^{160}Gd(^{18}O,7nγ) 2000Cu01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin, E. A. Mccutchan	NDS 151, 334 (2018)	30-Jun-2018

2000Cu01: ^{160}Gd(^{18}O,7nγ), E(^{18}O)=106 MeV; two self-supporting thin stacked ^{160}Gd targets; EUROGAM II array (54 escape-suppressed Ge detectors); measured Eγ, Iγ, $\gamma\gamma$ coin, DCO ratios (90° and 22.4° (or 157.6°)).

^{171}Hf Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
0[@]	7/2$^+$		
21.93[c] *9*	1/2$^-$	29.5 s *9*	E(level),$T_{1/2}$: from Adopted Levels. Energy held fixed for least-squares adjustment.
49.60[a] *10*	5/2$^-$		
61.59[#] *8*	9/2$^+$		
89.22[d] *21*	3/2$^-$		
101.62[c] *10*	5/2$^-$		
142.24[b] *18*	7/2$^-$		
145.81[@] *8*	11/2$^+$		
244.87[#] *10*	13/2$^+$		
254.57[d] *19*	7/2$^-$		
258.39[a] *14*	9/2$^-$		
276.37[c] *14*	9/2$^-$		
381.97[@] *13*	15/2$^+$		
398.06[b] *18*	11/2$^-$		
507.28[d] *19*	11/2$^-$		
511.82[#] *13*	17/2$^+$		
534.47[c] *17*	13/2$^-$		
559.83[a] *19*	13/2$^-$		
715.27[@] *15*	19/2$^+$		
740.16[b] *19*	15/2$^-$		
836.22[d] *20*	15/2$^-$		
864.10[c] *23*	17/2$^-$		
865.27[#] *16*	21/2$^+$		
938.40[a] *21*	17/2$^-$		
1144.16[@] *19*	23/2$^+$		
1150.69[b] *21*	19/2$^-$		
1231.32[d] *21*	19/2$^-$		
1253.18[c] *24*	21/2$^-$		
1304.12[#] *18*	25/2$^+$		
1375.87[a] *22*	21/2$^-$		
1611.73[b] *22*	23/2$^-$		
1659.31[@] *22*	27/2$^+$		
1684.43[d] *23*	23/2$^-$		
1692.99[c] *25*	25/2$^-$		
1824.96[#] *20*	29/2$^+$		
1853.8[a] *3*	25/2$^-$		
2108.3[b] *3*	27/2$^-$		
2178.0[c] *3*	29/2$^-$		
2190.53[d] *24*	27/2$^-$		

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^{160}Gd(^{18}O,7nγ) 2000Cu01 (continued)

^{171}Hf Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
2251.50@ 21	31/2+	4386.0@ 4	43/2+	6327.6& 5	53/2+	8679.1b 8	63/2−
2360.6a 3	29/2−	4446.5b 4	43/2−	6435.1a 6	53/2−	8861.0c 6	65/2−
2422.03# 22	33/2+	4571.4c 4	45/2−	6452.2e 6	(55/2−)	8929.9@ 11	63/2+
2635.5b 3	31/2−	4585.8# 3	45/2+	6798.0b 6	55/2−	8945.4d 14	63/2−
2704.9c 3	33/2−	4670.5d 3	43/2−	6964.2@ 8	55/2+	8946.9# 6	65/2+
2746.4d 3	31/2−	4851.4a 5	45/2−	6964.2c 6	57/2−	9243.2a 10	65/2−
2901.9a 3	33/2−	5164.7b 5	47/2−	7028.4# 6	57/2+	9693.5b 9	67/2−
2909.10@ 24	35/2+	5195.5@ 5	47/2+	7057.9d 7	55/2−	9895.9c 7	69/2−
3087.44# 23	37/2+	5308.1c 5	49/2−	7281.3?e 6	(59/2−)	9961.4d 16	67/2−
3193.0b 4	35/2−	5368.9# 4	49/2+	7283.9& 6	57/2+	9990.2# 7	69/2+
3275.0c 3	37/2−	5404.5d 4	47/2−	7311.5a 7	57/2−	10738.6b 10	71/2−
3349.1d 3	35/2−	5430.8& 4	49/2+	7708.0b 7	59/2−	10971.9c 7	73/2−
3495.3a 4	37/2−	5613.7a 5	49/2−	7883.0c 6	61/2−	11080.3# 8	73/2+
3623.2@ 3	39/2+	5667.8e 5	(51/2−)	7925.4@ 10	59/2+	11803.7b 11	75/2−
3791.9b 4	39/2−	5949.2b 6	51/2−	7956.4# 6	61/2+	12068.9c 7	77/2−
3813.15# 25	41/2+	6056.4@ 6	51/2+	7974.4d 11	59/2−	13202.3c 8	81/2−
3894.7c 4	41/2−	6105.8c 5	53/2−	8149.8e 6	(63/2−)	14364.5?c 8	(85/2−)
3990.6d 3	39/2−	6167.7# 5	53/2+	8254.5a 8	61/2−		
4145.7a 4	41/2−	6197.9d 5	51/2−	8298.4& 8	61/2+		

† From a least-squares fit to Eγ, assuming the adopted energy for the 22-keV level, assigning ΔEγ=1 keV whenever authors did not state the uncertainty in Eγ, and omitting the 151.7γ and 253.3γ (both of which fit their placements very poorly).
‡ Authors values, based on transition multipolarities and deduced band structure.
# Band(A): 7/2[633], α=+1/2 band.
@ Band(a): 7/2[633], α=−1/2 band.
& Band(B): 7/2[633] band fork, α=+1/2. Note that Adopted J^π values are 4 units higher than proposed here.
a Band(C): 5/2[512], α=+1/2 band.
b Band(c): 5/2[512], α=−1/2 band.
c Band(D): 1/2[521], α=+1/2 band.
d Band(d): 1/2[521], α=−1/2 band.
e Band(E): 1/2[521] band fork, α=−1/2. Note that Adopted J^π is 1 unit lower than proposed by 2000Cu01.

γ(^{171}Hf)

Eγ†	Iγ†	Ei(level)	J_i^π	E_f	J_f^π	Mult.‡	Comments
49.6@ 1		49.60	5/2−	0	7/2+		Eγ: 50γ shown in Figure 1.
61.9@ 1		61.59	9/2+	0	7/2+		
66.4 9	3.8 8	89.22	3/2−	21.93	1/2−		
79.7 1	14.1 6	101.62	5/2−	21.93	1/2−		
84.2@ 1		145.81	11/2+	61.59	9/2+		
92.6 2	4 4	142.24	7/2−	49.60	5/2−	D+Q	DCO=1.52 12.
98.9 1	11.5 20	244.87	13/2+	145.81	11/2+		DCO=0.94 5. Interpreted by 2000Cu01 as D+Q transition.
116.3 4	2.0 4	258.39	9/2−	142.24	7/2−	D+Q	DCO=0.72 3.
129.4# 1	16.6 8	511.82	17/2+	381.97	15/2+	D	DCO=0.57 3.
137.2 2	0.3 1	381.97	15/2+	244.87	13/2+	D(+Q)	Additional information 1. DCO=0.61 3.

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^{160}Gd(^{18}O,7nγ) 2000Cu01 (continued)

$\gamma(^{171}Hf)$ (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult. ‡	Comments
139.6 *2*	0.3 *4*	398.06	11/2$^-$	258.39	9/2$^-$	D+Q	DCO=0.66 *4*.
145.5 *1*	15 *4*	145.81	11/2$^+$	0	7/2$^+$	(Q)	DCO=0.91 *19*.
151.7# *2*	9.7 *4*	865.27	21/2$^+$	715.27	19/2$^+$	D	E_γ: level-energy difference=149.1. DCO=0.59 *4*.
153.6 *2*	1.5 *6*	254.57	7/2$^-$	101.62	5/2$^-$		DCO=0.93 *10*. Interpreted by 2000Cu01 as D+Q transition.
159.9 *1*	6.6 *4*	1304.12	25/2$^+$	1144.16	23/2$^+$		
161.6 *2*	2.2 *4*	559.83	13/2$^-$	398.06	11/2$^-$	D	DCO=0.56 *3*.
165.3 *1*	20.0 *9*	254.57	7/2$^-$	89.22	3/2$^-$		DCO=0.86 *10*. Interpreted by 2000Cu01 as ΔJ=2 transition.
165.4 *2*	4.4 *4*	1824.96	29/2$^+$	1659.31	27/2$^+$	D	DCO=0.47 *13*.
170.6 *1*	1.3 *4*	2422.03	33/2$^+$	2251.50	31/2$^+$	D(+Q)	DCO=0.61 *25*.
174.6 *1*	60 *3*	276.37	9/2$^-$	101.62	5/2$^-$		DCO=0.82 *3*. Interpreted by 2000Cu01 as ΔJ=2 transition.
179.4 *3*	0.4 *4*	3087.44	37/2$^+$	2909.10	35/2$^+$		
180.1 *1*	0.6 *4*	740.16	15/2$^-$	559.83	13/2$^-$	D	DCO=0.55 *5*.
183.6 *1*	92 *3*	244.87	13/2$^+$	61.59	9/2$^+$		DCO=0.87 *4*. Interpreted by 2000Cu01 as ΔJ=2 transition.
189.9 *3*	0.3 *2*	3813.15	41/2$^+$	3623.2	39/2$^+$		
198		938.40	17/2$^-$	740.16	15/2$^-$		E_γ: from fig. 1 of 2000Cu01; absent from table 1.
203.6 *2*	17.1 *8*	715.27	19/2$^+$	511.82	17/2$^+$	D	DCO=0.42 *4*.
208.8 *1*	2.1 *5*	258.39	9/2$^-$	49.60	5/2$^-$		DCO=0.83 *6*. Interpreted by 2000Cu01 as ΔJ=2 transition.
213.6# *3*	0.5 *8*	1150.69	19/2$^-$	938.40	17/2$^-$	D+Q	E_γ: level-energy difference=212.3. DCO=0.79 *5*.
224.6 *2*	0.8	1375.87	21/2$^-$	1150.69	19/2$^-$		I_γ: uncertainty given as 0 in table 1 of 2000Cu01. DCO=1.08 *13*. Interpreted by 2000Cu01 as D+Q transition.
230.4 *3*	2.2 *4*	507.28	11/2$^-$	276.37	9/2$^-$		DCO=1.06 *7*. Interpreted by 2000Cu01 as D+Q transition.
235.5 *2*	35.2 *24*	381.97	15/2$^+$	145.81	11/2$^+$	Q	DCO=1.00 *7*.
235.8 *1*	0.3 *5*	1611.73	23/2$^-$	1375.87	21/2$^-$	D	DCO=0.57 *3*.
241.4 *2*	0.3 *4*	1853.8	25/2$^-$	1611.73	23/2$^-$		
252.8 *1*	16.3 *4*	507.28	11/2$^-$	254.57	7/2$^-$	(Q)	DCO=0.93 *8*.
253.3# *2*	0.8 *4*	2360.6	29/2$^-$	2108.3	27/2$^-$	D	E_γ: level-energy difference=251.2. DCO=0.56 *6*.
254.4 *1*	0.2 *5*	2108.3	27/2$^-$	1853.8	25/2$^-$		
255.8 *1*	0.3	398.06	11/2$^-$	142.24	7/2$^-$	Q	I_γ: uncertainty given as 0 in table 1 of 2000Cu01. DCO=0.96 *3*.
258.0 *1*	83 *3*	534.47	13/2$^-$	276.37	9/2$^-$	Q	DCO=0.92 *8*.
266.2 *2*	0.3 *4*	2901.9	33/2$^-$	2635.5	31/2$^-$		DCO=0.85 *5*. Interpreted by 2000Cu01 as D+Q transition.
267.1 *1*	50.5 *18*	511.82	17/2$^+$	244.87	13/2$^+$	Q	DCO=1.11 *7*.
276.0 *3*	0.5 *4*	2635.5	31/2$^-$	2360.6	29/2$^-$	D	DCO=0.58 *7*.
279.0 *2*	12.0 *8*	1144.16	23/2$^+$	864.10	17/2$^-$		
291.0 *5*	0.2 *5*	3193.0	35/2$^-$	2901.9	33/2$^-$		
296.5 *3*	0.2 *4*	3791.9	39/2$^-$	3495.3	37/2$^-$		
300.3 *4*	1.1 *4*	836.22	15/2$^-$	534.47	13/2$^-$		DCO=1.02 *11*. Interpreted by 2000Cu01 as D+Q transition.
301.6 *2*	1.0 *4*	559.83	13/2$^-$	258.39	9/2$^-$		
302.2 *2*	0.3 *4*	3495.3	37/2$^-$	3193.0	35/2$^-$		DCO=0.98 *3*. Interpreted by 2000Cu01 as ΔJ=1 transition.
329.1 *1*	12.3 *8*	836.22	15/2$^-$	507.28	11/2$^-$	Q	DCO=1.07 *8*.
329.6 *2*	89 *3*	864.10	17/2$^-$	534.47	13/2$^-$	Q	DCO=1.01 *7*.
333.6 *1*	40.0 *12*	715.27	19/2$^+$	381.97	15/2$^+$	Q	DCO=1.04 *4*.
342.1 *1*	0.7 *4*	740.16	15/2$^-$	398.06	11/2$^-$		DCO=1.5 *3*.
353.1 *1*	56.0 *16*	865.27	21/2$^+$	511.82	17/2$^+$	Q	DCO=1.15 *4*.
354		4145.7	41/2$^-$	3791.9	39/2$^-$		E_γ: from fig. 1 of 2000Cu01; absent from table 1.
354.5 *3*	8.8 *8*	1659.31	27/2$^+$	1304.12	25/2$^+$		
359.7b *2*	3.2 *4*	5667.8	(51/2$^-$)	5308.1	49/2$^-$		DCO=1.06 *25*.
366.8 *4*	1.7 *4*	1231.32	19/2$^-$	864.10	17/2$^-$		
378.8 *1*	0.7 *4*	938.40	17/2$^-$	559.83	13/2$^-$	Q	DCO=1.05 *7*.
389.1 *1*	88 *3*	1253.18	21/2$^-$	864.10	17/2$^-$	Q	DCO=1.04 *11*.
395.1 *1*	17.2 *8*	1231.32	19/2$^-$	836.22	15/2$^-$		

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^{160}Gd(^{18}O,7nγ) 2000Cu01 (continued)

$\gamma(^{171}Hf)$ (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[a]	Comments
410.3 *1*	3.0 *7*	1150.69	19/2$^-$	740.16	15/2$^-$	Q		DCO=1.00 *4*.
426.7 *1*	3.6 *8*	2251.50	31/2$^+$	1824.96	29/2$^+$			
427.0 *5*	47.4 *14*	1144.16	23/2$^+$	715.27	19/2$^+$			
431.8 *5*	1.7 *4*	1684.43	23/2$^-$	1253.18	21/2$^-$			
437.8 *2*	1.6 *4*	1375.87	21/2$^-$	938.40	17/2$^-$	Q		DCO=1.11 *4*.
438.9 *1*	74.4 *22*	1304.12	25/2$^+$	865.27	21/2$^+$	(Q)		DCO=1.20 *3*.
439.8 *1*	85 *3*	1692.99	25/2$^-$	1253.18	21/2$^-$	Q		DCO=1.09 *7*.
453.1 *1*	16.9 *8*	1684.43	23/2$^-$	1231.32	19/2$^-$	Q		DCO=1.01 *10*.
461.1 *1*	2.8 *4*	1611.73	23/2$^-$	1150.69	19/2$^-$	Q		DCO=1.08 *3*.
477.9 *3*	1.6 *8*	1853.8	25/2$^-$	1375.87	21/2$^-$			DCO=1.29 *7*. Interpreted by 2000Cu01 as ΔJ=2 transition.
485.0 *1*	80 *3*	2178.0	29/2$^-$	1692.99	25/2$^-$	Q		DCO=1.11 *8*.
487.1 *2*	4.5 *8*	2909.10	35/2$^+$	2422.03	33/2$^+$			
497.3 *2*	1.6 *4*	2108.3	27/2$^-$	1611.73	23/2$^-$	Q		DCO=1.06 *12*.
498.0 *4*	1.1 *4*	2190.53	27/2$^-$	1692.99	25/2$^-$			
506.1 *1*	17.4 *8*	2190.53	27/2$^-$	1684.43	23/2$^-$	Q		DCO=1.06 *11*.
506.4 *3*	1.8 *4*	2360.6	29/2$^-$	1853.8	25/2$^-$	Q		DCO=1.06 *6*.
515.2 *2*	49.5 *15*	1659.31	27/2$^+$	1144.16	23/2$^+$	Q		DCO=1.13 *4*.
520.9 *1*	68.8 *21*	1824.96	29/2$^+$	1304.12	25/2$^+$			DCO=1.42 *19*. Interpreted by 2000Cu01 as ΔJ=2 transition.
526.9 *1*	2.5 *4*	2635.5	31/2$^-$	2108.3	27/2$^-$	Q		DCO=1.08 *9*.
526.9 *1*	67.3 *22*	2704.9	33/2$^-$	2178.0	29/2$^-$	Q		DCO=1.12 *9*.
536.0 *3*	1.7 *4*	3623.2	39/2$^+$	3087.44	37/2$^+$			
542.3 *3*	1.5 *8*	2901.9	33/2$^-$	2360.6	29/2$^-$	Q		DCO=1.07 *8*.
555.9 *1*	15.2 *8*	2746.4	31/2$^-$	2190.53	27/2$^-$	Q		DCO=1.14 *3*.
557.4 *2*	2.5 *4*	3193.0	35/2$^-$	2635.5	31/2$^-$			DCO=1.30 *13*.
566.7[#] *4*	5.4 *4*	2746.4	31/2$^-$	2178.0	29/2$^-$			E_γ: level-energy difference=568.4. DCO=1.07 *18*. Interpreted by 2000Cu01 as D+Q transition.
570.1 *1*	53.0 *20*	3275.0	37/2$^-$	2704.9	33/2$^-$	E2[&]	0.01402	DCO=1.10 *4*.
572.5 *5*	5.2 *2*	4386.0	43/2$^+$	3813.15	41/2$^+$			
592.2 *2*	43.0 *13*	2251.50	31/2$^+$	1659.31	27/2$^+$	Q		DCO=1.17 *8*.
593.7 *3*	2.3 *9*	3495.3	37/2$^-$	2901.9	33/2$^-$	Q		DCO=1.10 *5*.
596.9 *1*	69.3 *21*	2422.03	33/2$^+$	1824.96	29/2$^+$			DCO=1.14 *21*.
598.9 *2*	2.3 *4*	3791.9	39/2$^-$	3193.0	35/2$^-$			
602.6 *1*	23.1 *7*	3349.1	35/2$^-$	2746.4	31/2$^-$	E2[&]	0.01229	DCO=1.01 *8*.
619.7 *2*	36.8 *16*	3894.7	41/2$^-$	3275.0	37/2$^-$	E2[&]	0.01151	DCO=1.16 *18*.
641.5 *1*	10.2 *3*	3990.6	39/2$^-$	3349.1	35/2$^-$	E2[&]	0.01062	DCO=1.13 *16*.
646.0 *5*	3.0 *4*	3349.1	35/2$^-$	2704.9	33/2$^-$			
650.3 *2*	0.9 *4*	4145.7	41/2$^-$	3495.3	37/2$^-$			DCO=0.79 *8*. Interpreted by 2000Cu01 as ΔJ=2 transition.
654.6 *2*	0.8 *4*	4446.5	43/2$^-$	3791.9	39/2$^-$			
658.0 *2*	29.0 *9*	2909.10	35/2$^+$	2251.50	31/2$^+$	E2[&]	0.01002	DCO=1.14 *5*; not M2 from RUL.
665.3 *1*	35.5 *11*	3087.44	37/2$^+$	2422.03	33/2$^+$	E2[&]		DCO=1.10 *7*.
676.7 *2*	29.1 *12*	4571.4	45/2$^-$	3894.7	41/2$^-$	[E2]		Mult.: not M2 from RUL.
679.9 *1*	10.7 *8*	4670.5	43/2$^-$	3990.6	39/2$^-$	E2[&]		DCO=1.08 *17*.
705.7 *2*	1.0 *4*	4851.4	45/2$^-$	4145.7	41/2$^-$			
714.1 *2*	19.6 *6*	3623.2	39/2$^+$	2909.10	35/2$^+$	E2[&]		DCO=0.95 *5*.
718.2 *1*	1.1 *4*	5164.7	47/2$^-$	4446.5	43/2$^-$			
725.7 *1*	24.7 *8*	3813.15	41/2$^+$	3087.44	37/2$^+$	(E2)		DCO=1.66 *20*. Interpreted by 2000Cu01 as ΔJ=2 transition; not M2 from RUL.
734.0 *2*	6.4 *8*	5404.5	47/2$^-$	4670.5	43/2$^-$	E2[&]		DCO=1.17 *17*.
736.7 *2*	20.0 *8*	5308.1	49/2$^-$	4571.4	45/2$^-$	[E2]		Mult.: not M2 from RUL.

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^{160}Gd(^{18}O,7nγ) 2000Cu01 (continued)

γ(^{171}Hf) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
762.3 *1*	0.3 *4*	5613.7	49/2$^-$	4851.4	45/2$^-$		
762.8 *2*	12.1 *4*	4386.0	43/2$^+$	3623.2	39/2$^+$	E2[&]	DCO=1.07 *4*.
772.6 *1*	17.2 *8*	4585.8	45/2$^+$	3813.15	41/2$^+$	E2[&]	DCO=1.12 *8*.
783.1 *3*	10.0 *4*	5368.9	49/2$^+$	4585.8	45/2$^+$		DCO=1.39 *13*. Interpreted by 2000Cu01 as ΔJ=2 transition; not M2 from RUL.
784.4[b] *2*	2.2 *7*	6452.2	(55/2$^-$)	5667.8	(51/2$^-$)		
784.5 *3*	0.9 *4*	5949.2	51/2$^-$	5164.7	47/2$^-$		
793.4 *3*	3.5 *8*	6197.9	51/2$^-$	5404.5	47/2$^-$		
797.7 *2*	8.2 *8*	6105.8	53/2$^-$	5308.1	49/2$^-$	E2[&]	DCO=1.15 *6*.
798.8 *3*	2.7 *4*	6167.7	53/2$^+$	5368.9	49/2$^+$		DCO=1.52 *11*. Interpreted by 2000Cu01 as ΔJ=2 transition; not M2 from RUL.
809.5 *3*	6.3 *8*	5195.5	47/2$^+$	4386.0	43/2$^+$		
821.4 *3*	0.6 *4*	6435.1	53/2$^-$	5613.7	49/2$^-$		
829.1[b] *2*	4.1 *7*	7281.3?	(59/2$^-$)	6452.2	(55/2$^-$)		
845.0 *2*	7.6 *8*	5430.8	49/2$^+$	4585.8	45/2$^+$	E2[&]	DCO=1.23 *18*.
848.8 *2*	0.9 *4*	6798.0	55/2$^-$	5949.2	51/2$^-$		
858.4 *2*	6.4 *8*	6964.2	57/2$^-$	6105.8	53/2$^-$	E2[&]	DCO=0.96 *21*.
860.0 *5*	1.4 *8*	7057.9	55/2$^-$	6197.9	51/2$^-$		
860.7 *2*	2.7 *4*	7028.4	57/2$^+$	6167.7	53/2$^+$		
860.9 *4*	2.9 *8*	6056.4	51/2$^+$	5195.5	47/2$^+$		
868.5[b] *2*	1.6 *6*	8149.8	(63/2$^-$)	7281.3?	(59/2$^-$)		
876.4 *3*	0.3 *4*	7311.5	57/2$^-$	6435.1	53/2$^-$		
896.8 *3*	2.4 *4*	6327.6	53/2$^+$	5430.8	49/2$^+$		
907.8 *5*	2.0 *8*	6964.2	55/2$^+$	6056.4	51/2$^+$		
910.0 *3*	0.2 *4*	7708.0	59/2$^-$	6798.0	55/2$^-$		
916.5 *8*	0.9 *4*	7974.4	59/2$^-$	7057.9	55/2$^-$		
918.8 *2*	2.0 *4*	7883.0	61/2$^-$	6964.2	57/2$^-$		DCO=1.3 *4*.
928.0 *1*	1.3 *4*	7956.4	61/2$^+$	7028.4	57/2$^+$		
943.0 *5*	0.2 *4*	8254.5	61/2$^-$	7311.5	57/2$^-$		
956.3 *4*	0.3 *4*	7283.9	57/2$^+$	6327.6	53/2$^+$		E_γ: not adopted; γ unconfirmed in other reaction studies.
961.2 *5*	1.1 *8*	7925.4	59/2$^+$	6964.2	55/2$^+$		E_γ: given as 960 in figs. 1 and 2 of 2000Cu01.
971.0 *8*	0.6 *4*	8945.4	63/2$^-$	7974.4	59/2$^-$		
971.1 *4*	0.1 *4*	8679.1	63/2$^-$	7708.0	59/2$^-$		
978.0 *2*	1.0 *4*	8861.0	65/2$^-$	7883.0	61/2$^-$		
988.7 *5*	0.2 *4*	9243.2	65/2$^-$	8254.5	61/2$^-$		
990.5 *2*	0.9 *4*	8946.9	65/2$^+$	7956.4	61/2$^+$		
1004.5 *5*	1.1 *8*	8929.9	63/2$^+$	7925.4	59/2$^+$		
1014.4 *4*	0.1 *4*	9693.5	67/2$^-$	8679.1	63/2$^-$		
1014.5 *5*	0.2 *4*	8298.4	61/2$^+$	7283.9	57/2$^+$		
1016.0 *8*	0.3 *4*	9961.4	67/2$^-$	8945.4	63/2$^-$		
1034.9 *2*	0.8 *4*	9895.9	69/2$^-$	8861.0	65/2$^-$		
1043.3 *3*	2.2 *4*	9990.2	69/2$^+$	8946.9	65/2$^+$		
1045.1 *4*	0.6 *4*	10738.6	71/2$^-$	9693.5	67/2$^-$		
1065.1 *4*	0.1 *4*	11803.7	75/2$^-$	10738.6	71/2$^-$		
1076.0 *2*	0.6 *4*	10971.9	73/2$^-$	9895.9	69/2$^-$		
1090.1 *4*	0.1 *4*	11080.3	73/2$^+$	9990.2	69/2$^+$		
1097.0 *2*	0.3 *4*	12068.9	77/2$^-$	10971.9	73/2$^-$		
1133.4 *2*	0.3 *4*	13202.3	81/2$^-$	12068.9	77/2$^-$		
1162.2[b] *2*	0.2 *4*	14364.5?	(85/2$^-$)	13202.3	81/2$^-$		

[†] From 2000Cu01 for the (^{18}O,7nγ) reaction at 106 MeV, except as noted.

Continued on next page (footnotes at end of table)

^{160}Gd(^{18}O,7nγ) 2000Cu01 (continued)

$\gamma(^{171}Hf)$ (continued)

‡ Based on measured DCO ratios; expected ratios are≈1.0 for stretched Q (or D, ΔJ=0) and≈0.5 for stretched D transitions.
# Eγ deviates by at least 4σ from least-squares adjusted value.
@ From Adopted Gammas.
& Stretched Q from DCO ratio; not M2 from RUL.
[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.

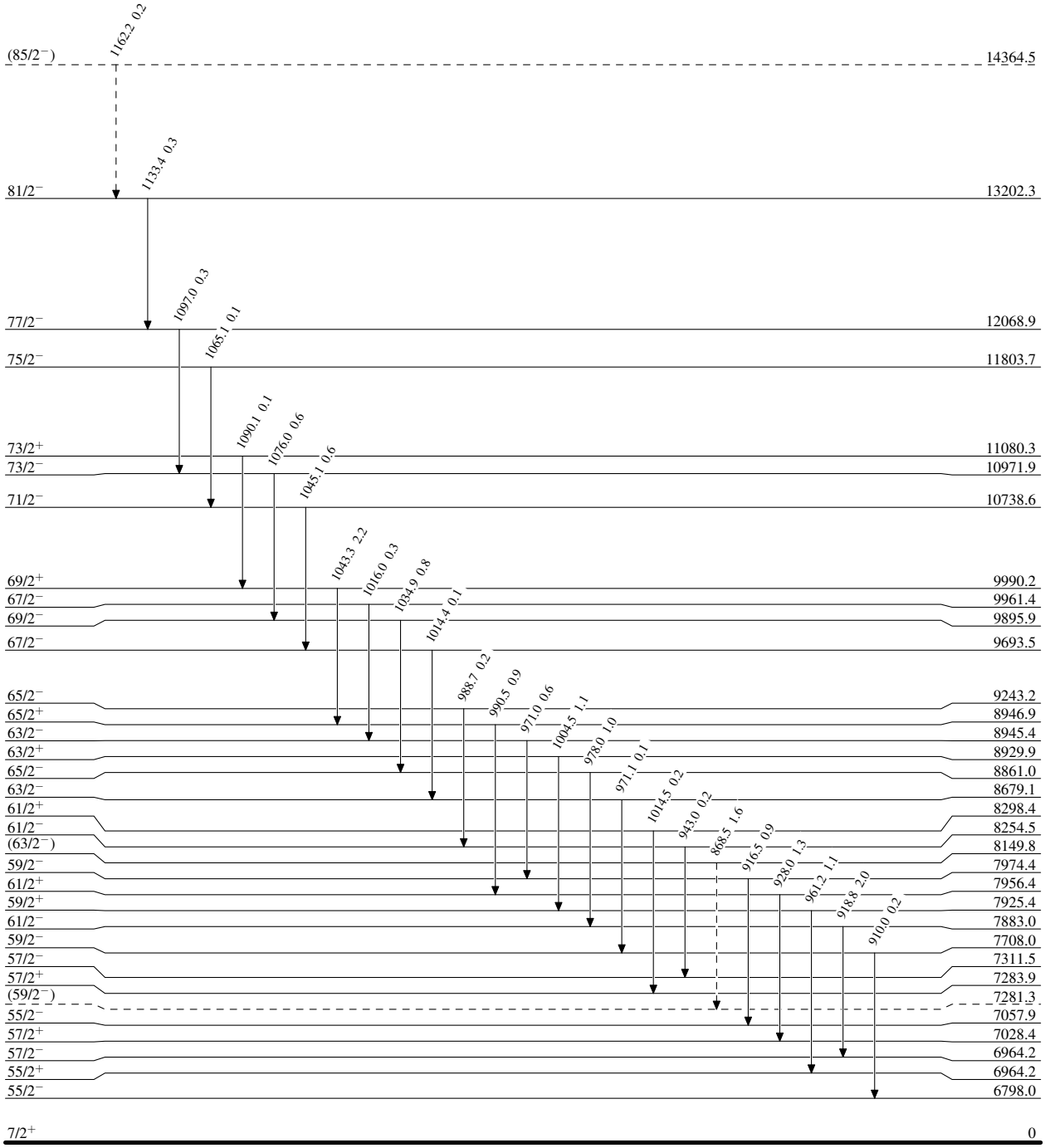
^{160}Gd(^{18}O,7nγ) 2000Cu01

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

Intensities: Relative Iγ from ^{160}Gd(^{18}O,7nγ), E=106 MeV.



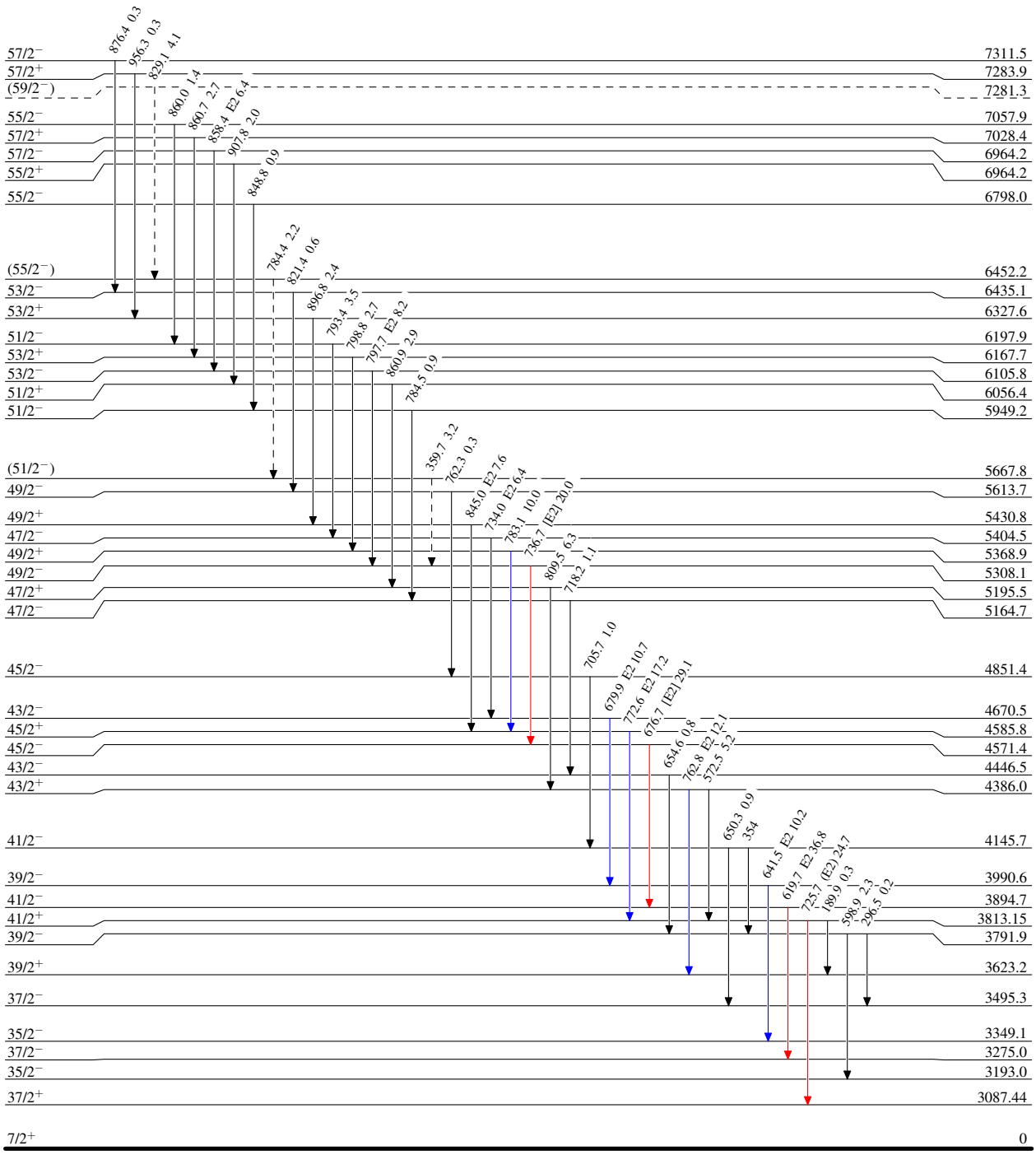
$^{171}_{72}Hf_{99}$

^{160}Gd(^{18}O,7nγ) 2000Cu01

Level Scheme (continued)

Intensities: Relative Iγ from ^{160}Gd(^{18}O,7nγ), E=106 MeV.

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)

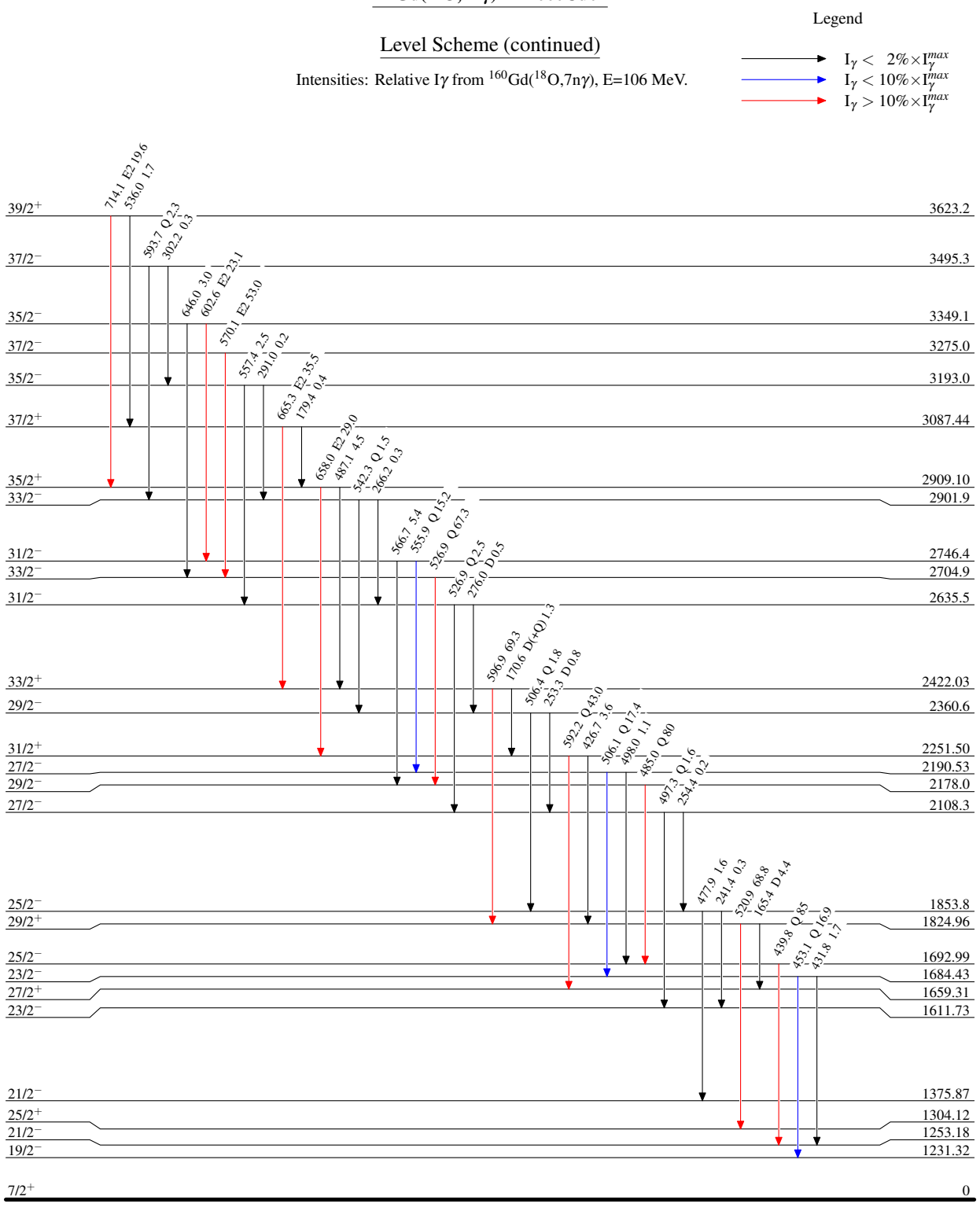


$^{171}_{72}Hf_{99}$

^{160}Gd(^{18}O,7nγ) 2000Cu01

Level Scheme (continued)

Intensities: Relative Iγ from ^{160}Gd(^{18}O,7nγ), E=106 MeV.

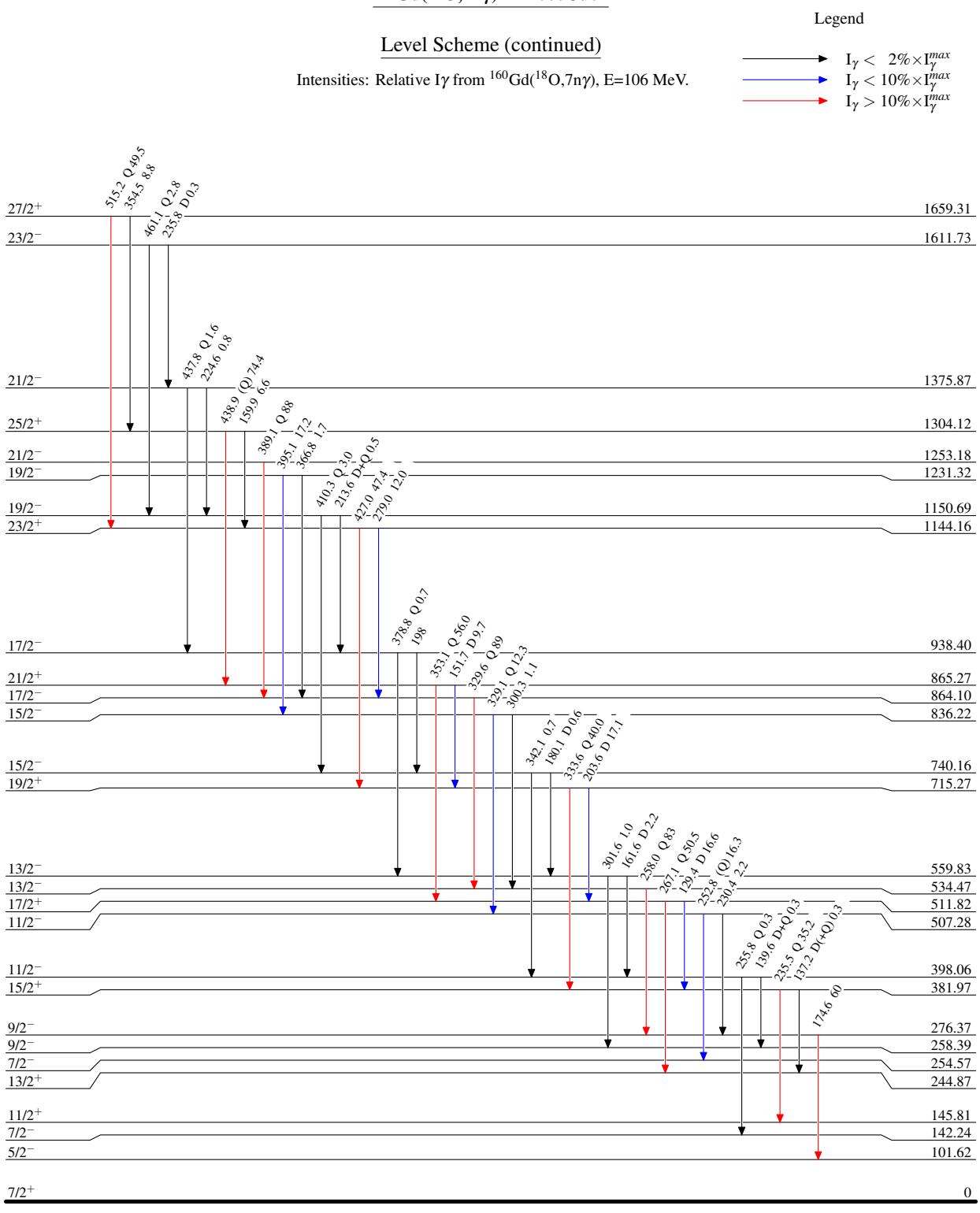


$^{171}_{72}Hf_{99}$

^{160}Gd(^{18}O,7nγ) 2000Cu01

Level Scheme (continued)

Intensities: Relative Iγ from ^{160}Gd(^{18}O,7nγ), E=106 MeV.

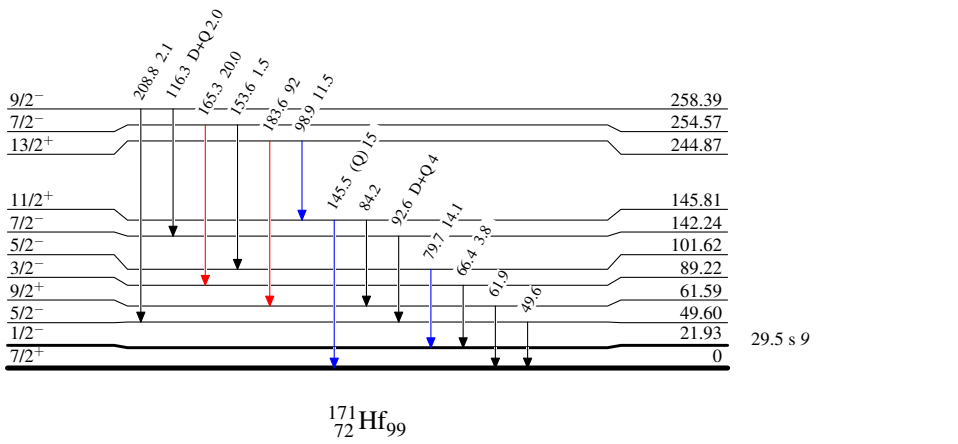


$^{171}_{72}Hf_{99}$

^{160}Gd(^{18}O,7nγ) 2000Cu01

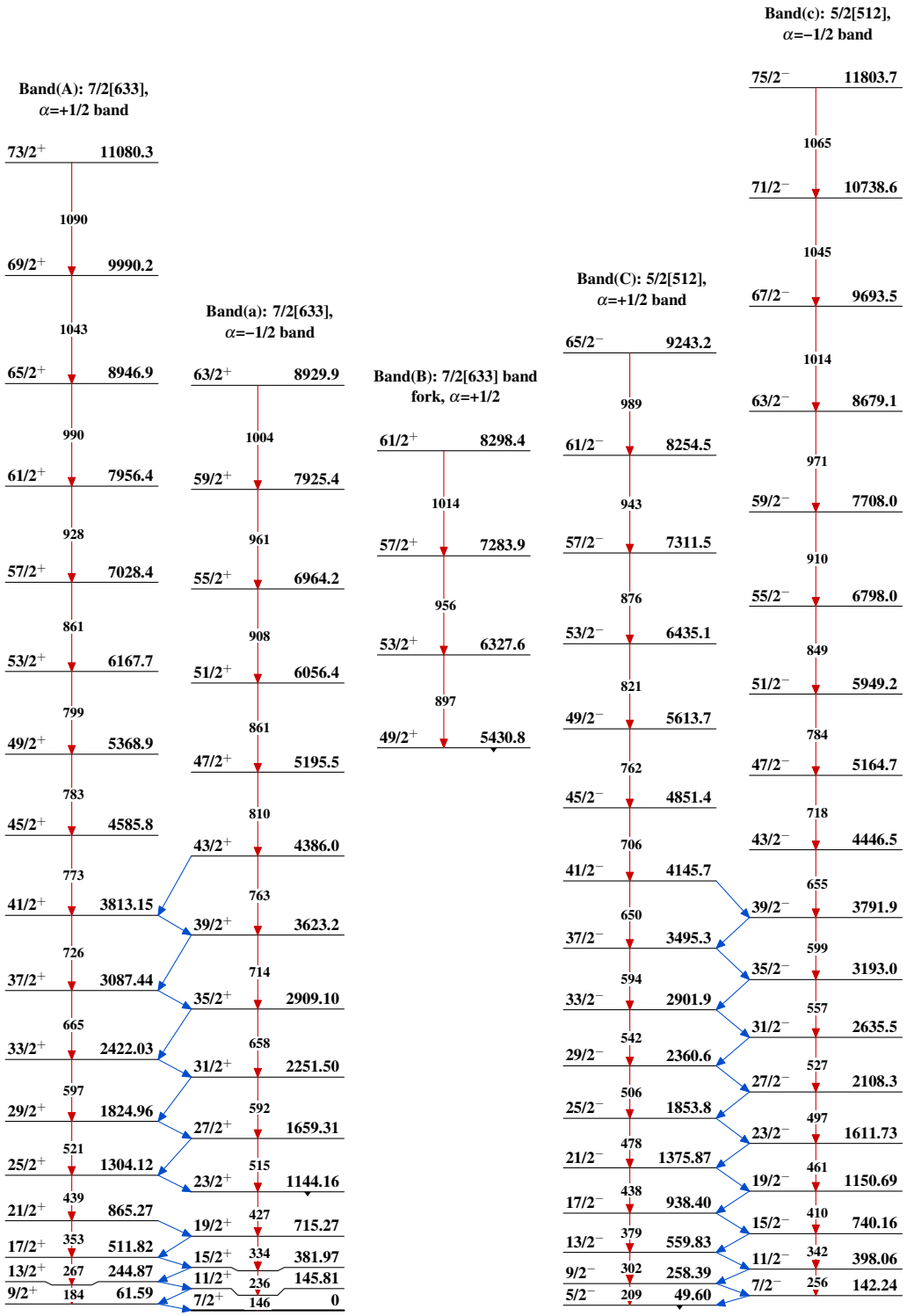
Level Scheme (continued)

Intensities: Relative Iγ from ^{160}Gd(^{18}O,7nγ), E=106 MeV.



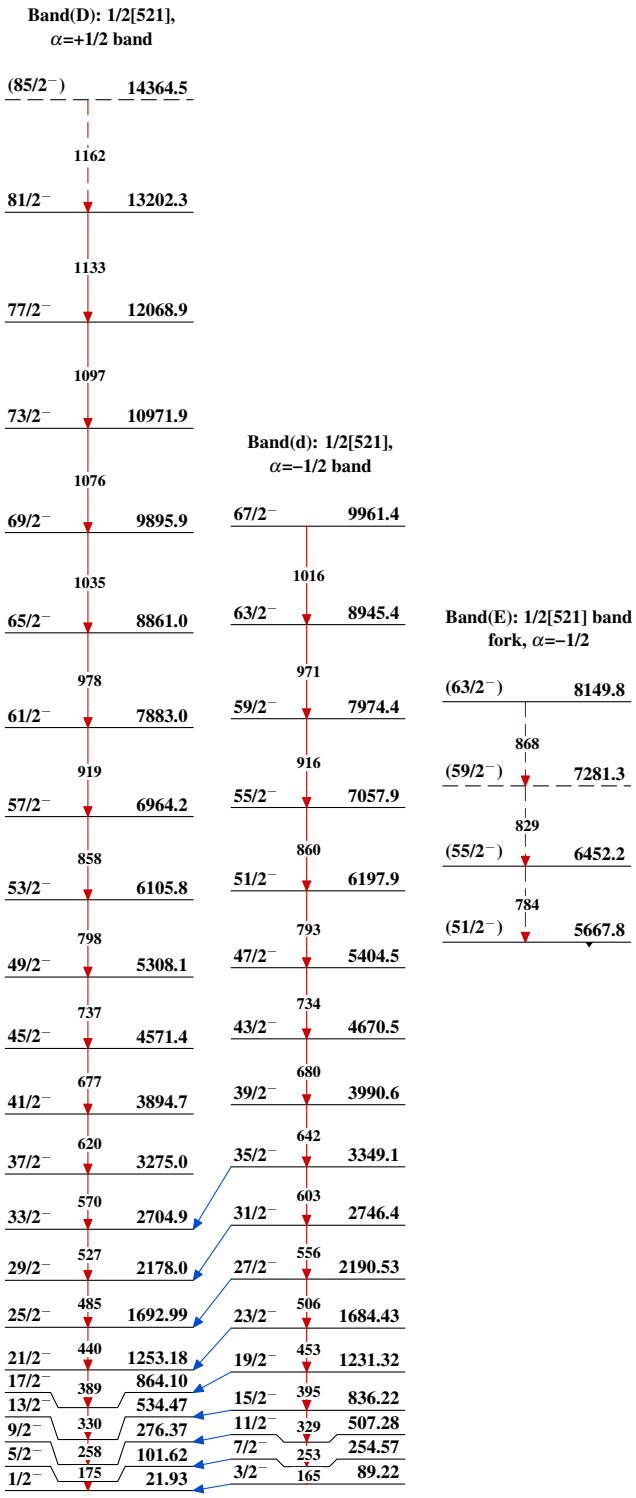
$^{171}_{72}Hf_{99}$

^{160}Gd(^{18}O,7nγ) 2000Cu01



$^{171}_{72}Hf_{99}$

^{160}Gd(^{18}O,7nγ) 2000Cu01 (continued)



$^{171}_{72}Hf_{99}$