Coulomb excitation 1997Ge07,2003Iw01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 194,460 (2024)	31-Oct-2022

1997Ge07: (^{209}Bi,^{209}Bi′γ) at E=5.4 MeV/nucleon. Measured Eγ, Iγ, and γγ using 8π spectrometer consisting of a BGO ball of 71 elements and 20 Compton-suppressed HPGe detectors.
2003Iw01 (also 2001Iw01): (^{20}Ne,^{20}Ne′γ) E=50 MeV; (^{40}Ar,^{40}Ar′γ) E=130 MeV; (^{16}O,^{16}O′γ) E=55 MeV. Measured Eγ, Iγ; deduced E2, M1 and diagonal matrix elements.
1985Si06: (p,p′) E=4.32 MeV. Measured Eγ, Iγ, γ(t), γ(θ).
Others:
(p,p′): 4.05 MeV (1958Ma36), 4.20 MeV (1960Be16), 17.5 MeV (1963Li11).
(d,d′): E=1.75 MeV (1956Hu49); 4.5 MeV (1960Ol02).
(α,α′): E=14.5 MeV (1983VaZU), 6 MeV (1955He64), 3.8 MeV (1970Ar02).
(^{10}B,^{10}B′γ): E=50 MeV (1971Al02): levels (and gammas) at 95, 209, 345 and 498.
(^{16}O,^{16}O′): E=54 MeV (1983VaZU), 60 MeV (1963Di09), 50 MeV (1967Se09), 55 MeV (1970WaZO).
(^{35}Cl,^{35}Cl′): 1970WaZO.
(^{58}Ni,^{58}Ni′γ): 250 MeV (2001SaZN). Measured lifetimes for g.s. members (M1 transitions: 115, 135, 154, 173, 190; E2 transitions: 250, 290, 328, 364 and 400).
γ: 1970Ar02, 1971Al02.
Lifetime of 95 level by microwave method: 1970Ar02.
ce: 1963Di09, magnetic spectrometer.
γ(θ): 1958Ma36, 1965As03.
Level scheme is from 1997Ge07.

^{165}Ho Levels

2003Iw01 give E2 and M1 matrix elements; the evaluators have deduced B(E2) values from (B(E2)=E2 matrix element)^2/(2J$_i$+1), where J$_i$=spin of the initial state.

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	Comments
0.0[#]	7/2⁻		Diagonal E2 matrix element=+5.0 *+6−3* (2003Iw01).
94.7[@] *3*	9/2⁻	23.6 ps *18*	B(E2)↑=2.42 *11* (2003Iw01) T$_{1/2}$: from B(E2)=2.42 *11* (2003Iw01). Other: 28.1 ps *24* (microwave method in (α,α′γ) (1970Ar02)). B(E2)↑: others: 2.30 *46* (1985Si06), 2.41 *7* (1960Ol02). E2 matrix element (from 7/2⁻,g.s.)=+4.4 *1* (2003Iw01). M1 matrix element (from 7/2⁻,g.s.)=+2.22 *4* (2003Iw01).
209.7[#] *3*	11/2⁻	12.7 ps *14*	B(E2)↑=0.64 *4* (2003Iw01) B(E2)↑: others: 0.62 *8* (1985Si06), 0.63 *4* (1960Ol02). B(E2) (from 9/2⁻,95)=2.6 *+2−7* (2003Iw01). T$_{1/2}$: from B(E2)=0.64 *4* and adopted branching ratio. E2 matrix element (from 7/2⁻,g.s.)=+2.26 *6* (2003Iw01). E2 matrix element (from 9/2⁻,95)=+5.1 *+2−7* (2003Iw01). M1 matrix element (from 9/2⁻,95)=+2.82 *+8−7* (2003Iw01).
344.9[@] *6*	13/2⁻	7.1 ps *15*	T$_{1/2}$: from B(E2)=1.16 *+4−7* from 95 and branching from the Adopted Gammas. B(E2) (from 9/2⁻,95)=1.16 *+4−7*, B(E2)(from 11/2⁻,210)=2.0 *3* (2003Iw01). E2 matrix element (from 9/2⁻,95)=+3.41 *+6−11* (2003Iw01). E2 matrix element (from 11/2⁻,210)=+4.9 *3* (2003Iw01). M1 matrix element (from 11/2⁻,210)=+4.00 *+7−11* (2003Iw01).
361.2[b] *5*	3/2⁺		
419.91[c] *10*	5/2⁺		
449.11[f] *5*	3/2⁺		

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Coulomb excitation 1997Ge07,2003Iw01 (continued)

^{165}Ho Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	Comments
491.1[b] *9*	7/2+		
499.4[#] *7*	15/2−	4.3 ps *9*	$T_{1/2}$: from B(E2)=1.84 *8* and branching from the Adopted Gammas. B(E2) (from 11/2−,210)=1.84 *8*, B(E2) (from 13/2−,345)=2.2 *+4−5* (2003Iw01). E2 matrix element (from 11/2−,210)=+4.7 *1* (2003Iw01). E2 matrix element (from 13/2−,345)=+5.5 *+5−6* (2003Iw01). M1 matrix element (from 13/2−,345)=+5.1 *+3−2* (2003Iw01).
515.3[a] *5*	3/2−	10.4 ps *11*	B(E2)↑=0.061 *6* (2003Iw01) B(E2)↑: others: 0.0289 *35* (1963Di09), B(E2)=0.044 *5* (1967Se09), 0.030 *3* (1985Si06). $T_{1/2}$: from B(E2)=0.061 *6* and branching from the Adopted Gammas. E2 matrix element (from 7/2−,g.s.)=+0.70 *3* (2003Iw01). Diagonal E2 matrix element=+2.0 *+3−8* (2003Iw01).
566.8[a] *5*	5/2−	27 ps *10*	B(E2)↑=0.008 *+3−2* (2003Iw01) B(E2)↑: others: 0.014 *2* (1963Di09) and 0.021 *2* (1967Se09), 0.013 *2* in 1985Si06. B(E2)(from 9/2−,95)=0.018 *+5−3*; B(E2)(from 3/2−,516)=3.2 *+12−14* (2003Iw01). $T_{1/2}$: from B(E2)=0.018 *+5−3* and branching from the Adopted Gammas. E2 matrix element (from 7/2−,g.s.)=−0.25 *+4−3* (2003Iw01). E2 matrix element (from 9/2−,95)=+0.43 *+5−3* (2003Iw01). E2 matrix element (from 3/2−,516)=+3.6 *+6−9* (2003Iw01). M1 matrix element (from 7/2−,g.s.)=+0.12 *+2−2* (2003Iw01).
590.11[f] *10*	7/2+		
601.6[c] *9*	9/2+		
638.5[a] *6*	7/2−		B(E2)↑=0.015 *+8−4* (2003Iw01) B(E2) (from 9/2−,95)=0.016 *+20−12* (2003Iw01). $T_{1/2}$: B(E2) values and γ branchings are not known well to deduce half-life. E2 matrix element (from 7/2−,g.s.)=−0.35 *+8−4* (2003Iw01). E2 matrix element (from 9/2−,95)=+0.4 *2* (2003Iw01). M1 matrix element (from 7/2−,g.s.)=−2.0 *+2−5* (2003Iw01). M1 matrix element (from 9/2−,95)=+1.2 *+2−3* (2003Iw01).
673.0[@] *7*	17/2−	2.7 ps *6*	B(E2)(from 13/2−,345)=1.79 *+21−15*; B(E2)(from 15/2−,499)=1.6 *+14−6* (2003Iw01). $T_{1/2}$: from B(E2)=1.79 *+21−15* and branching from the Adopted Gammas. E2 matrix element (from 13/2−,345)=+5.0 *+3−2* (2003Iw01). E2 matrix element (from 15/2−,499)=+5.0 *+19−9* (2003Iw01). M1 matrix element (from 15/2−,499)=+4.4 *+4−2* (2003Iw01).
688.8[&] *7*	11/2−	4.6 ps *4*	B(E2)↑=0.092 *+5−7* (2003Iw01) B(E2)=0.040 *4* (1985Si06), 0.042 *5* (1963Di09) and B(E2)=0.073 *7* (1967Se09). $T_{1/2}$: from B(E2)=0.092 *+5−7* and branching from the Adopted Gammas. B(E2) (from 9/2−,95)=0.038 *+4−3*; B(E2)(from 15/2−,499)=0.05 *4* (2003Iw01). E2 matrix element (from 7/2−,g.s.)=+0.86 *+2−3* (2003Iw01). E2 matrix element (from 9/2−,95)=−0.62 *+3−2* (2003Iw01). E2 matrix element (from 15/2−,499)=−0.9 *+3−4* (2003Iw01). M1 matrix element (from 11/2−,210)=−0.16 *+2−2* (2003Iw01). Diagonal E2 matrix element=+4.1 *+4−8* (2003Iw01).
703.8[b] *8*	11/2+		
730.9[a] *6*	9/2−		B(E2)(from 5/2−,567)=2.5 *+45−7* (2003Iw01). E2 matrix element (from 5/2−,567)=+3.9 *+26−6* (2003Iw01).
819.8[&] *7*	13/2−		B(E2)(from 9/2−,95)=0.23 *3*; B(E2)(from 11/2−,699)=0.9 *+9−5* (2003Iw01). E2 matrix element (from 9/2−,95)=+1.50 *+8−9* (2003Iw01). E2 matrix element (from 11/2−,689)=+3.2 *+13−10* (2003Iw01). M1 matrix element (from 11/2−,210)=+2.8 *+6−5* (2003Iw01).
827.2[f] *7*	11/2+		
841.8[a] *6*	11/2−		
863.3[#] *7*	19/2−		B(E2)(from 15/2−,499)=3.3 *+7−3* (2003Iw01). E2 matrix element (from 15/2−,499)=+7.3 *+7−3* (2003Iw01).

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Coulomb excitation 1997Ge07,2003Iw01 (continued)

^{165}Ho Levels (continued)

E(level)[†]	Jπ[‡]	Comments
		M1 matrix element (from 17/2⁻,673)=+4.1 +*8*−*3* (2003Iw01).
870.9[c] *9*	13/2⁺	
968.7[&] *7*	15/2⁻	
971.9[a] *7*	13/2⁻	
986.1[d] *9*	(13/2)	
997.8[b] *8*	15/2⁺	
1072.9[@] *8*	21/2⁻	B(E2)(from 17/2⁻,673)=2.0 +*4*−*5* (2003Iw01). E2 matrix element (from 17/2⁻,673)=+6.0 +*6*−*7* (2003Iw01). M1 matrix element (from 19/2⁻,863)=+5.6 +*8*−*14* (2003Iw01).
1122.5[a] *7*	15/2⁻	
1136.7[&] *7*	17/2⁻	
1152.2[f] *14*	15/2⁺	
1170.0[e] *10*	(15/2)	
1221.4[c] *10*	17/2⁺	
1247.3[d] *10*	(17/2)	
1292.2[a] *7*	17/2⁻	
1295.2[#] *8*	23/2⁻	
1321.5[&] *7*	19/2⁻	
1368.0[b] *9*	19/2⁺	
1475.7[e] *11*	(19/2)	
1476.2[a] *8*	19/2⁻	
1523.3[&] *8*	21/2⁻	
1536.7[@] *9*	25/2⁻	
1554.2[f] *17*	19/2⁺	
1591.3[d] *14*	(21/2)	
1643.8[c] *10*	21/2⁺	
1679.3[a] *8*	21/2⁻	
1740.4[&] *8*	23/2⁻	
1786.1[#] *10*	27/2⁻	
1807.9[b] *10*	23/2⁺	
1863.7[e] *15*	(23/2)	
1896.3[a] *9*	23/2⁻	
1972.3[&] *9*	25/2⁻	
2011.3[d] *17*	(25/2)	
2056.2[@] *11*	29/2⁻	
2128.8[c] *15*	25/2⁺	
2130.5[a] *9*	25/2⁻	
2218.5[&] *9*	27/2⁻	
2309.3[b] *12*	27/2⁺	
2328.1[#] *12*	31/2⁻	
2377.2[a] *10*	27/2⁻	
2477.3[&] *11*	29/2⁻	
2502.3[d] *20*	(29/2)	
2623.0[@] *12*	33/2⁻	
2638.8[a] *10*	29/2⁻	
2667.8[c] *18*	29/2⁺	

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Coulomb excitation 1997Ge07,2003Iw01 (continued)

^{165}Ho Levels (continued)

E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]
2748.5[&] *12*	31/2−	2912.2[#] *14*	35/2−	3229.6[@] *12*	37/2−
2864.3[b] *15*	31/2+	3030.1[&] *13*	33/2−	3321.3[&] *14*	35/2−
2911.3[a] *11*	31/2−	3199.5[a] *12*	33/2−	3529.4[#] *14*	39/2−
				3619.1[&] *16*	37/2−

[†] From least-squares fit to Eγ data.
[‡] As proposed by 1997Ge07. All assignments are consistent with those in the Adopted Levels, except that some are given in parentheses in the Adopted Levels when strong arguments are lacking.
[#] Band(A): π7/2[523], α=−1/2. Relative population intensity=100%.
[@] Band(a): π7/2[523], α=+1/2. Relative population intensity=94% *6*.
[&] Band(B): K^{π}=11/2− band, K+2 γ vibration built on 7/2[523]. Relative population intensity=8.3% *7* for α=−1/2 signature and 9.8% *7* for α=+1/2 signature.
[a] Band(C): K^{π}=3/2− band, K-2 γ vibration built on 7/2[523]. Relative population intensity=8.5% *6*.
[b] Band(D): π3/2[411], α=−1/2. Relative population intensity=4.4% *4*.
[c] Band(d): π3/2[411], α=+1/2. Relative population intensity=3.9% *4*.
[d] Band(E): Band based on (13/2), α=+1/2. Relative population intensity=2.1% *2*.
[e] Band(e): Band based on (15/2), α=−1/2. Relative population intensity=0.62% *8*.
[f] Band(F): π1/2[411], α=−1/2. Relative population intensity=1.8% *2*. The α=+1/2 signature is not populated in Coulomb excitation.

γ(^{165}Ho)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.[#]	δ[@]	α[a]	Comments
94.7	9/2−	94.7 *3*		0.0	7/2−	M1+E2	+0.160 *5*	3.06 *5*	δ: weighted average of 0.168 *9* from ^{165}Dy β^- decay (2.334 h) and +0.157 *5* from E2 and M1 matrix elements from 2003Iw01. Other: 0.17 *4* from αγ(θ) (1965As03). A_2=+0.008 *26* (1965As03), +0.007 *7* (1958Ma36).
209.7	11/2−	115.1 *3*	893 *48*	94.7	9/2−	M1+E2	+0.17 *+1−3*	1.744 *28*	I_γ: from 1966Bo16. Others: 940 *66* (1970WaZO), 730 *73* (1967Se09), 900 (1985Si06). Mult.: A_2=+0.016 *21* (1985Si06), +0.012 *24* (1965As03). δ: others: +0.18 *3* (1985Si06), +0.17 *3* (1965As03), +0.20 *5* (1958Ma36) from γ(θ).
		209.7 *3*	100	0.0	7/2−	E2		0.208 *3*	A_2=+0.283 *10* (1985Si06) B(E2)(W.u.)=78 *6*
344.9	13/2−	135.2 *1*	410 *31*	209.7	11/2−	[M1+E2]	+0.138 *9*	1.102 *16*	I_γ: weighted average of 400 *80* (1966Bo16), 366 *37* (1967Se09), 442 *31* (1970WaZO).
		250.1 *3*	100	94.7	9/2−	[E2]		0.1177 *17*	E_γ: from 1967Se09.
361.2	3/2+	361.2		0.0	7/2−				
491.1	7/2+	71		419.91	5/2+				
		129[b]		361.2	3/2+				
499.4	15/2−	154.3 *2*	280 *40*	344.9	13/2−	[M1+E2]	+0.139 *13*	0.758 *11*	I_γ: weighted average of 230 *39* (1967Se09) and 332 *25* (1970WaZO).
		289.3 *3*	100	209.7	11/2−	[E2]		0.0746 *11*	
515.3	3/2−	95.6		419.91	5/2+				
		153.8		361.2	3/2+				
		515.5		0.0	7/2−	[E2]		0.0146 *2*	A_2=+0.231 *16* (1985Si06)
566.8	5/2−	472.1 *3*	57 *4*	94.7	9/2−				A_2=+0.21 *4* (1985Si06) I_γ: weighted average of 61 *8* (1967Se09) and 56 *4* (1970WaZO). Other: 50 (1985Si06).
		566.9 *5*	100	0.0	7/2−	M1+E2	−1.0 *2*	0.0174 *13*	Mult.: α(K)exp=0.0096 from adopted branching, ce(K)-ratio (1963Di09) and α(K)(E2)=0.015 for 472γ. δ: Other: −0.09 *5* from A_2=−0.167 *17* (1985Si06) is in severe disagreement.
590.11	7/2+	99		491.1	7/2+				
		141		449.11	3/2+				
		170		419.91	5/2+				
601.6	9/2+	110		491.1	7/2+				
		182		419.91	5/2+				
638.5	7/2−	71		566.8	5/2−				
		428 *1*	85	209.7	11/2−	[E2]		0.0239 *4*	A_2=+0.24 *7* (1985Si06) I_γ: from 1985Si06.
		544.0 *5*	100	94.7	9/2−	[M1+E2]	+0.15 *+15−9*	0.0257 *9*	δ: other: −0.35 *17* from A_2=−0.07 *4* (1985Si06).
		≈638		0.0	7/2−	[M1+E2]	+0.09 *+6−2*	0.0173 *3*	I_γ: ce(K)(428γ):ce(K)(544γ):ce(K)(638γ)=11 *5*:13 *4*:≈8 (1963Di09). Theoretical α for assumed Δ(Eγ)=2 keV.

From ENSDF

$^{165}_{67}$Ho$_{98}$-5

Coulomb excitation 1997Ge07,2003Iw01 (continued)

γ(^{165}Ho) (continued)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[‡]	E_f	J^{π}_f	Mult.[#]	δ[@]	α[a]	Comments
673.0	17/2$^-$	173.5 *2*	180 *30*	499.4	15/2$^-$	[M1+E2]	+0.17 *+7−5*	0.544 *9*	I_{γ}: weighted average of 140 *40* (1967Se09) and 220 *22* (1970WaZO).
		327.9 *3*	100	344.9	13/2$^-$	[E2]		0.0511 *7*	
688.8	11/2$^-$	478.5 *5*	3.9 *7*	209.7	11/2$^-$	M1+E2	≥0.74	0.024 *6*	Mult.,δ: α(K)exp=0.015 *6* deduced from branching(γ), branching(ce) and α(K)(689γ) for E2.
		593.8 *5*	25.0 *22*	94.7	9/2$^-$	M1+E2	+0.073 *23*	0.0207 *3*	δ: from A_2=−0.062 *22* (1985Si06). I_{γ}: 0.266 in 1985Si06. Mult.: α(K)exp=0.0095 *24* deduced from γ-branching, ce-branching, and α(K)(689γ) for E2.
		688.6 *5*	100	0.0	7/2$^-$	[E2]		0.0072 *1*	A_2=+0.270 *23* (1985Si06) I_{γ}: ce(K)(478.5γ):ce(K)(593.8γ):ce(K)(688.6γ)=11 *4*:45 *9*:112 *12* (1963Di09).
703.8	11/2$^+$	102		601.6	9/2$^+$				
		213		491.1	7/2$^+$				
730.9	9/2$^-$	92		638.5	7/2$^-$				
		164		566.8	5/2$^-$				
		240		491.1	7/2$^+$				
		521		209.7	11/2$^-$				
		636		94.7	9/2$^-$				
		731		0.0	7/2$^-$				
819.8	13/2$^-$	131		688.8	11/2$^-$				
		475		344.9	13/2$^-$				
		≈610		209.7	11/2$^-$				
		725	&	94.7	9/2$^-$				
827.2	11/2$^+$	226		601.6	9/2$^+$				
		237		590.11	7/2$^+$				
841.8	11/2$^-$	111		730.9	9/2$^-$				
		203		638.5	7/2$^-$				
		497		344.9	13/2$^-$				
		632		209.7	11/2$^-$				
		747		94.7	9/2$^-$				
863.3	19/2$^-$	190.5 *3*		673.0	17/2$^-$				
		364		499.4	15/2$^-$				
870.9	13/2$^+$	167		703.8	11/2$^+$				
		269		601.6	9/2$^+$				
968.7	15/2$^-$	149		819.8	13/2$^-$				
		280		688.8	11/2$^-$				
		469		499.4	15/2$^-$				
		624		344.9	13/2$^-$				
		759		209.7	11/2$^-$				
971.9	13/2$^-$	130		841.8	11/2$^-$				

From ENSDF

$\gamma(^{165}Ho)$ (continued)

E_i(level)	J^π_i	E_γ†	E_f	J^π_f	E_i(level)	J^π_i	E_γ†	E_f	J^π_f	E_i(level)	J^π_i	E_γ†	E_f	J^π_f
971.9	$13/2^-$	241	730.9	$9/2^-$	1368.0	$19/2^+$	370	997.8	$15/2^+$	2011.3	(25/2)	420	1591.3	(21/2)
		268	703.8	$11/2^+$	1475.7	(19/2)	306	1170.0	(15/2)	2056.2	$29/2^-$	270	1786.1	$27/2^-$
		473	499.4	$15/2^-$	1476.2	$19/2^-$	184	1292.2	$17/2^-$			520	1536.7	$25/2^-$
		627	344.9	$13/2^-$			354	1122.5	$15/2^-$	2128.8	$25/2^+$	485	1643.8	$21/2^+$
		762	209.7	$11/2^-$			403	1072.9	$21/2^-$	2130.5	$25/2^-$	234	1896.3	$23/2^-$
986.1	(13/2)	144	841.8	$11/2^-$			613	863.3	$19/2^-$			323	1807.9	$23/2^+$
		159	827.2	$11/2^+$			803	673.0	$17/2^-$			451	1679.3	$21/2^-$
997.8	$15/2^+$	127	870.9	$13/2^+$	1523.3	$21/2^-$	202	1321.5	$19/2^-$			594	1536.7	$25/2^-$
		294	703.8	$11/2^+$			387	1136.7	$17/2^-$			835	1295.2	$23/2^-$
1072.9	$21/2^-$	209	863.3	$19/2^-$			450	1072.9	$21/2^-$	2218.5	$27/2^-$	246	1972.3	$25/2^-$
		400	673.0	$17/2^-$			660	863.3	$19/2^-$			478	1740.4	$23/2^-$
1122.5	$15/2^-$	151	971.9	$13/2^-$			850	673.0	$17/2^-$			682	1536.7	$25/2^-$
		281	841.8	$11/2^-$	1536.7	$25/2^-$	242	1295.2	$23/2^-$	2309.3	$27/2^+$	501	1807.9	$23/2^+$
		450	673.0	$17/2^-$			464	1072.9	$21/2^-$	2328.1	$31/2^-$	272	2056.2	$29/2^-$
		623	499.4	$15/2^-$	1554.2	$19/2^+$	402	1152.2	$15/2^+$			542	1786.1	$27/2^-$
		777	344.9	$13/2^-$	1591.3	(21/2)	344	1247.3	(17/2)	2377.2	$27/2^-$	247	2130.5	$25/2^-$
1136.7	$17/2^-$	168	968.7	$15/2^-$	1643.8	$21/2^+$	276	1368.0	$19/2^+$			481	1896.3	$23/2^-$
		317	819.8	$13/2^-$			422	1221.4	$17/2^+$	2477.3	$29/2^-$	259	2218.5	$27/2^-$
		464	673.0	$17/2^-$	1679.3	$21/2^-$	203	1476.2	$19/2^-$			505	1972.3	$25/2^-$
		637	499.4	$15/2^-$			311	1368.0	$19/2^+$	2502.3	(29/2)	491	2011.3	(25/2)
		792	344.9	$13/2^-$			384	1295.2	$23/2^-$	2623.0	$33/2^-$	295	2328.1	$31/2^-$
1152.2	$15/2^+$	325	827.2	$11/2^+$			387	1292.2	$17/2^-$			567	2056.2	$29/2^-$
1170.0	(15/2)	184	986.1	(13/2)			607	1072.9	$21/2^-$	2638.8	$29/2^-$	262	2377.2	$27/2^-$
1221.4	$17/2^+$	224	997.8	$15/2^+$			816	863.3	$19/2^-$			329	2309.3	$27/2^+$
		350	870.9	$13/2^+$	1740.4	$23/2^-$	217	1523.3	$21/2^-$			508	2130.5	$25/2^-$
1247.3	(17/2)	77	1170.0	(15/2)			419	1321.5	$19/2^-$	2667.8	$29/2^+$	539	2128.8	$25/2^+$
		250	997.8	$15/2^+$			445	1295.2	$23/2^-$	2748.5	$31/2^-$	271	2477.3	$29/2^-$
		261	986.1	(13/2)			668	1072.9	$21/2^-$			530	2218.5	$27/2^-$
1292.2	$17/2^-$	170	1122.5	$15/2^-$			877	863.3	$19/2^-$	2864.3	$31/2^+$	555	2309.3	$27/2^+$
		294	997.8	$15/2^+$	1786.1	$27/2^-$	249	1536.7	$25/2^-$	2911.3	$31/2^-$	273	2638.8	$29/2^-$
		320	971.9	$13/2^-$			491	1295.2	$23/2^-$			534	2377.2	$27/2^-$
		429	863.3	$19/2^-$	1807.9	$23/2^+$	164	1643.8	$21/2^+$	2912.2	$35/2^-$	289	2623.0	$33/2^-$
		619	673.0	$17/2^-$			440	1368.0	$19/2^+$			584	2328.1	$31/2^-$
		793	499.4	$15/2^-$	1863.7	(23/2)	388	1475.7	(19/2)	3030.1	$33/2^-$	281	2748.5	$31/2^-$
1295.2	$23/2^-$	222	1072.9	$21/2^-$	1896.3	$23/2^-$	217	1679.3	$21/2^-$			553	2477.3	$29/2^-$
		432	863.3	$19/2^-$			421	1476.2	$19/2^-$	3199.5	$33/2^-$	289	2911.3	$31/2^-$
1321.5	$19/2^-$	185	1136.7	$17/2^-$			601	1295.2	$23/2^-$			560	2638.8	$29/2^-$
		353	968.7	$15/2^-$			823	1072.9	$21/2^-$	3229.6	$37/2^-$	318	2912.2	$35/2^-$
		458	863.3	$19/2^-$	1972.3	$25/2^-$	232	1740.4	$23/2^-$			607	2623.0	$33/2^-$
		649	673.0	$17/2^-$			449	1523.3	$21/2^-$	3321.3	$35/2^-$	291	3030.1	$33/2^-$
		822	499.4	$15/2^-$			677	1295.2	$23/2^-$			573	2748.5	$31/2^-$
1368.0	$19/2^+$	147	1221.4	$17/2^+$			899	1072.9	$21/2^-$	3529.4	$39/2^-$	300	3229.6	$37/2^-$

γ(^{165}Ho) (continued)

E_i(level)	J^π_i	E_γ[†]	E_f	J^π_f
3529.4	39/2⁻	617	2912.2	35/2⁻
3619.1	37/2⁻	589	3030.1	33/2⁻

† From 1997Ge07.
‡ Relative branching ratios (1985Si06).
# From the Adopted Gammas, when stated.
@ Deduced by evaluators from E2 and M1 matrix elements of 2003Iw01, unless noted otherwise.
& ce(K)(725γ):ce(K)(688γ)=≈5:112 (1963Di09).
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.
x γ ray not placed in level scheme.

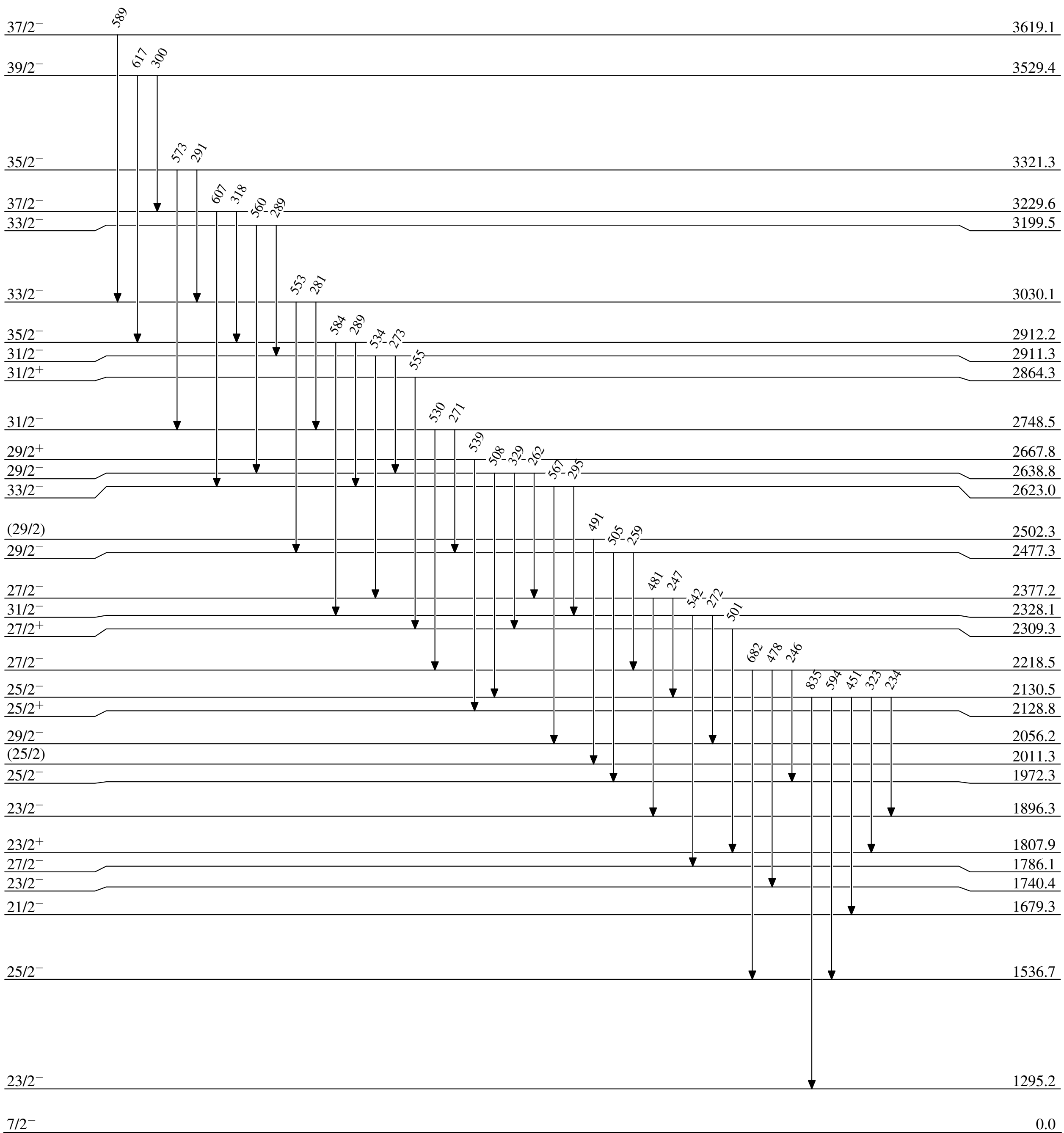
From ENSDF

$^{165}_{67}Ho_{98}$-8

Coulomb excitation 1997Ge07,2003Iw01

Level Scheme

Intensities: Relative photon branching from each level

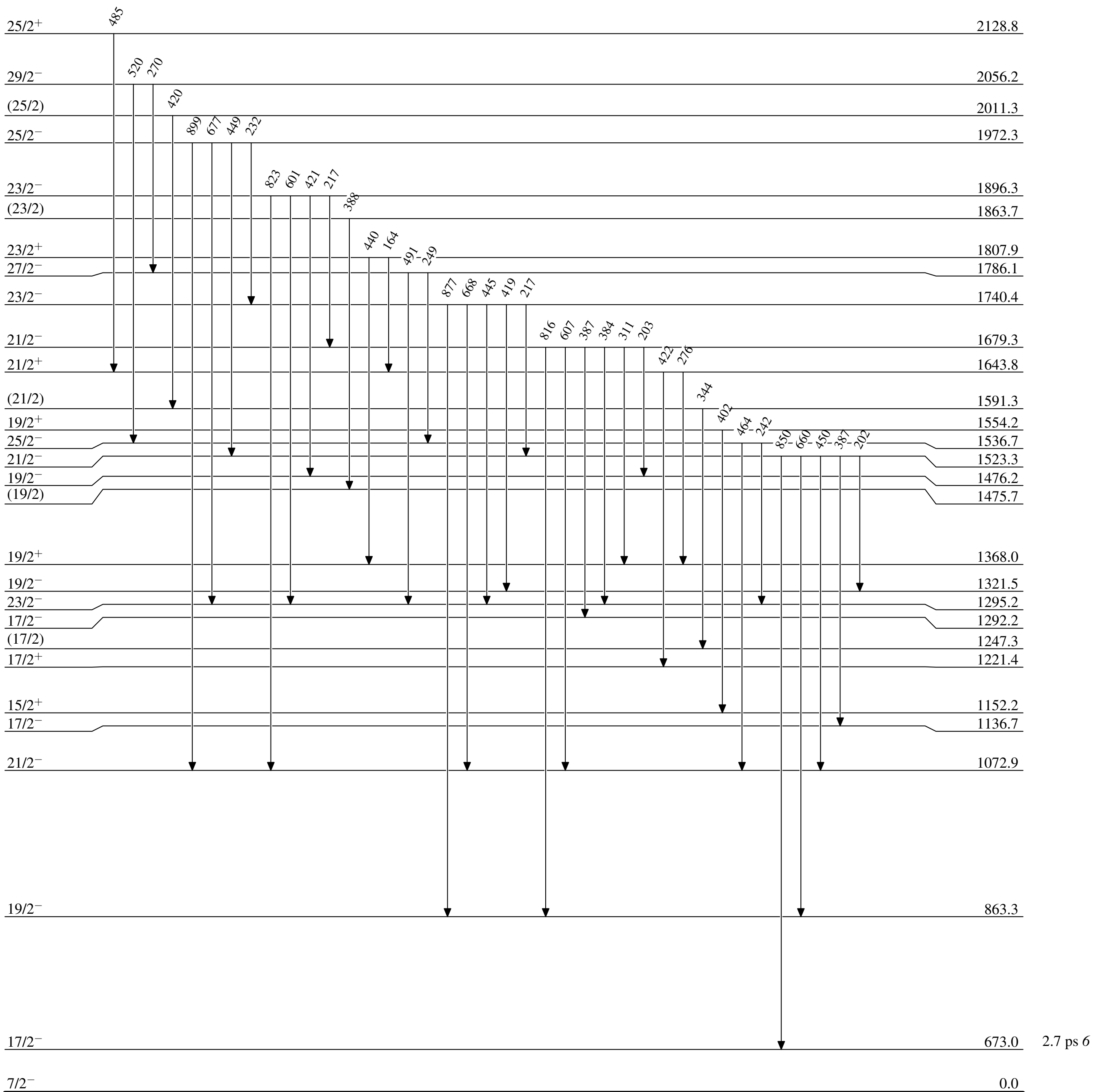


$^{165}_{67}Ho_{98}$

Coulomb excitation 1997Ge07,2003Iw01

Level Scheme (continued)

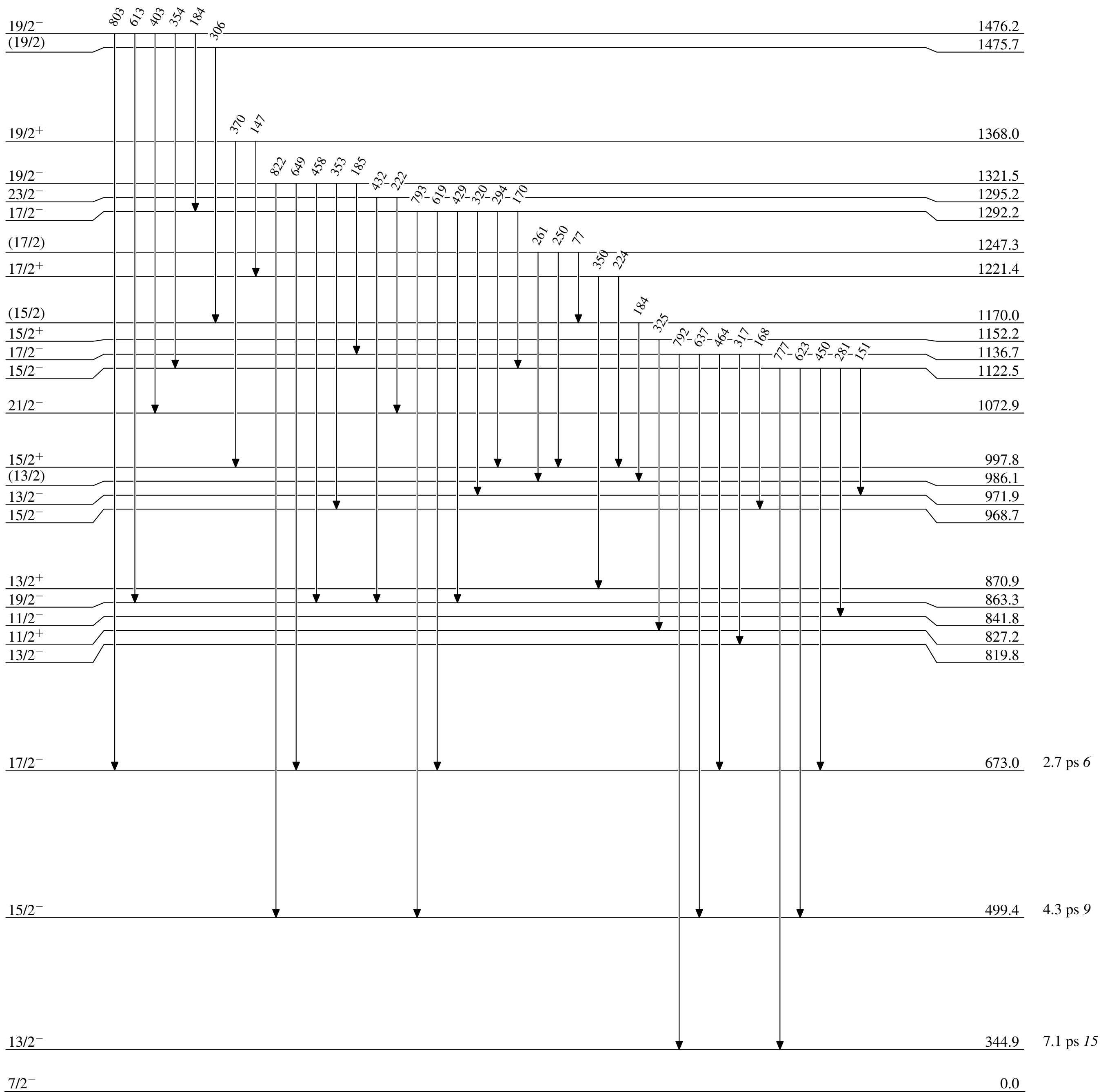
Intensities: Relative photon branching from each level



Coulomb excitation 1997Ge07,2003Iw01

Level Scheme (continued)

Intensities: Relative photon branching from each level

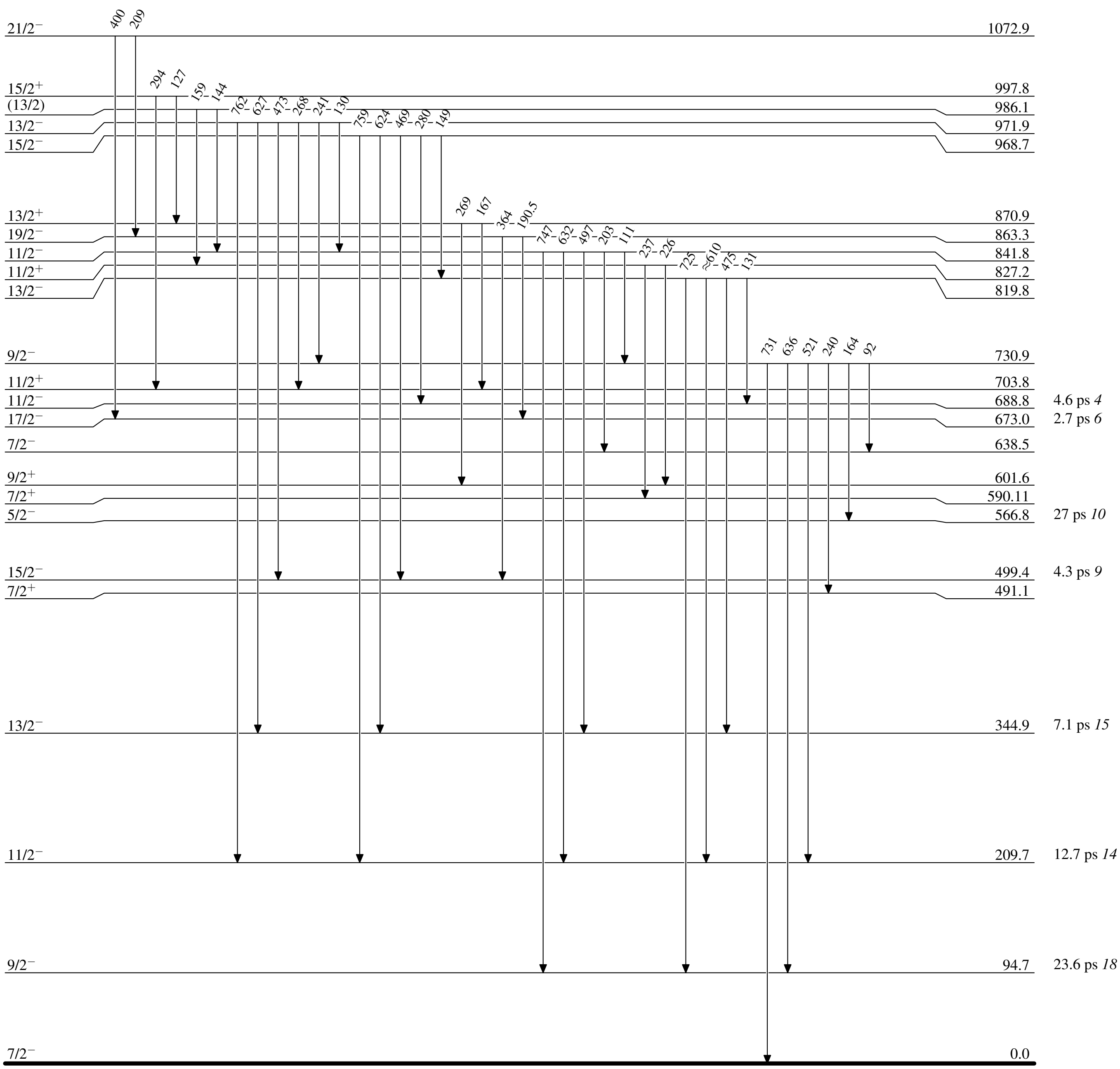


$^{165}_{67}Ho_{98}$

Coulomb excitation 1997Ge07,2003Iw01

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{165}_{67}Ho_{98}$

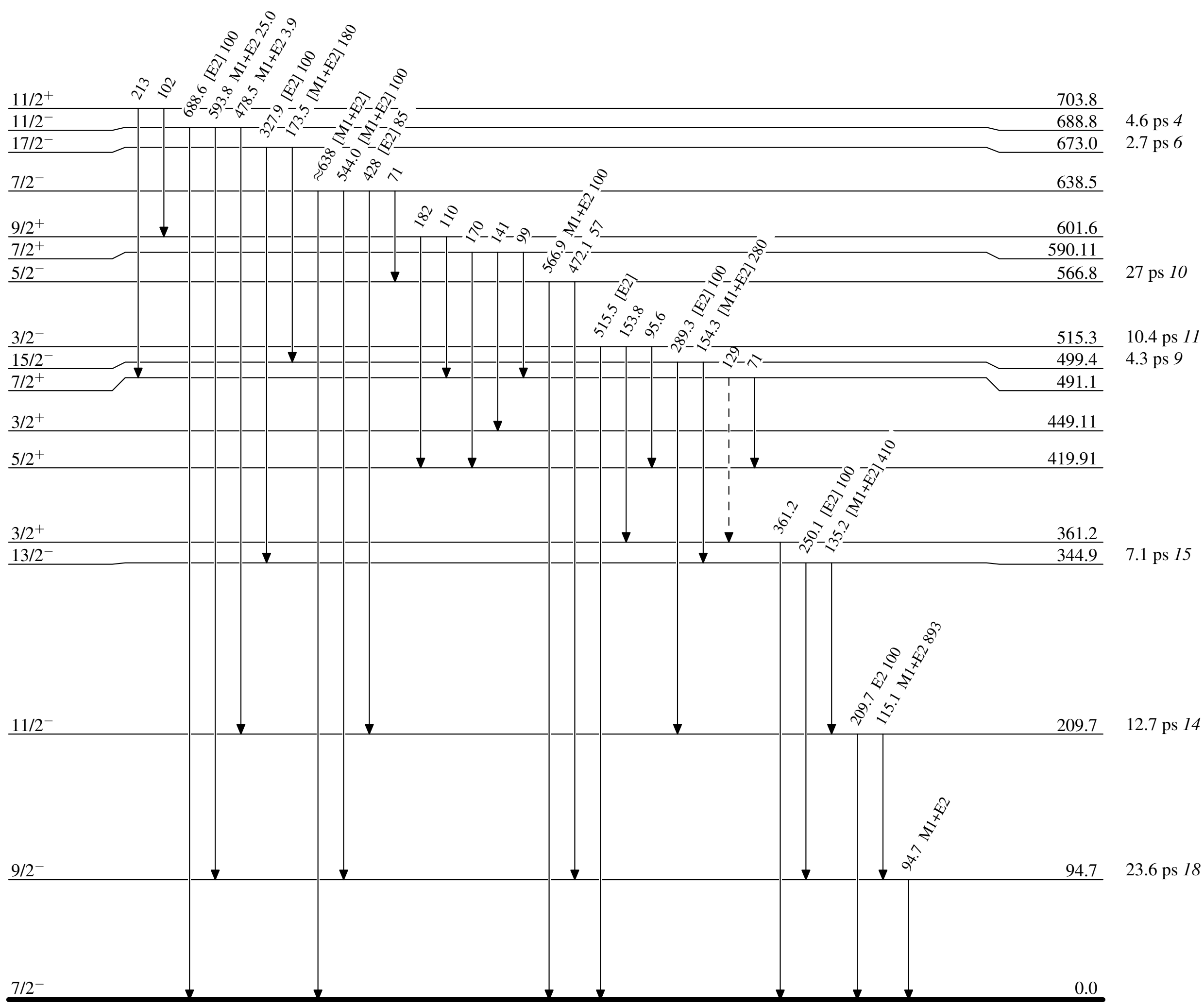
Coulomb excitation 1997Ge07,2003Iw01

Level Scheme (continued)

Intensities: Relative photon branching from each level

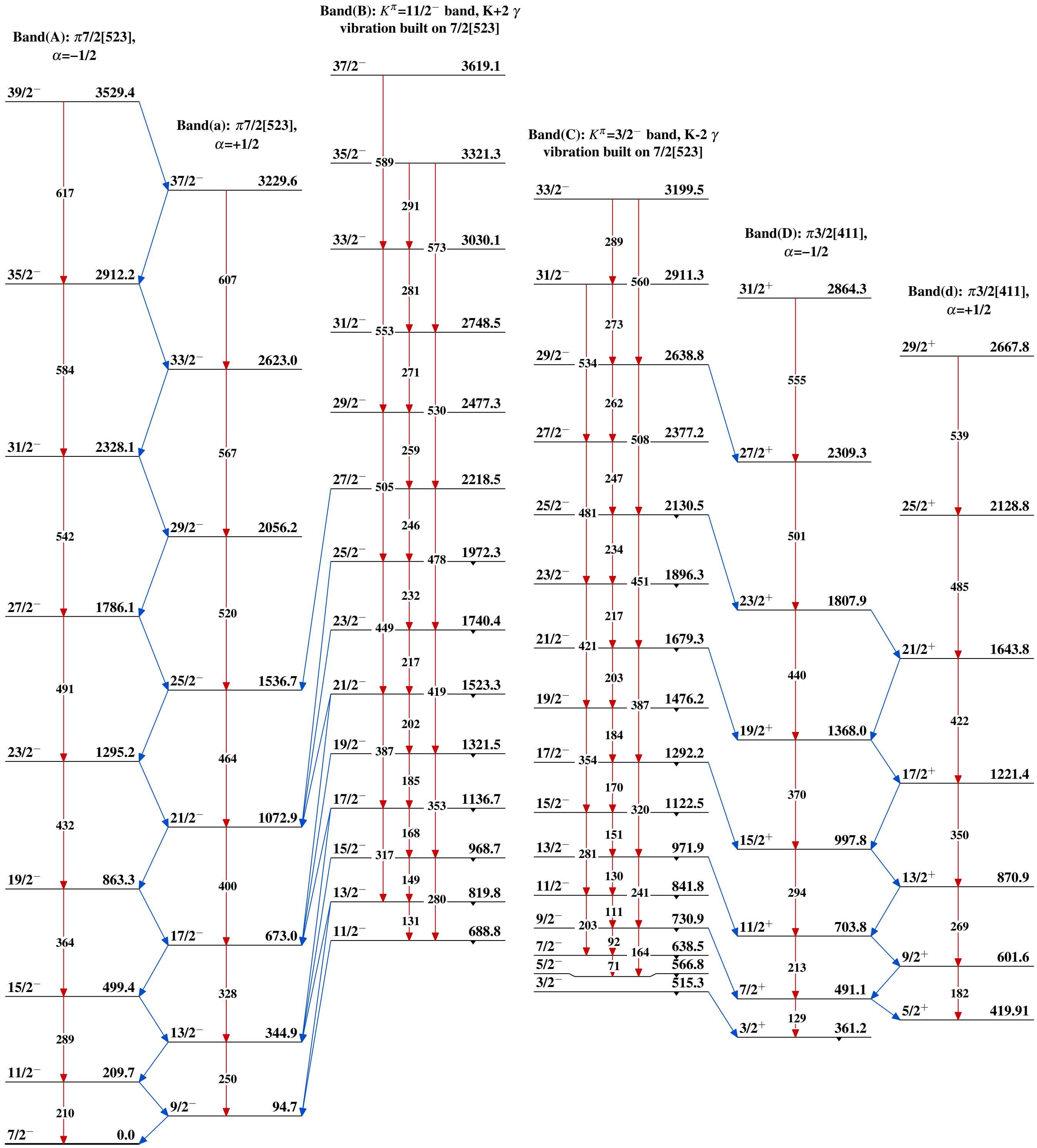
Legend

γ Decay (Uncertain)

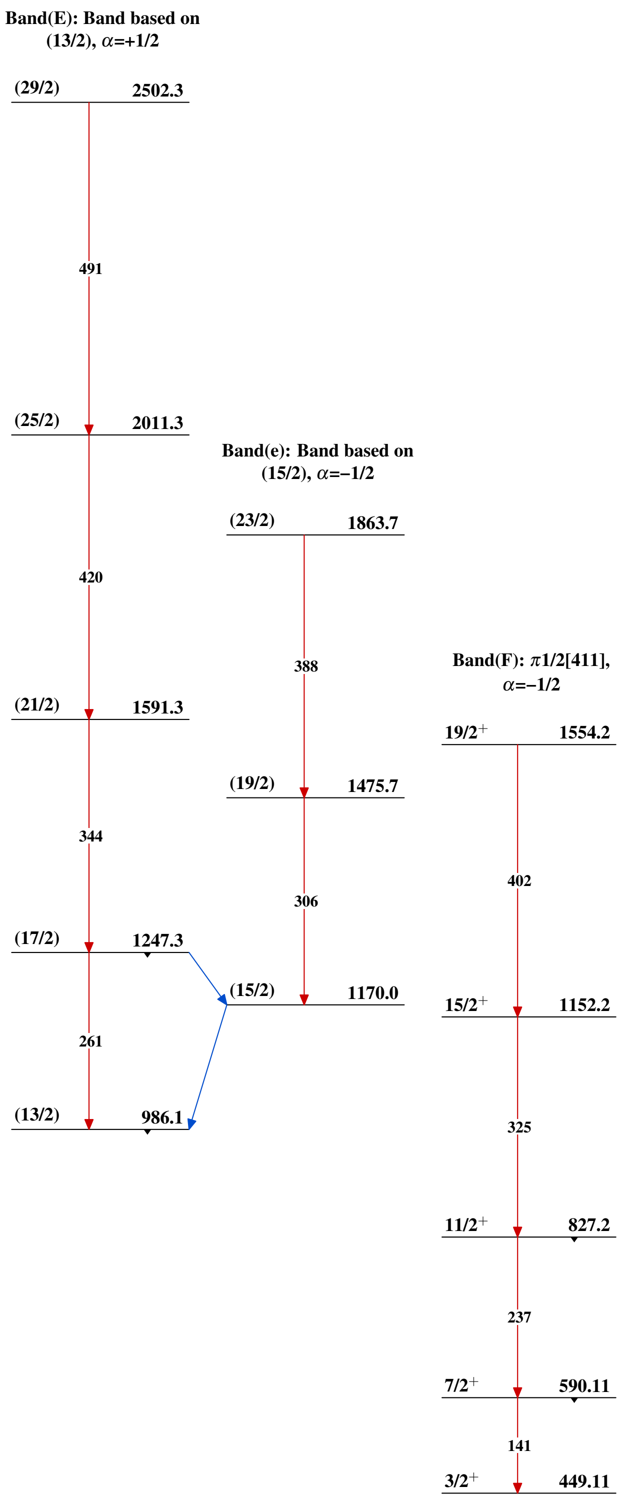


$^{165}_{67}Ho_{98}$

Coulomb excitation 1997Ge07,2003Iw01



Coulomb excitation 1997Ge07,2003Iw01 (continued)



$^{165}_{67}Ho_{98}$