nu$(7/2[633]).
[&] Band C.
[a] Band D: configuration: π(1/2[541])$\otimes\nu$1/2[521], doubly decoupled band.
[b] Band E.
[c] Band F: Possible configuration: π9/2[514]$\otimes\nu$5/2[512].
[d] Band G: Possible configuration: π5/2[402]$\otimes\nu$7/2[633].

γ(^{176}Re)

R(DCO) from 1999Ca08: $I\gamma_{gate=\theta_2}(\theta_1)/I\gamma_{gate=\theta_1}(\theta_2)$, ($\theta_1$=31.7°, 36°, 144°, 148.3° and θ_2=90°) determined from coincidence spectra, setting gates on stretched E2 transitions on both axes of the DCO matrix.

E$_{\gamma}$[†]	E$_i$(level)	J$^{\pi}_i$	E$_f$	J$^{\pi}_f$	Mult.[#]	Comments
37.5	37.5+x	(6$^-$)	0.0+x	(5$^-$)		
44.1	44.1+y	J+1	0.0+y	J		
46.5[&]	562.0	8$^+$	515.3	9$^+$		
56.0[&]	303.7	6$^+$	247.5	7$^+$	M1+E2[@]	Mult.: from α(exp)=6 *3* (from intensity balance in 1999Ca08).
56.2	93.7+x	(7$^-$)	37.5+x	(6$^-$)		

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^{165}Ho(^{16}O,5nγ) 1999Ca08,1995Kr01,1994Kr09 (continued)

γ(^{176}Re) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[e]	Comments
62.7		156.4+x	(8⁻)	93.7+x	(7⁻)			I_γ: Iγ(62.7):Iγ(118.9)=100:17(3) from Branching ratio 0.17 *3*.
65.0[&]	17	141.3	4⁺	76.2	5⁺	M1+E2[@]		Mult.: from α(exp)=6.0 *5* (from intensity balance in 1999Ca08).
70.0		114.1+y	J+2	44.1+y	J+1			I_γ: Iγ(70.0):Iγ(114.3)=100:5(2) from Branching ratio 0.05 *2*.
70.5		184.8+x	(9⁻)	114.8+x	(8⁻)	M1+E2[@]	0.16 *8*	Mult.: from α(exp)=3.0 *4* (from intensity balance in 1999Ca08).
76.2[b]	58	76.2	5⁺	0.0	3⁺	E2		R(DCO)=1.1 *1*. Mult.: from α(exp)=13 *1* (from intensity balance in 1999Ca08).
91.9		300.6+x	(8⁺)	208.7+x	(7⁺)			
93.3	107	356.9+x	(10⁻)	263.6+x	(9⁻)	M1+E2		I_γ: Iγ(93.3):Iγ(200.2)=100:89(6) from Branching ratio 0.89 *6*. R(DCO)=0.7 *1*.
97.4	27	211.5+y	J+3	114.1+y	J+2	M1+E2		I_γ: Iγ(97.4):Iγ(167.6)=100:19(5) from Branching ratio 0.19 *5*. R(DCO)=0.71 *10*.
99.5[d]	1000	114.8+x	(8⁻)	14.8+x	(7⁺)	E1		R(DCO)=0.90 *3*. Mult.: From α(exp)=0.36 *9* (from intensity balance in 1999Ca08).
107.2	127	263.6+x	(9⁻)	156.4+x	(8⁻)	M1+E2		I_γ: Iγ(107.2):Iγ(169.7)=100:32(5) from Branching ratio 0.32 *5*. R(DCO)=0.69 *6*.
114.3		114.1+y	J+2	0.0+y	J			
118.9		156.4+x	(8⁻)	37.5+x	(6⁻)			
122.0	55	333.5+y	J+4	211.5+y	J+3	M1+E2		I_γ: Iγ(122.0):Iγ(219.3)=100:66(13) from Branching ratio 0.66 *13*. R(DCO)=0.73 *10*.
122.4	516	307.2+x	(10⁻)	184.8+x	(9⁻)	M1+E2		R(DCO)=0.87 *4*.
124.3	124	657.4+x	(12⁻)	533.1+x	(11⁻)	M1		I_γ: Iγ(124.3):Iγ(300.4)=100:290(40) from Branching ratio 2.9 *4*. R(DCO)=0.50 *6*.
139.1		439.7+x	(9⁺)	300.6+x	(8⁺)	M1+E2		I_γ: Iγ(139.1):Iγ(231.9)=100:41(6) from Branching ratio 0.41 *6*. R(DCO)=0.78 *6*.
141.3[&]	13	141.3	4⁺	0.0	3⁺			
149.1	91	482.6+y	J+5	333.5+y	J+4	M1+E2	−0.10 *7*	I_γ: Iγ(149.1):Iγ(270.7)=100:83(12) from Branching ratio 0.83 *12*. R(DCO)=0.51 *5*.
158.8	96	1066.3+x	(14⁻)	907.5+x	(13⁻)	M1+E2	−0.17 *10*	I_γ: Iγ(158.8):Iγ(408.8)=100:500(70) from Branching ratio 5.0 *7*. R(DCO)=0.49 *6*.
160.9	761	468.1+x	(11⁻)	307.2+x	(10⁻)	M1+E2	0.31 *3*	I_γ: Iγ(160.9):Iγ(282.7)=100:14(3) from Branching ratio 0.14 *3*. R(DCO)=0.86 *4*.
162.4[a]	105	303.7	6⁺	141.3	4⁺	E2		R(DCO)=1.17 *13*.
162.6	21	602.3+x	(10⁺)	439.7+x	(9⁺)	M1		I_γ: Iγ(162.6):Iγ(301.5)=100:82(7) from Branching ratio 0.82 *7*. R(DCO)=0.53 *8*.
167.6		211.5+y	J+3	44.1+y	J+1			
169.7	42	263.6+x	(9⁻)	93.7+x	(7⁻)	E2		R(DCO)=0.87 *15*.
171.3[b]	347	247.5	7⁺	76.2	5⁺	E2		R(DCO)=1.03 *3*.
171.7	64	654.3+y	J+6	482.6+y	J+5	M1		I_γ: Iγ(171.7):Iγ(320.3)=100:130(30) from

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^{165}Ho(^{16}O,5nγ) 1999Ca08,1995Kr01,1994Kr09 (continued)

γ(^{176}Re) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[e]	Comments
								Branching ratio 1.3 *3*. R(DCO)=0.48 *5*.
176.2	282	533.1+x	(11$^-$)	356.9+x	(10$^-$)	M1+E2		I_γ: Iγ(176.2):Iγ(269.4)=100:71(5) from Branching ratio 0.71 *5*. R(DCO)=0.38 *6*.
179.7	179	194.5+x	(8$^+$)	14.8+x	(7$^+$)	M1+E2		R(DCO)=0.75 *7*.
181.7[c]		621.4+x	(10$^+$)	439.7+x	(9$^+$)			
193.9		208.7+x	(7$^+$)	14.8+x	(7$^+$)	M1+E2		R(DCO)=0.78 *6*.
197.2	627	665.3+x	(12$^-$)	468.1+x	(11$^-$)	M1+E2		I_γ: Iγ(197.2):Iγ(358.0)=100:28(5) from Branching ratio 0.28 *5*. R(DCO)=0.76 *3*.
197.2	63	851.5+y	J+7	654.3+y	J+6	M1+E2		I_γ: Iγ(197.2):Iγ(368.7)=100:180(30) from Branching ratio 1.8 *3*. R(DCO)=0.6 *1*.
200.0	87	394.5+x	(9$^+$)	194.5+x	(8$^+$)	E2		I_γ: Iγ(200.0):Iγ(379.7)=100:41(4) from Branching ratio 0.41 *4*. R(DCO)=0.9 *1*.
200.2	89	356.9+x	(10$^-$)	156.4+x	(8$^-$)	E2		R(DCO)=1.1 *1*.
200.8	47	1577.3+x	(16$^-$)	1377.3+x	(15$^-$)			I_γ: Iγ(200.8):Iγ(510.1)=100:760(100) from Branching ratio 7.6 *10*.
201.3	110	803.6+x	(11$^+$)	602.3+x	(10$^+$)			I_γ: Iγ(201.3):Iγ(363.5)=100:50(7) from Branching ratio 0.50 *7*.
201.3	79	1892.6+x	(13,15)	1691.3+x	(12,14)			
207.9	53	602.3+x	(10$^+$)	394.5+x	(9$^+$)	M1+E2		R(DCO)=0.9 *1*.
217.3	40	1068.8+y	J+8	851.5+y	J+7	M1+E2		I_γ: Iγ(217.3):Iγ(414.3)=100:290(60) from Branching ratio 2.9 *6*. R(DCO)=0.43 *6*.
219.3	29	333.5+y	J+4	114.1+y	J+2	E2		R(DCO)=1.0 *1*.
222.6	371	887.9+x	(13$^-$)	665.3+x	(12$^-$)	M1+E2		I_γ: Iγ(222.6):Iγ(419.7)=100:56(8) from Branching ratio 0.56 *8*. R(DCO)=0.87 *4*.
224.2	37	1027.8+x	(12$^+$)	803.6+x	(11$^+$)	M1+E2		I_γ: Iγ(224.2):Iγ(425.6)=100:130(20) from Branching ratio 1.3 *2*. R(DCO)=0.9 *1*.
226.9	43	621.4+x	(10$^+$)	394.5+x	(9$^+$)	M1+E2		I_γ: Iγ(226.9):Iγ(427.1)=100:85(7) from Branching ratio 0.85 *7*. R(DCO)=0.71 *8*.
227.3[&]	20	303.7	6$^+$	76.2	5$^+$	M1+E2	0.20 *12*	R(DCO)=0.73 *10*.
231.5	53	852.9+x	(11$^+$)	621.4+x	(10$^+$)			I_γ: Iγ(231.5):Iγ(458.8)=100:110(10) from Branching ratio 1.1 *1*.
231.9		439.7+x	(9$^+$)	208.7+x	(7$^+$)			
234.9	85	2127.5+x	(14,16)	1892.6+x	(13,15)	(M1+E2)		I_γ: Iγ(234.9):Iγ(437.1)=100:26(6) from Branching ratio 0.26 *6*. R(DCO)=0.9 *2*.
240.2	47	1309.0+y	J+9	1068.8+y	J+8	M1		I_γ: Iγ(240.2):Iγ(457.2)=100:250(50) from Branching ratio 2.5 *5*. R(DCO)=0.49 *7*.
240.6	23	1268.4+x	(13$^+$)	1027.8+x	(12$^+$)	M1+E2		I_γ: Iγ(240.6):Iγ(465.7)=100:300(60) from Branching ratio 3.0 *6*. R(DCO)=0.9 *1*.
244.7	19	2181.5+x	(18$^-$)	1936.8+x	(17$^-$)	M1+E2		I_γ: Iγ(244.7):Iγ(603.7)=100:800(200) from Branching ratio 8.0 *20*. R(DCO)=0.7 *2*.
247.9	23	1100.8+x	(12$^+$)	852.9+x	(11$^+$)	M1+E2		I_γ: Iγ(247.9):Iγ(479.9)=100:100(10) from Branching ratio 1.0 *1*. R(DCO)=0.8 *2*.

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^{165}Ho(^{16}O,5nγ) 1999Ca08,1995Kr01,1994Kr09 (continued)

γ(^{176}Re) (continued)

Eγ†	Iγ‡	Ei(level)	J_i^π	E_f	J_f^π	Mult.#	Comments
250.1	168	907.5+x	(13⁻)	657.4+x	(12⁻)	M1+E2	Iγ: Iγ(250.1):Iγ(374.2)=100:130(20) from Branching ratio 1.3 *2*. R(DCO)=0.44 *6*.
250.9[c]		852.9+x	(11⁺)	602.3+x	(10⁺)		
252.6	354	1140.5+x	(14⁻)	887.9+x	(13⁻)	M1+E2	Iγ: Iγ(252.6):Iγ(475.2)=100:64(9) from Branching ratio 0.64 *9*. R(DCO)=0.76 *4*.
257.3	19	1566.3+y	J+10	1309.0+y	J+9	M1	Iγ: Iγ(257.3):Iγ(497.3)=100:430(110) from Branching ratio 4.3 *11*. R(DCO)=0.54 *6*.
258.3[a]	177	562.0	8⁺	303.7	6⁺	E2	R(DCO)=0.97 *17*.
259.4	19	1360.2+x	(13⁺)	1100.8+x	(12⁺)	M1+E2	Iγ: Iγ(259.4):Iγ(507.7)=100:160(20) from Branching ratio 1.6 *2*. R(DCO)=0.9 *1*.
262.7	16	1531.1+x	(14⁺)	1268.4+x	(13⁺)	M1+E2	Iγ: Iγ(262.7):Iγ(504.1)=100:270(50) from Branching ratio 2.7 *5*. R(DCO)=0.82 *6*.
263.1	67	2390.6+x	(15,17)	2127.5+x	(14,16)		Iγ: Iγ(263.1):Iγ(498.3)=100:41(10) from Branching ratio 0.41 *10*.
267.8[b]	500	515.3	9⁺	247.5	7⁺	E2	R(DCO)=0.97 *5*.
269.4	210	533.1+x	(11⁻)	263.6+x	(9⁻)	E2	R(DCO)=0.92 *7*.
269.8	21	1630.0+x	(14⁺)	1360.2+x	(13⁺)		Iγ: Iγ(269.8):Iγ(529.6)=100:150(20) from Branching ratio 1.5 *2*.
270.6	8	1801.7+x	(15⁺)	1531.1+x	(14⁺)	M1+E2	Iγ: Iγ(270.6):Iγ(533.2)=100:790(230) from Branching ratio 7.9 *23*. R(DCO)=0.84 *7*.
270.7	76	482.6+y	J+5	211.5+y	J+3	E2	R(DCO)=1.2 *2*.
274.3	263	1414.8+x	(15⁻)	1140.5+x	(14⁻)	M1+E2	Iγ: Iγ(274.3):Iγ(526.7)=100:93(13) from Branching ratio 0.93 *13*. R(DCO)=0.81 *5*.
275.0	20	1841.3+y	J+11	1566.3+y	J+10	M1	Iγ: Iγ(275.0):Iγ(532.4)=100:610(150) from Branching ratio 6.1 *15*. R(DCO)=0.5 *1*.
277.3	15	1907.3+x	(15⁺)	1630.0+x	(14⁺)		Iγ: Iγ(277.3):Iγ(547.5)=100:190(30) from Branching ratio 1.9 *3*.
282.7	99	468.1+x	(11⁻)	184.8+x	(9⁻)		
286.0	5	2087.7+x	(16⁺)	1801.7+x	(15⁺)		Iγ: Iγ(286.0):Iγ(556.2)=100:900(100) from Branching ratio 9 *3*.
287.8	28	2678.4+x	(16,18)	2390.6+x	(15,17)		Iγ: Iγ(287.8):Iγ(551.8)=100:80(20) from Branching ratio 0.8 *2*.
291.0[f]	21[f]	2132.3+y	J+12	1841.3+y	J+11		Iγ: Iγ(291.0):Iγ(566.0)=100:480(110) from Branching ratio 4.8 *11*.
291.0[f]	4[f]	2378.7+x	(17⁺)	2087.7+x	(16⁺)		Iγ: Iγ(291.0):Iγ(577.3)=100:600(300) from Branching ratio 6 *3*.
291.0[f]	10[f]	2423.3+y	J+13	2132.3+y	J+12		Iγ: Iγ(291.0):Iγ(582.2)=100:660(130) from Branching ratio 6.6 *13*.
294.2	192	1709.0+x	(16⁻)	1414.8+x	(15⁻)	M1+E2	Iγ: Iγ(294.2):Iγ(568.0)=100:120(20) from Branching ratio 1.2 *2*. R(DCO)=0.68 *5*.
296.9	16	2869.7+x	(20⁻)	2572.8+x	(19⁻)		Iγ: Iγ(296.9):Iγ(687.3)=100:1000(200) from Branching ratio 10 *2*.
300.4	336	657.4+x	(12⁻)	356.9+x	(10⁻)	E2	R(DCO)=1.04 *6*.
301.5	22	602.3+x	(10⁺)	300.6+x	(8⁺)	E2	R(DCO)=0.9 *1*.
309.3	18	2987.7+x	(17,19)	2678.4+x	(16,18)		Iγ: Iγ(309.3):Iγ(597.2)=100:200 from Branching ratio 2.0 *6*.

Continued on next page (footnotes at end of table)

^{165}Ho(^{16}O,5nγ) 1999Ca08,1995Kr01,1994Kr09 (continued)

γ(^{176}Re) (continued)

Eγ[†]	Iγ[‡]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[#]	Comments
311.0	81	1377.3+x	(15⁻)	1066.3+x	(14⁻)	M1+E2	Iγ: Iγ(311.0):Iγ(469.8)=100:190(30) from Branching ratio 1.9 *3*. R(DCO)=0.41 *5*.
313.4	161	2022.4+x	(17⁻)	1709.0+x	(16⁻)	M1+E2	Iγ: Iγ(313.4):Iγ(607.5)=100:190(30) from Branching ratio 1.9 *3*. R(DCO)=0.64 *5*.
314.3[&]	11	562.0	8⁺	247.5	7⁺		
320.3	110	654.3+y	J+6	333.5+y	J+4	E2	R(DCO)=0.97 *5*.
325.5	95	2347.9+x	(18⁻)	2022.4+x	(17⁻)	M1+E2	Iγ: Iγ(325.5):Iγ(638.7)=100:300(50) from Branching ratio 3.0 *5*. R(DCO)=0.71 *6*.
327.8	26	3315.5+x	(18,20)	2987.7+x	(17,19)		Iγ: Iγ(327.8):Iγ(636.7)=100:80(20) from Branching ratio 0.8 *2*.
339.8	17	3655.3+x	(19,21)	3315.5+x	(18,20)		Iγ: Iγ(339.8):Iγ(667.4)=100:120(30) from Branching ratio 1.2 *3*.
342.8	71	2690.7+x	(19⁻)	2347.9+x	(18⁻)	M1+E2	Iγ: Iγ(342.8):Iγ(668.3)=100:320(50) from Branching ratio 3.2 *5*. R(DCO)=0.72 *6*.
346.8	77	3037.5+x	(20⁻)	2690.7+x	(19⁻)	M1	Iγ: Iγ(346.8):Iγ(689.7)=100:260(40) from Branching ratio 2.6 *4*. R(DCO)=0.49 *8*.
349.3[a]	146	911.3	10⁺	562.0	8⁺	E2	R(DCO)=0.98 *13*.
350.3	39	3629.2+x	(22⁻)	3277.5+x	(21⁻)		
358.0	221	665.3+x	(12⁻)	307.2+x	(10⁻)	E2	R(DCO)=0.99 *7*.
359.3[b]	469	874.6	11⁺	515.3	9⁺	E2	R(DCO)=0.96 *4*.
359.5	57	1936.8+x	(17⁻)	1577.3+x	(16⁻)	M1+E2	Iγ: Iγ(359.5):Iγ(558.4)=100:230(30) from Branching ratio 2.3 *3*. R(DCO)=0.40 *6*.
363.5	41	803.6+x	(11⁺)	439.7+x	(9⁺)	E2	R(DCO)=0.9 *1*.
363.5	29	3401.0+x	(21⁻)	3037.5+x	(20⁻)	M1+E2	Iγ: Iγ(363.5):Iγ(710.2)=100:500(200) from Branching ratio 5 *2*. R(DCO)=0.75 *8*.
364.0	19	3765.0+x	(22⁻)	3401.0+x	(21⁻)		Iγ: Iγ(364.0):Iγ(727.5)=100:800(300) from Branching ratio 8 *3*.
368.7	136	851.5+y	J+7	482.6+y	J+5	E2	R(DCO)=1.03 *7*.
370.3	8	4025.6+x	(20,22)	3655.3+x	(19,21)		Iγ: Iγ(370.3):Iγ(710.4)=100:110(30) from Branching ratio 1.1 *3*.
374.2	255	907.5+x	(13⁻)	533.1+x	(11⁻)	E2	R(DCO)=1.0 *4*.
379.7	35	394.5+x	(9⁺)	14.8+x	(7⁺)	E2	R(DCO)=1.1 *1*.
381.0	19	4146.0+x	(23⁻)	3765.0+x	(22⁻)		Iγ: Iγ(381.0):Iγ(745.8)=100:370(80) from Branching ratio 3.7 *8*.
387.5	16	4533.5+x	(24⁻)	4146.0+x	(23⁻)		Iγ: Iγ(387.5):Iγ(768.0)=100:290(90) from Branching ratio 2.9 *9*.
391.3	39	2572.8+x	(19⁻)	2181.5+x	(18⁻)		Iγ: Iγ(391.3):Iγ(635.3)=100:280(40) from Branching ratio 2.8 *4*.
396.0[&]	7	911.3	10⁺	515.3	9⁺		
407.6	32	602.3+x	(10⁺)	194.5+x	(8⁺)	E2	R(DCO)=1.1 *1*.
407.8		3277.5+x	(21⁻)	2869.7+x	(20⁻)		
408.8	390	1066.3+x	(14⁻)	657.4+x	(12⁻)	E2	R(DCO)=1.06 *7*.
409.1	15	803.6+x	(11⁺)	394.5+x	(9⁺)		
414.3	137	1068.8+y	J+8	654.3+y	J+6	E2	R(DCO)=1.1 *1*.
419.7	237	887.9+x	(13⁻)	468.1+x	(11⁻)	E2	R(DCO)=0.93 *8*.
425.6	49	1027.8+x	(12⁺)	602.3+x	(10⁺)	E2	R(DCO)=0.97 *5*.
427.1	36	621.4+x	(10⁺)	194.5+x	(8⁺)	E2	R(DCO)=0.88 *9*.
431.0[a]	126	1342.3	12⁺	911.3	10⁺	E2	R(DCO)=0.96 *16*.

Continued on next page (footnotes at end of table)

^{165}Ho(^{16}O,5nγ) 1999Ca08,1995Kr01,1994Kr09 (continued)

γ(^{176}Re) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
437.1	22	2127.5+x	(14,16)	1691.3+x	(12,14)		
437.4	101	1691.3+x	(12,14)	1253.9+x	(10,12)		
441.3[b]	442	1315.9	13^+	874.6	11^+	E2	R(DCO)=0.93 *5*.
457.2	118	1309.0+y	J+9	851.5+y	J+7	E2	R(DCO)=1.0 *1*.
458.8	54	852.9+x	(11^+)	394.5+x	(9^+)	E2	R(DCO)=0.9 *1*.
465.7	58	1268.4+x	(13^+)	803.6+x	(11^+)	E2	R(DCO)=1.07 *6*.
467.6[&]	6	1342.3	12^+	874.6	11^+		
469.8	176	1377.3+x	(15^-)	907.5+x	(13^-)	E2	R(DCO)=0.96 *5*.
475.2	235	1140.5+x	(14^-)	665.3+x	(12^-)	E2	R(DCO)=0.97 *5*.
479.9	23	1100.8+x	(12^+)	621.4+x	(10^+)	E2	R(DCO)=1.1 *2*.
497.3	138	1566.3+y	J+10	1068.8+y	J+8	E2	R(DCO)=1.0 *1*.
498.3	27	2390.6+x	(15,17)	1892.6+x	(13,15)		
500.5[a]	119	1842.8	14^+	1342.3	12^+	E2	R(DCO)=1.2 *2*.
504.1	41	1531.1+x	(14^+)	1027.8+x	(12^+)	E2	R(DCO)=1.07 *7*.
507.7	34	1360.2+x	(13^+)	852.9+x	(11^+)	E2	R(DCO)=0.9 *2*.
509.8[b]	414	1825.7	15^+	1315.9	13^+	E2	R(DCO)=0.98 *3*.
510.1	422	1577.3+x	(16^-)	1066.3+x	(14^-)	E2	R(DCO)=1.02 *6*.
526.7	284	1414.8+x	(15^-)	887.9+x	(13^-)	E2	R(DCO)=1.1 *1*.
529.6	29	1630.0+x	(14^+)	1100.8+x	(12^+)	E2	R(DCO)=1.1 *1*.
532.4	117	1841.3+y	J+11	1309.0+y	J+9	E2	R(DCO)=1.1 *1*.
533.2	52	1801.7+x	(15^+)	1268.4+x	(13^+)	E2	R(DCO)=0.99 *6*.
533.2[a]	52	2376.0	16^+	1842.8	14^+	E2	R(DCO)=0.99 *6*.
547.5	29	1907.3+x	(15^+)	1360.2+x	(13^+)	E2	R(DCO)=0.9 *1*.
551.8	23	2678.4+x	(16,18)	2127.5+x	(14,16)		
553.0[a]	118	2378.7	17^+	1825.7	15^+	E2	R(DCO)=1.1 *2*.
556.2	47	2087.7+x	(16^+)	1531.1+x	(14^+)	E2	R(DCO)=1.06 *6*.
558.4	154	1936.8+x	(17^-)	1377.3+x	(15^-)	E2	R(DCO)=0.96 *5*.
560.8	29	2190.8+x	(16^+)	1630.0+x	(14^+)		
565.8[b]	217	2944.5	19^+	2378.7	17^+	E2	R(DCO)=1.11 *7*.
566.0	103	2132.3+y	J+12	1566.3+y	J+10	E2	R(DCO)=0.97 *7*.
568.0	250	1709.0+x	(16^-)	1140.5+x	(14^-)	E2	R(DCO)=0.98 *4*.
571.6[g]	11	2762.4+x	(18^+)	2190.8+x	(16^+)		
577.3	26	2378.7+x	(17^+)	1801.7+x	(15^+)	E2	R(DCO)=1.2 *2*.
582.2	65	2423.3+y	J+13	1841.3+y	J+11	E2	R(DCO)=0.9 *1*.
597.2	35	2987.7+x	(17,19)	2390.6+x	(15,17)		
599.2	23	2686.9+x	(18^+)	2087.7+x	(16^+)		
600.8[b]	186	3545.3	21^+	2944.5	19^+	E2	R(DCO)=0.9 *1*.
603.7	193	2181.5+x	(18^-)	1577.3+x	(16^-)	E2	R(DCO)=1.0 *1*.
604.0[g]		2511.3+x	(17^+)	1907.3+x	(15^+)		
607.5	284	2022.4+x	(17^-)	1414.8+x	(15^-)	E2	R(DCO)=1.03 *6*.
617.5		2996.2+x	(19^+)	2378.7+x	(17^+)		
631.2		3318.1+x	(20^+)	2686.9+x	(18^+)		
635.3	116	2572.8+x	(19^-)	1936.8+x	(17^-)	E2	R(DCO)=1.01 *6*.
636.7	22	3315.5+x	(18,20)	2678.4+x	(16,18)		
638.7	262	2347.9+x	(18^-)	1709.0+x	(16^-)	E2	R(DCO)=1.02 *5*.
658.1		3654.3+x	(21^+)	2996.2+x	(19^+)		
661.6[b]	94	4206.9	23^+	3545.3	21^+	E2	R(DCO)=1.1 *1*.
667.4	20	3655.3+x	(19,21)	2987.7+x	(17,19)		
668.3	227	2690.7+x	(19^-)	2022.4+x	(17^-)	E2	R(DCO)=0.93 *8*.
687.3	146	2869.7+x	(20^-)	2181.5+x	(18^-)	E2	R(DCO)=1.04 *6*.
689.7	181	3037.5+x	(20^-)	2347.9+x	(18^-)	E2	R(DCO)=1.06 *5*.
703.7	51	3277.5+x	(21^-)	2572.8+x	(19^-)	E2	R(DCO)=1.01 *6*.
710.2	167	3401.0+x	(21^-)	2690.7+x	(19^-)	E2	R(DCO)=0.94 *8*.
710.4	9	4025.6+x	(20,22)	3315.5+x	(18,20)		

Continued on next page (footnotes at end of table)

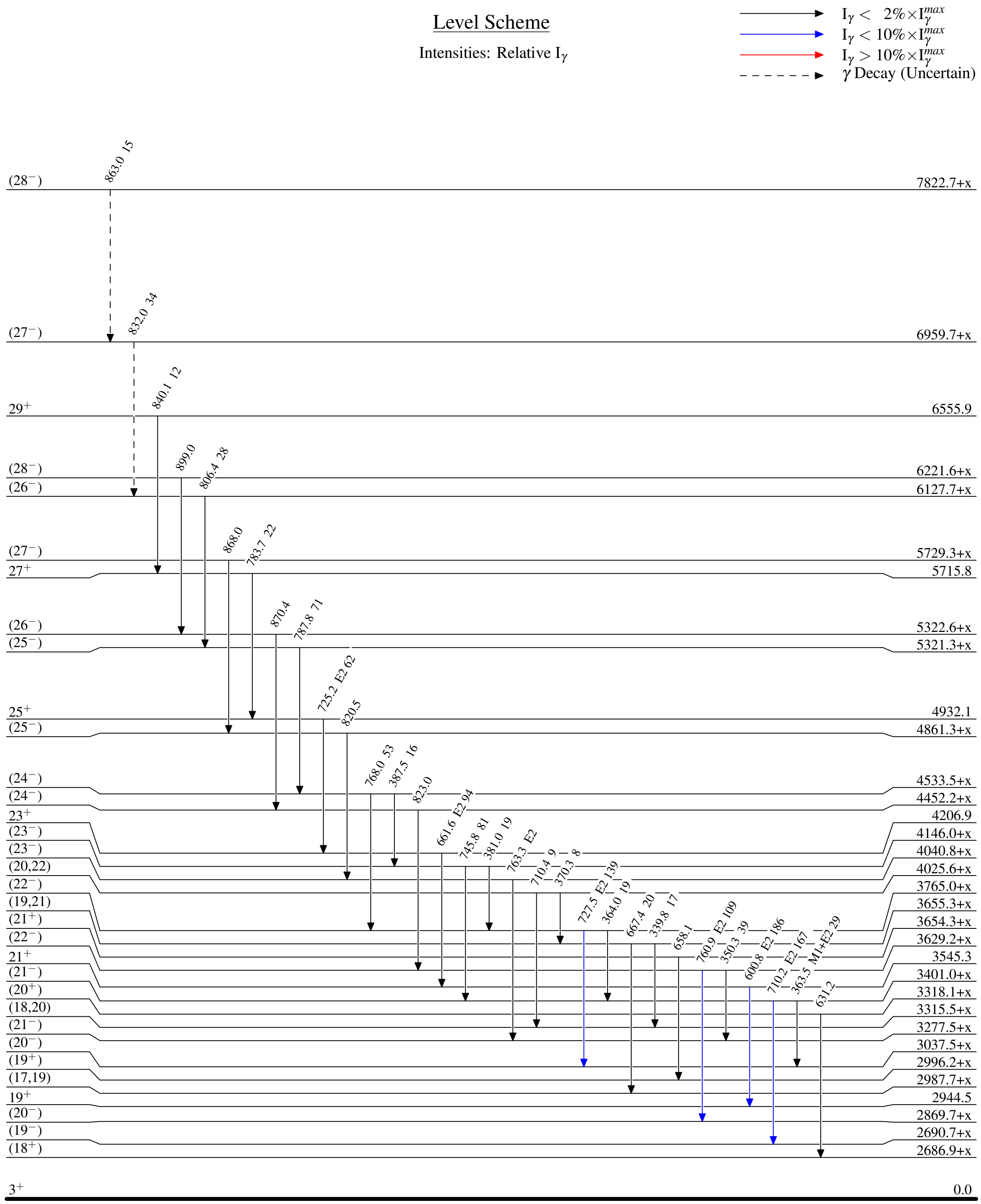
^{165}Ho(^{16}O,5nγ) 1999Ca08,1995Kr01,1994Kr09 (continued)

γ(^{176}Re) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	Comments
725.2[b]	62	4932.1	25$^+$	4206.9	23$^+$	E2	R(DCO)=1.0 *1*.
727.5	139	3765.0+x	(22$^-$)	3037.5+x	(20$^-$)	E2	R(DCO)=1.1 *1*.
745.8	81	4146.0+x	(23$^-$)	3401.0+x	(21$^-$)		
760.9	109	3629.2+x	(22$^-$)	2869.7+x	(20$^-$)	E2	R(DCO)=0.97 *7*.
763.3		4040.8+x	(23$^-$)	3277.5+x	(21$^-$)	E2	R(DCO)=0.95 *8*.
768.0	53	4533.5+x	(24$^-$)	3765.0+x	(22$^-$)		
783.7[b]	22	5715.8	27$^+$	4932.1	25$^+$		
786.2	125	1253.9+x	(10,12)	468.1+x	(11$^-$)	(M1+E2)	R(DCO)=0.48 *8*.
787.8	71	5321.3+x	(25$^-$)	4533.5+x	(24$^-$)		
803.8	81	1691.3+x	(12,14)	887.9+x	(13$^-$)	(M1+E2)	R(DCO)=0.5 *1*.
806.4	28	6127.7+x	(26$^-$)	5321.3+x	(25$^-$)		
820.5		4861.3+x	(25$^-$)	4040.8+x	(23$^-$)		
823.0		4452.2+x	(24$^-$)	3629.2+x	(22$^-$)		
832.0[g]	34	6959.7+x	(27$^-$)	6127.7+x	(26$^-$)		
840.1[b]	12	6555.9	29$^+$	5715.8	27$^+$		
863.0[g]	15	7822.7+x	(28$^-$)	6959.7+x	(27$^-$)		
868.0		5729.3+x	(27$^-$)	4861.3+x	(25$^-$)		
870.4		5322.6+x	(26$^-$)	4452.2+x	(24$^-$)		
899.0		6221.6+x	(28$^-$)	5322.6+x	(26$^-$)		
946.7	116	1253.9+x	(10,12)	307.2+x	(10$^-$)	(E2)	R(DCO)=1.1 *1*.
1026.4		1691.3+x	(12,14)	665.3+x	(12$^-$)	(E2)	R(DCO)=1.0 *1*.

[†] From 1999Ca08.
[‡] From 1999Ca08. Uncertainties between 0.1 and 0.3 keV.
[#] Assigned by evaluator based on DCO ratios, except otherwise noted.
[@] M1(E2) in 1999Ca08 are presented as M1+E2 by the evaluator.
[&] Transition from the unfavored, (α=0), into the favored, (α=1), sequence in band D, configuration: π(1/2[541])$\otimes\nu$1/2[521].
[a] Transitions in unfavored, (α=0), sequence in band D, configuration: π(1/2[541])$\otimes\nu$1/2[521].
[b] Transitions in favored, (α=1), sequence in band D, configuration: π(1/2[541])$\otimes\nu$1/2[521].
[c] Shown in the decay scheme, but not in the table (1999Ca08).
[d] Transition depopulating band A.
[e] From 1999Ca08.
[f] Multiply placed with intensity suitably divided.
[g] Placement of transition in the level scheme is uncertain.

^{165}Ho(^{16}O,5nγ) 1999Ca08,1995Kr01,1994Kr09



$^{176}_{75}Re_{101}$

$^{165}Ho(^{16}O,5n\gamma)$ 1999Ca08,1995Kr01,1994Kr09

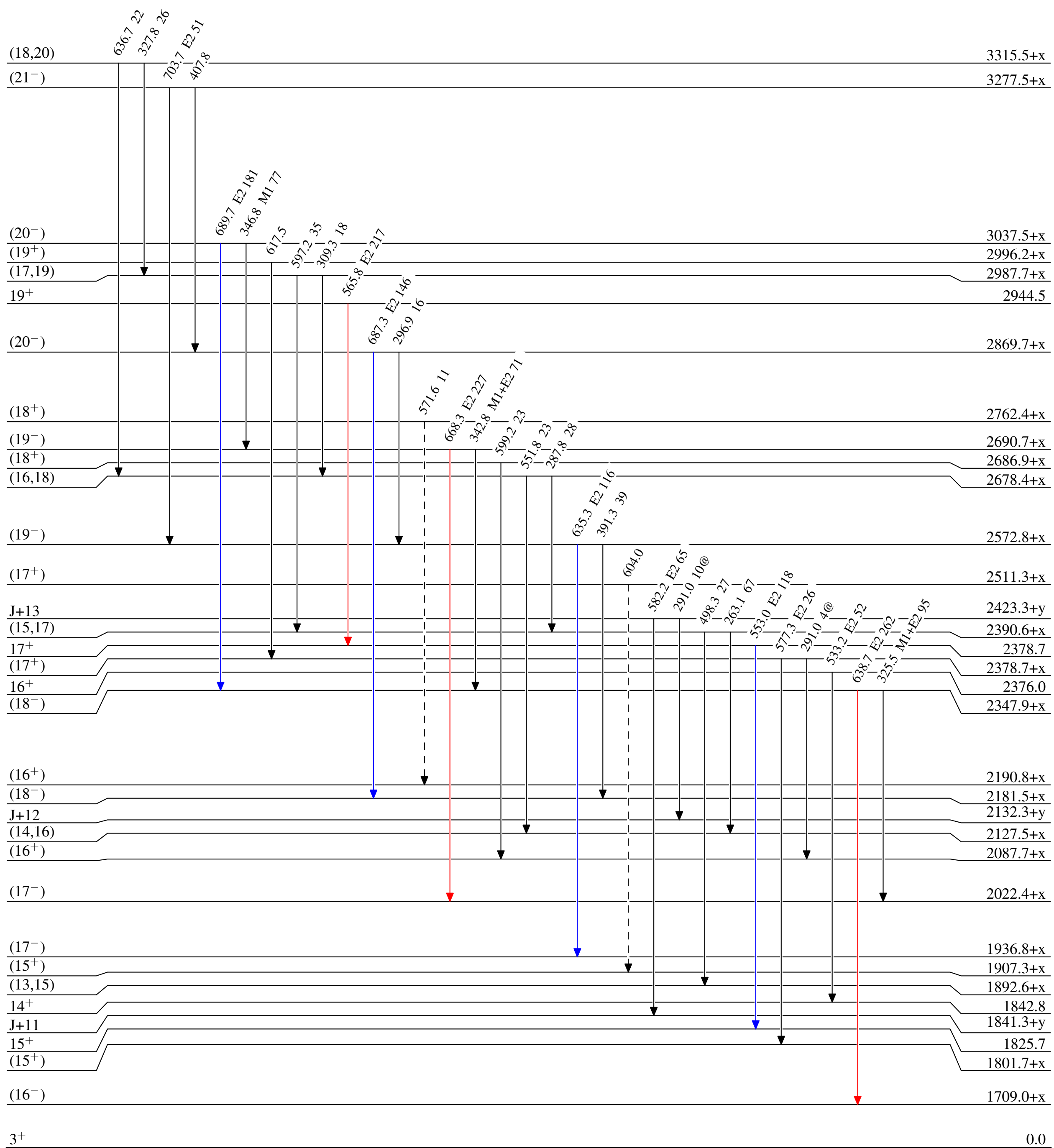
Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)

Level Scheme (continued)

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided



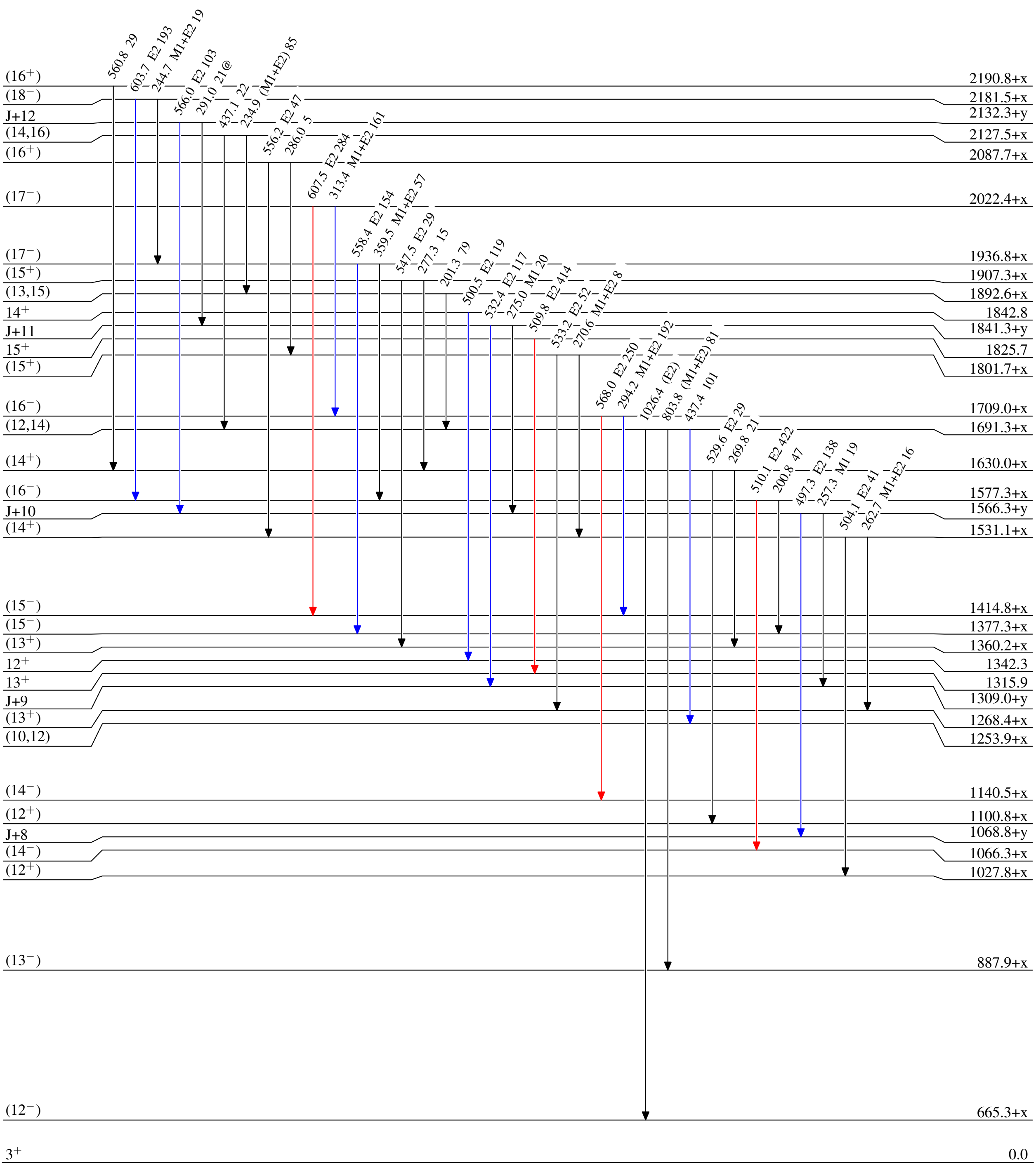
$^{176}_{75}Re_{101}$

^{165}Ho(^{16}O,5nγ) 1999Ca08,1995Kr01,1994Kr09

Level Scheme (continued)

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided



$^{176}_{75}Re_{101}$

$^{165}Ho(^{16}O,5n\gamma)$ 1999Ca08,1995Kr01,1994Kr09

Level Scheme (continued)

Intensities: Relative I_γ

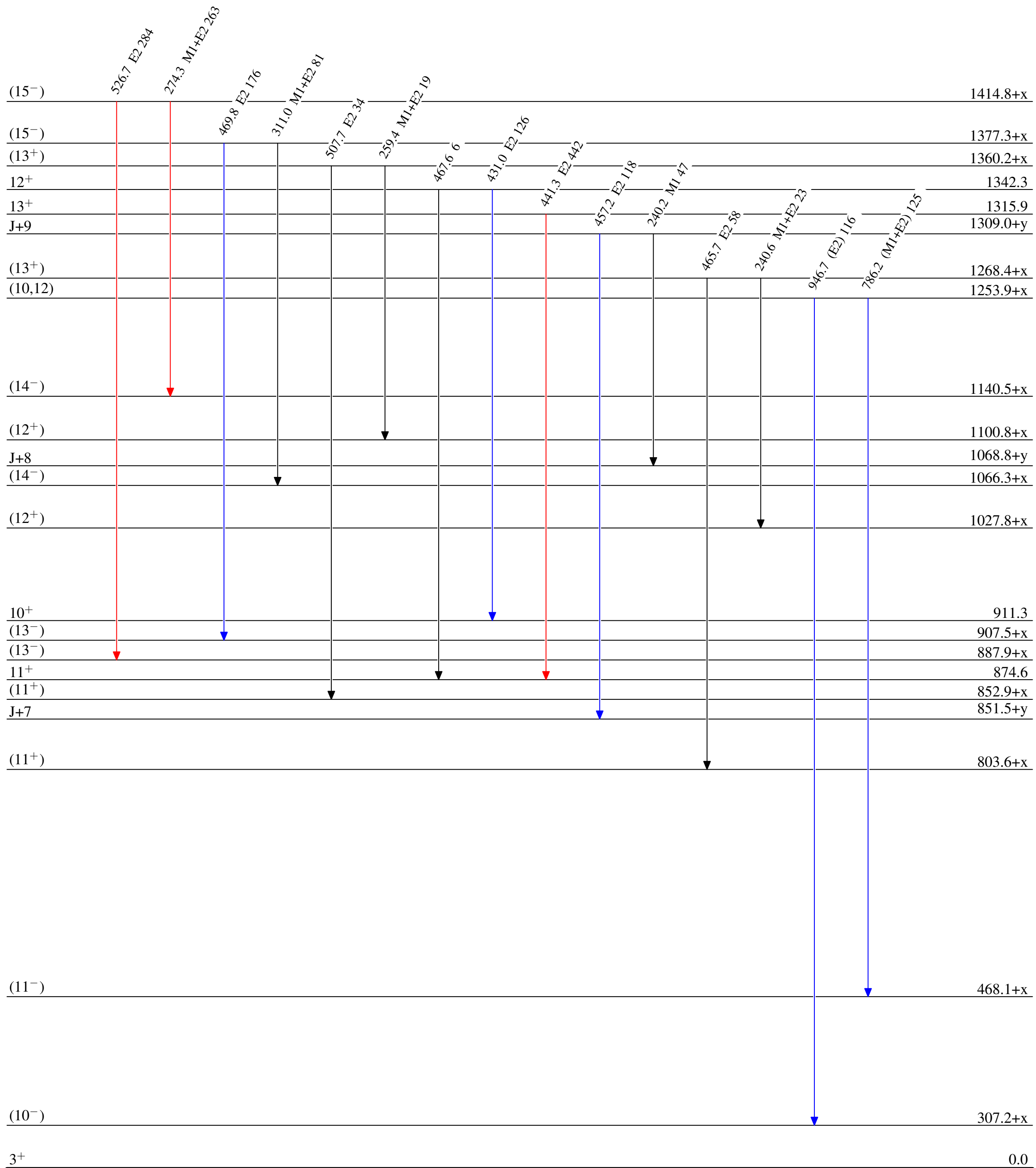
@ Multiply placed: intensity suitably divided

Legend

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

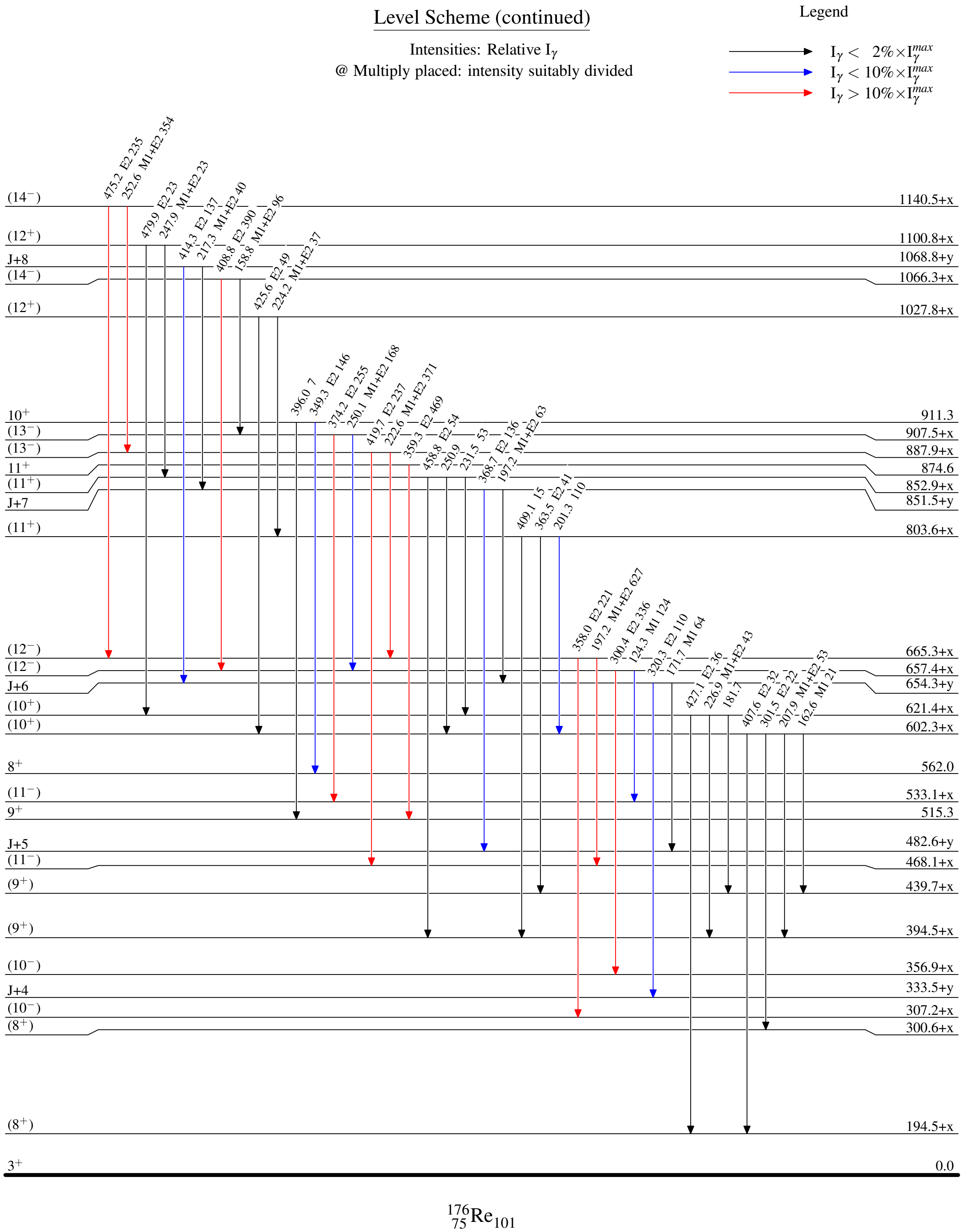
$I_\gamma < 10\% \times I_\gamma^{max}$

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



$^{176}_{75}Re_{101}$

^{165}Ho(^{16}O,5nγ) 1999Ca08,1995Kr01,1994Kr09



$^{165}Ho(^{16}O,5n\gamma)$ 1999Ca08,1995Kr01,1994Kr09

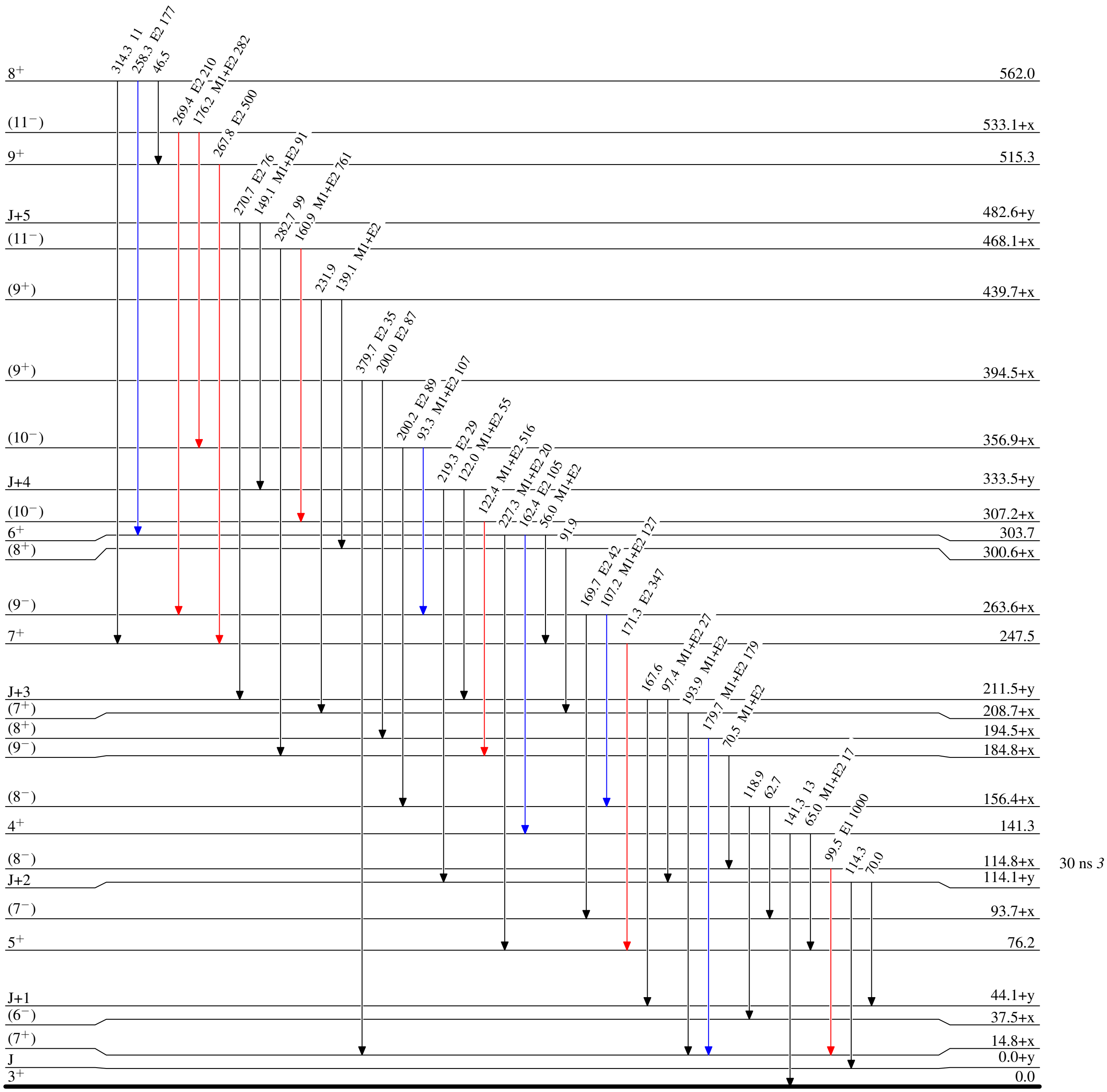
Level Scheme (continued)

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided

Legend

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



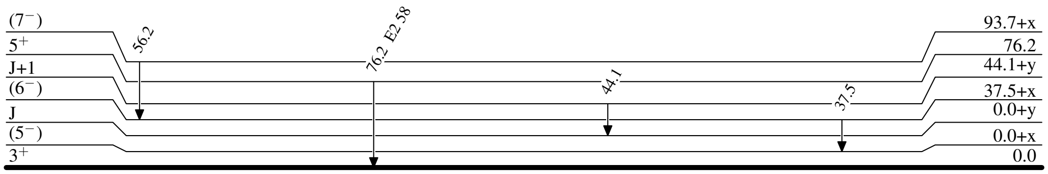
$^{176}_{75}Re_{101}$

^{165}Ho(^{16}O,5nγ) 1999Ca08,1995Kr01,1994Kr09

Level Scheme (continued)

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided



$^{176}_{75}Re_{101}$