^{170}Er(n,n′γ) 1992Be63,1992Be29

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. M. Baglin[1], E. A. Mccutchan[2], S. Basunia[1]	NDS 153, 1 (2018)	1-Oct-2018

1999YoZY: E(n)=1-200 MeV; 99.9% ^{170}Er oxide target; GEANIE spectrometer (13 coaxial and 7 planar Ge detectors); measured Eγ, n tof, γ excit; searched for pair of γ-rays with same E(n) threshold that fed the J=2 and 3 members of the γ band. E(n)=2.3, 2.7, 3.4 MeV; 99% ^{170}Er oxide target; Ge detector, KEGS detector array; measured Eγ, Iγ, γγ coin, γ(θ) (11 angles), $T_{1/2}$ from DSAM. See also 2000WaZV and 2002YoZZ. Data In 2002YoZZ supersede those In 1999YoZY and 2000WaZV.

1992Be29: measured γ(θ), γ linear polarization; some of these data were also reported in 1991Be38. See 2000De59 (which supersedes 1999DeZX, 1998DeZV) for reanalysis of γ(θ) for six transitions.

1992Be63: measured Eγ, Iγ. See 2000Gr14, 2000Gr33 for discussion of band structure and additional placements for gammas reported in 1992Be63.

1983Gr30: E=reactor spectrum; measured Eγ, Iγ, γ(θ).

1981Bo40: E=reactor spectrum; measured Eγ, Iγ.

Others: 1991Be38, 1983YaZS.

For comparison between calculated and observed (1992Be63) populations of levels in (n,n′γ) using fast reactor neutrons, see 1997Ko62.

For further discussion of band structure, see 2000Gr14 and 2000Gr33.

^{170}Er Levels

The band structure shown here is taken from 2000Gr14 and presumably supersedes that indicated in 1992Be29 and 1992Be63. Differences from adopted band structure are noted.

E(level)†	Jπ‡	Comments
0&	0+@	
78.601& *22*	2+@	
260.145& *24*	4+@	
540.68& *3*	6+@	
890.89a *4*	0+	
914.99& *5*	8+	
934.03b *3*	2+	
959.99a *3*	2+	
1010.54b *3*	3+	
1103.36b *3*	4+	
1127.32a *4*	4+	
1217.52c *3*	3+	
1236.61b *9*	5+	
1266.65d *3*	1−	
1268.67e *4*	4−	
1304.56c *5*	4+	
1305.22d *6*	2−	
1324.30f *5*	0+	
1340.21d *4*	3−	
1350.47b *8*	6+	Jπ: from 2000Gr14.
1372.08e *7*	5−	
1385.41f *3*	2+	
1401.94a *7*	6+	
1413.13c *5*	(5+)	Band assignment from 2000Gr14; assigned as J=6 member of γ band in 1992Be63.
1416.26g *4*	2+	

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^{170}Er(n,n′γ) 1992Be63,1992Be29 (continued)

^{170}Er Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$#	Comments
1432.97[d] *4*	4^-		
1483.36[g] *4*	3^+		
1483.77[d] *7*	5^-		
1487.88 *13*	$(4^+,5^+)$		
1495.88?[e] *7*	6^-		
1506.22[h] *8*	2^-		Jπ: from 2000Gr14.
1526.41[f] *8*	4^+		
1543.50?[c] *14*	6^+		
1556.73[b] *8*	7^+		
1572.61[g] *8*	4^+		
1579.17[h] *4*	3^-		Band assignment from 2000Gr14. Jπ=3−, K=0 suggested in 1992Be63.
1590.74? *18*	$(5^-,6^-,7^-)$		Jπ: possible (ν 7/2[633])+(ν 5/2[512]) bandhead (2000Gr14); if so, J=(6).
1631.00[d] *18*	6^-		Band assignment from 2000Gr14; differs from that in 1992Be29.
1640.42[e] *8*	7^-		
1677.07[h] *22*	4^-		
1683.58[g] *7*	5^+		Jπ and band assignment from 2000Gr14; 1992Be29 assigned the 1690 level, instead, as this band member.
1689.80 *10*	5^+		
1699.58 *9*	(1^+)		Jπ: not 2^+ from 482γ(θ) (1992Be29); however, γ is doublet according to 2000Gr14.
1704.85[d] *19*	7^-		
1708.16[i] *6*	(5^-)		
1741.88 *7*			
1745.90? *6*	(4^-)		Jπ: 4^+, 3^+ and 5^- ruled out by 406γ(θ) and polarization (assuming δ small if mult=D+Q, Δπ=yes); γ to 4^-; J=4 based on population probability in (n,n′γ) (2000Gr14); possible (π 7/2[523])+(π 1/2[411]) bandhead (2000Gr14).
1769.19 *6*	$(3,4^+)$		
1805.18 *8*	$(3,4^+)$		
1819.01[i] *24*	(6^-)		
1823.1[g] *4*	6^+		Jπ: from 2000Gr14.
1824.62[j] *6*	1^-	15.3 fs *+14−13*	$T_{1/2}$: for 1746γ. Other: 16.3 fs *+19−18* for 1825γ.
1899.7? *3*			
1935.51[j] *11*	3^-		
1973.05[k] *8*	1^+		
1982.63? *11*	$(1^+,2^+)$		Jπ: γ to 0^+ and 3^+.
2019.08[k] *17*	2^+		
2039.3 *3*	(1)		
2071.3 *3*	2^+		
2080.52 *13*	2^+		Jπ: from 1992Be63. Assigned as J=3 member of Kπ=(1^+) band in 2000Gr14, but this is untenable if the 2081γ is correctly placed.
2112.2 *3*	2^+		
2132.97 *15*	(1)		$T_{1/2}$: 89 fs *+24−21* from 2054γ data; 42 fs *6* for 2133γ, but γ too far from calibration points to be reliable (1999YoZY). Additionally, both 2054γ and 2133γ may be complex, in which case neither $T_{1/2}$ measurement would be reliable.
2150.9[j] *3*	5^-		
2190.16 *19*	$(4^+,5,6^+)$		
2399.04 *24*	$(1^+,2^+)$		
2451.8 *7*	(4^+)	76 fs *+33−25*	Jπ: possible candidate for two-phonon excitation state ($4^+_{\gamma\gamma}$ level) (1999YoZY), but such an assignment is highly speculative. $T_{1/2}$: from 2002YoZZ; supersedes 58 fs result In 1999YoZY and 2000WaZV.
2657.4? *5*			
2683.9 *5*	1,2		

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^{170}Er(n,n′γ) 1992Be63,1992Be29 (continued)

^{170}Er Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
2700.83 *24*	(1)	2753.3 *3*	(1)	2943.0 *6*	(1)	3063.4? *9*	(1)
2717.3? *3*		2790.3 *4*	1^+	2971.5 *6*		3405.9 *4*	1^+
2720.07? *18*		2930.9 *3*	(1)	2993.5? *5*		3607.0 *4*	$1^{(+)},2^{(+)}$

† From least-squares fit to Eγ, omitting Eγ for definite multiplets (unless all γ rays deexciting a given level are multiplets).
‡ Authors′ values, based on mult for deexcitation γ rays and/or J^π of levels they populate; from 1992Be63, except as noted.
# From DSAM (2002YoZZ). These data supersede those In 1999YoZY and 2000WaZV.
@ From Adopted Levels.
& Band(A): $K^\pi=0^+$ g.s. band.
a Band(B): $K^\pi=(0)^+$ β band (2000Gr14). Note that 2000Gr14 assign the 1127 and 1402 levels as the J=4 and 6 members, respectively, of this band, and the 1103 and 1351 levels as the J=4 and 6 members (respectively) of the γ band; in Adopted Levels, however, the β and γ band assignments of these levels are interchanged.
b Band(C): $K^\pi=2^+$ γ band. See comment on β band.
c Band(D): $K^\pi=(3^+)$ band. Configuration=(ν 5/2[512])+(ν 1/2[521]) (2000Gr14).
d Band(E): $K^\pi=(1)^-$ band. Configuration=(ν 7/2[633])-(ν 5/2[512]) (2000Gr14).
e Band(F): $K^\pi=(4^-)$ band. Configuration=(ν 7/2[633])+(ν 1/2[521]), with possible contribution from (π 7/2[523])+(π 1/2[411]) (2000Gr14).
f Band(G): $K^\pi=(0^+)$ band.
g Band(H): $K^\pi=(2^+)$ band.
h Band(I): $K^\pi=(2^-)$ band (2000Gr14). Configuration=(ν 9/2[624])-(ν 5/2[512]) (2000Gr14).
i Band(J): $K^\pi=(5^-)$ band (2000Gr14). Configuration=(ν 9/2[624])+(ν 1/2[521]) (2000Gr14).
j Band(K): $K^\pi=(0^-)$ band, α=1 (2000Gr14). Configuration=(ν 7/2[514])-(ν 7/2[633]) (2000Gr14).
k Band(L): $K^\pi=1^{(+)}$ band (2000Gr14).

γ(^{170}Er)

A_2 and A_4 from γ(θ), and the γ linear polarization (P_γ) (1992Be29), are given in comments on the relevant γ rays.
See 1999De37 and 2000De59 for discussion of relative signs of mixing ratios for low-lying transitions connecting the g.s. band and the γ and β bands.

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[c]	Comments
78.63 *3*	131 *15*	78.601	2^+	0	0^+				
103.46 *10*	4.0 *5*	1372.08	5^-	1268.67	4^-				
108.32[b] *14*	0.93 *15*	1413.13	(5^+)	1304.56	4^+				
[x]148.0[#] *3*	2.6[#] *7*								
[x]151.66 *12*	0.99 *17*								
165.33 *4*	4.1 *5*	1268.67	4^-	1103.36	4^+				
181.570 *20*	276 *31*	260.145	4^+	78.601	2^+	E2		0.348	A_2=+0.206 *6*, A_4=−0.005 *8*, P_γ=1.51 *+17−10*. Other γ(θ): 1983Gr30.
195.58[b] *9*	0.55 *8*	1413.13	(5^+)	1217.52	3^+				
218.66[f] *16*	0.71 *9*	1590.74?	$(5^-,6^-,7^-)$	1372.08	5^-				Possible doublet (2000Gr14).
227.21[f] *6*	2.9 *3*	1495.88?	6^-	1268.67	4^-				A_2=+0.21 *3*, A_4=+0.07 *5*; A_2 differs from that expected for E2 transition from level with short $T_{1/2}$ (1992Be29). Also, sign of A_4 is incorrect for a J to J-2 transition.
[x]232.55 *20*	0.60 *9*								
[x]239.5[#] *5*	0.8[#] *2*								
247.4 *7*	0.22 *6*	1350.47	6^+	1103.36	4^+				Adopted by evaluator as in Adopted Levels. Possible multiplet (1992Be63).
250.8[d] *3*	0.22[d] *6*	1487.88	$(4^+,5^+)$	1236.61	5^+				
250.8[db] *3*	0.22[d] *6*	1823.1	6^+	1572.61	4^+				
[x]252.3[#] *5*	1.0[#] *3*								
[x]254.80 *3*	3.1 *4*								
258.136 *20*	40 *5*	1268.67	4^-	1010.54	3^+	D+Q	−30 *+7−13*		δ: 1992Be29 eliminate small δ solution based on P_γ; however, large δ inconsistent with level scheme. Other: 0≥δ≥−0.2 or δ<−10 (1983Gr30), based on γ(θ) alone. A_2=−0.011 *11*, A_4=+0.013 *17*, P_γ=0.99 *12*. Other γ(θ): 1983Gr30.
[x]267.30 *10*	1.24 *18*								
274.43[d] *21*	0.27[d] *7*	1401.94	6^+	1127.32	4^+				
274.43[db] *21*	0.27[d] *7*	1579.17	3^-	1304.56	4^+				
280.523[d] *20*	45[d] *5*	540.68	6^+	260.145	4^+	E2		0.0848	I_γ: 36 *3* in 1981Bo40. A_2=+0.257 *14*, A_4=−0.044 *19*, P_γ=2.06 *+62−20*. Others: A_2=−0.15 *26*, A_4=−0.55 *23* (1983Gr30). Doublet dominated by this transition.
280.523[db] *20*	45[d] *5*	1631.00	6^-	1350.47	6^+				

γ(^{170}Er) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
283.457 *24*	8.4 *10*	1217.52	3^+	934.03	2^+		
288.9 *3*	0.55 *10*	1506.22	2^-	1217.52	3^+		
293.94 *10*	1.59 *19*	1304.56	4^+	1010.54	3^+		I_γ: 5.5 *6* in 1981Bo40.
x308.6[#] *3*	12.0[#] *8*						Probable impurity, based on strength of γ.
x321.5[#] *5*	0.9[#] *3*						
336.05[d] *10*	1.20[d] *16*	1572.61	4^+	1236.61	5^+		
336.05[d] *10*	1.20[d] *16*	1708.16	(5^-)	1372.08	5^-		
x352.46 *13*	0.95 *13*						
356.27[d] *14*	0.50[d] *20*	1483.36	3^+	1127.32	4^+		I_γ: 1.2 *4* for doublet in 1981Bo40. Definite placement in 2000Gr14.
356.27[df] *14*	0.50[d] *20*	1483.77	5^-	1127.32	4^+		I_γ: 1.2 *4* for doublet in 1981Bo40.
x364.99 *16*	0.29 *6*						
370.99[d] *17*	0.80[d] *22*	1305.22	2^-	934.03	2^+		Alternative placement of γ in 1992Be63 (from a 912 level) appears to be incorrect (2000Gr14).
370.99[db] *17*	0.80[d] *22*	1677.07	4^-	1305.22	2^-		Alternative placement of γ in 1992Be63 (from a 912 level) incorrect (2000Gr14).
374.27 *4*	4.8 *6*	914.99	8^+	540.68	6^+	Q	A_2=+0.223 *15*, A_4=−0.062 *23*, P_γ=1.3 *+9−5*. Placement taken from 2000Gr14; 1992Be63 assigned a doubly-placed 370.99γ to deexcite the J=8 g.s. band member. 1992Be29 placed this 374γ from the 1385 level and deduced −0.90<δ(D,Q)<−0.75 for the implied J=2 to 3 transition (not consistent with observed A_4<0).
379.99[d] *7*	1.67[d] *21*	1340.21	3^-	959.99	2^+		
379.99[d] *7*	1.67[d] *21*	1483.36	3^+	1103.36	4^+		
x383.10 *13*	0.50 *10*						
390.11[f] *10*	1.29 *18*	1324.30	0^+	934.03	2^+		
x398[#]	<0.2[#]						
405.71[db] *9*	3.4[d] *4*	1416.26	2^+	1010.54	3^+	D+Q	A_2=−0.014 *22*, A_4=+0.08 *3*, P_γ=1.7 *+27−6* for doublet. δ(D,Q)=−12 *+3−5* if J to J-1 transition (1992Be29).
405.71[d] *9*	3.4[d] *4*	1745.90?	(4^-)	1340.21	3^-	D+Q	A_2=−0.014 *22*, A_4=+0.08 *3*, P_γ=1.7 *+27−6* for doublet. δ(D,Q)=−12 *+3−5* if J to J-1 transition (1992Be29).
x413.95[@] *11*	0.94 *13*						
422.63[d] *14*	0.50[d] *7*	1432.97	4^-	1010.54	3^+		
422.63[d] *14*	0.50[d] *7*	1526.41	4^+	1103.36	4^+		
x436.8 *4*	0.40 *7*						
439.50[db] *5*	3.4[d] *4*	1677.07	4^-	1236.61	5^+		I_γ: 1.9 *5* in 1981Bo40.
439.50[d] *5*	3.4[d] *4*	1708.16	(5^-)	1268.67	4^-		I_γ: 1.9 *5* in 1981Bo40.
445.29 *15*	0.63 *10*	1572.61	4^+	1127.32	4^+		
447.2[db] *3*	0.26[d] *8*	1683.58	5^+	1236.61	5^+		
447.2[db] *3*	0.26[d] *8*	1819.01	(6^-)	1372.08	5^-		

$^{170}_{68}Er_{102}$-5

γ(^{170}Er) (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	Comments
451.72[b] 6	2.2 3	1579.17	3⁻	1127.32	4⁺		A_2=−0.03 3, A_4=−0.03 4. δ=−0.40 +7−8 or (1/δ)=+0.004 +6−5 if J=2 to 2 transition (1992Be29).
456.53 12	1.13 15	1416.26	2⁺	959.99	2⁺		
459.55[b] 21	0.50 8	1677.07	4⁻	1217.52	3⁺		
469.29 16	0.52 8	1572.61	4⁺	1103.36	4⁺		
472.84 4	5.4 7	1483.36	3⁺	1010.54	3⁺		
475.47[b] 7	1.02 16	1579.17	3⁻	1103.36	4⁺		
477.21[df] 6	4.9[d] 7	1487.88	(4⁺,5⁺)	1010.54	3⁺		
477.21[d] 6	4.9[d] 7	1745.90?	(4⁻)	1268.67	4⁻		
482.200[db] 23	13.3[d] 17	1416.26	2⁺	934.03	2⁺		A_2=+0.135 16, A_4=+0.019 23 for doublet. Other: 1983Gr30.
482.200[d] 23	13.3[d] 17	1699.58	(1⁺)	1217.52	3⁺		A_2=+0.135 16, A_4=+0.019 23 for doublet. Other: 1983Gr30.
[x]492.41 8	3.2 6						
495.67 7	4.3 7	1506.22	2⁻	1010.54	3⁺	D+Q	δ: +0.10 4 or −12 +4−5 (1992Be29). A_2=−0.058 20, A_4=−0.02 3.
[x]500.5[#] 5	1.5[#] 2						
[x]526.63 12	0.49 8						
[x]532.5[#] 8	0.5[#] 2						
[x]538.24 10	1.40 19						
[x]543.31 12	2.7 5						I_γ: 0.9 5 in 1981Bo40.
549.31[d] 8	3.3[d] 6	1483.36	3⁺	934.03	2⁺		A_2=−0.19 3, A_4=0.00 4, P_γ=0.6 +4−3, δ(D,Q)=−0.02 +3−4 for doublet assuming J=3 to 2 transition.
549.31[db] 8	3.3[d] 6	1677.07	4⁻	1127.32	4⁺		A_2=−0.19 3, A_4=0.00 4, P_γ=0.6 +4−3.
[x]556.2[#] 8	0.9[#] 3						
562.30[d] 12	1.0[d] 4	1572.61	4⁺	1010.54	3⁺		I_γ: 3.7 11 in 1981Bo40 for doublet.
562.30[d] 12	1.0[d] 4	1689.80	5⁺	1127.32	4⁺		I_γ: 3.7 11 in 1981Bo40 for doublet.
[x]563.8[#] 8	4.3[#] 12						
568.65[db] 9	4.5[d] 7	1579.17	3⁻	1010.54	3⁺		
568.65[d] 9	4.5[d] 7	1805.18	(3,4⁺)	1236.61	5⁺		
572.22[d] 5	14.3[d] 19	1506.22	2⁻	934.03	2⁺		Multiplet (1992Be63). A_2=+0.08 8, A_4=−0.09 7 (1983Gr30).
572.22[db] 5	14.3[d] 19	1677.07	4⁻	1103.36	4⁺		A_2=+0.08 8, A_4=−0.09 7 (1983Gr30); doublet in 1992Be63.
580.33[b] 9	1.28 17	1683.58	5⁺	1103.36	4⁺		
586.67[d] 14	2.0[d] 3	1127.32	4⁺	540.68	6⁺		
586.67[d] 14	2.0[d] 3	1689.80	5⁺	1103.36	4⁺		
586.67[db] 14	2.0[d] 3	1823.1	6⁺	1236.61	5⁺		
620.46[f] 17	0.79 12	1631.00	6⁻	1010.54	3⁺		
[x]629.42 20	0.70 11						

$^{170}_{68}Er_{102}$-6

^{170}Er(n,n′γ) 1992Be63,1992Be29 (continued)

γ(^{170}Er) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	Comments
[x]632.4[#] *7*	0.5[#] *2*							
638.0 *3*	0.25 *6*	1572.61	4^+	934.03	2^+			
641.71[db] *22*	0.92[d] *18*	1556.73	7^+	914.99	8^+			
641.71[d] *22*	0.92[d] *18*	1769.19	$(3,4^+)$	1127.32	4^+			
645.23[b] *3*	4.1 *6*	1579.17	3^-	934.03	2^+	D(+Q)	−0.07 *+4−5*	A_2=−0.230 *17*, A_4=+0.01 *3*, P_γ=1.8 *+14−7*.
665.84[db] *5*	2.9[d] *4*	1677.07	4^-	1010.54	3^+	D+Q		δ: +0.22 *+8−5* or +9 *+12−3*, −6.4<δ<−2.0 for J(1769 level)=3, 4, respectively (for doublet). A_2=−0.223 *21*, A_4=+0.06 *3*, P_γ=1.5 *+12−6* for doublet.
665.84[d] *5*	2.9[d] *4*	1769.19	$(3,4^+)$	1103.36	4^+	D+Q		δ: +0.22 *+8−5* or +9 *+12−3*, −6.4<δ<−2.0 for J(1769 level)=3, 4, respectively (for doublet). A_2=−0.223 *21*, A_4=+0.06 *3*, P_γ=1.5 *+12−6* for doublet.
[x]672.0[#] *10*	0.6[#] *3*							
673.72 *9*	0.93 *14*	934.03	2^+	260.145	4^+			
678.27 *16*	0.36 *7*	1805.18	$(3,4^+)$	1127.32	4^+			Multiplet (1992Be63).
[x]680.02 *13*	0.49 *8*							
[x]684.0 *3*	0.11 *3*							
[x]686.48 *11*	1.09 *16*							
695.92[d] *5*	2.3[d] *3*	1236.61	5^+	540.68	6^+			I_γ: ≤1.5 in 1981Bo40.
695.92[db] *5*	2.3[d] *3*	1823.1	6^+	1127.32	4^+			I_γ: ≤1.5 in 1981Bo40.
699.870 *22*	20 *3*	959.99	2^+	260.145	4^+	E2		I_γ: 15.7 *20* in 1981Bo40. A_2=+0.071 *24*, A_4=+0.03 *4*, P_γ=1.27 *+33−23*.
[x]702.54 *7*	0.85 *15*							
[x]710.29 *11*	0.80 *13*							
720.6[b] *10*	0.25 *9*	1823.1	6^+	1103.36	4^+			Multiplet (1992Be63).
[x]723.40 *15*	0.15 *4*							
725.29[b] *8*	1.7 *3*	1640.42	7^-	914.99	8^+			
[x]731.13 *12*	0.55 *16*							
[x]738.64 *22*	0.56 *9*							
[x]742.84 *16*	0.28 *6*							
750.379 *23*	21 *3*	1010.54	3^+	260.145	4^+	D+Q	-1.8×10^2 *+11−46*	δ: from 2000De59; δ(D,Q)=+0.08 *+4−3* or (1/δ)=−0.03 *+4−3* (1992Be29). A_2=−0.129 *6*, A_4=+0.031 *9*, P_γ=0.82 *17* (1992Be29); A_2=−0.125 *6*, A_4=+0.028 *9* (2000De59).
765.11 *10*	1.14 *17*	1982.63?	$(1^+,2^+)$	1217.52	3^+			
[x]768.12 *15*	1.8 *5*							
[x]778.70 *7*	4.3 *9*							A_2=+0.158 *20*, A_4=+0.01 *3*, P_γ=1.68 *+10−5*.
[x]801.18 *10*	0.83 *15*							
[x]807.89 *14*	0.82 *14*							
809.78 *7*	2.9 *5*	1350.47	6^+	540.68	6^+			Adopted by evaluator as in Adopted Levels.
812.29 *3*	27 *4*	890.89	0^+	78.601	2^+			P_γ=0.98 *21* (1992Be29); A_2=+0.09 *13*, A_4=+0.06 *12* (1983Gr30). Mult=E2 assigned by 1983Gr30.

$^{170}_{68}Er_{102}$-7

^{170}Er(n,n′γ) 1992Be63,1992Be29 (continued)

γ(^{170}Er) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	Comments
[x]827.01 *15*	0.44 *12*							
831.44 *23*	0.91 *16*	1372.08	5^-	540.68	6^+			
843.25 *3*	30 *4*	1103.36	4^+	260.145	4^+	D+Q	+2.81 *10*	Other δ: 1983Gr30. A_2=+0.015 *6*, A_4=−0.096 *10*, P_γ=0.76 *+16−15*. Other γ(θ): 1983Gr30.
[x]851.11 *10*	0.50 *8*							
855.445[@] *23*	67 *10*	934.03	2^+	78.601	2^+	D+Q	+17 *+6−3*	I_γ: 63 *3* in 1981Bo40. Other δ: 1983Gr30. A_2=−0.018 *6*, A_4=+0.006 *8*, P_γ=0.67 *13* (1992Be29). Other γ(θ): 1983Gr30. Alternative placement of line (1992Be63) rejected by evaluator.
861.26 *6*	2.8 *4*	1401.94	6^+	540.68	6^+			
867.18 *4*	14.5 *24*	1127.32	4^+	260.145	4^+	D+Q		δ: −1.29 *+7−12* or −9.8 *+22−63*. Other: 1983Gr30. A_2=−0.196 *10*, A_4=−0.053 *16*. Other γ(θ): 1983Gr30.
872.40 *7*	1.2 *3*	1413.13	(5^+)	540.68	6^+	D+Q		δ=+0.15 *+7−6* or −30<δ<−1.6 (1992Be29). A_2=−0.26 *5*, A_4=+0.10 *7*.
881.383 *21*	28 *4*	959.99	2^+	78.601	2^+	D+Q	+0.27 *+19−8*	Other δ: −0.35≤δ≤−0.2 or +2.2≤δ≤+4.0 (1983Gr30). A_2=+0.25 *3*, A_4=0.00 *3*, P_γ=1.7 *+5−3*. Other γ(θ): 1983Gr30.
885.52 *20*	0.18 *4*	2190.16	$(4^+,5,6^+)$	1304.56	4^+			
[x]887.93 *19*	0.49 *8*							
889.8 *5*	0.26 *7*	1899.7?		1010.54	3^+			E_γ: alternative placement from a 2159 level suggested in 1998GlZY, but comparable strength 941γ which also deexcites that level is not reported in (n,n′γ).
[x]902.86 *15*	3.0 *8*							Multiplet (1992Be63).
[x]911.8 *7*	0.26 *7*							
[x]921.2[#] *5*	0.9[#] *2*							
[x]928.93 *13*	0.92 *15*							
931.98 *4*	100	1010.54	3^+	78.601	2^+	D+Q	-1.5×10^2 *+8−50*	δ: from 2000De59; (1/δ)=−0.11 *+11−6* in 1992Be29. Other: 1983Gr30. A_2=+0.050 *6*, A_4=+0.067 *9*, P_γ=0.96 *+21−18*; A_2=+0.048 *6*, A_4=+0.064 *9* (2000De59). Other γ(θ): 1983Gr30, for 932γ+934γ.
934.06 *5*	55 *8*	934.03	2^+	0	0^+	E2		A_2=+0.198 *7*, A_4=−0.028 *10*, P_γ=2.7 *+12−5* (1992Be29). Other γ(θ): 1983Gr30, for 934γ+932γ.
[x]939.5[#] *10*	1.7[#] *7*							
943.09 *6*	2.6 *4*	1483.77	5^-	540.68	6^+			
947.19 *12*	0.63 *10*	1487.88	$(4^+,5^+)$	540.68	6^+			
953.0 *3*	0.13 *4*	2080.52	2^+	1127.32	4^+			
957.26 *7*	7.2 *11*	1217.52	3^+	260.145	4^+	D+Q		δ: +0.27 *+9−6* or +6.6 *+40−23* (1992Be29). Other: 1983Gr30. I_γ: 9.4 *2* in 1981Bo40. A_2=−0.252 *10*, A_4=+0.028 *16*, P_γ=1.0 *3*. Other γ(θ): 1983Gr30.
959.96 *6*	19 *4*	959.99	2^+	0	0^+	E2		I_γ: 15.3 *20* in 1981Bo40. A_2=+0.212 *14*, A_4=−0.071 *15*, P_γ=2.7 *+13−6*. Other γ(θ): 1983Gr30, for 960γ+957γ.

$^{170}_{68}Er_{102}$-8

γ(^{170}Er) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult. ‡	δ ‡	Comments
976.45 *8*	13.0 *19*	1236.61	5^+	260.145	4^+	D+Q		δ: +0.20≥δ≥+0.12 or δ>+10 (1983Gr30). A_2=+0.08 *11*, A_4=+0.08 *10* (1983Gr30).
x981.4 *4*	0.70 *14*							Possible multiplet (1992Be63).
985.80 *17*	0.66 *10*	1526.41	4^+	540.68	6^+			
1002.63 bf *17*	0.94 *14*	1543.50?	6^+	540.68	6^+			
1008.3 *3*	0.10 *3*	1268.67	4^-	260.145	4^+			
x1010.26 *16*	0.50 *9*							
1016.04 *7*	1.29 *19*	1556.73	7^+	540.68	6^+			
1024.69 *3*	10.0 *14*	1103.36	4^+	78.601	2^+	E2		A_2=+0.250 *14*, A_4=−0.043 *19*, P_γ=2.7 *+15−7*.
1044.40 *4*	8.6 *12*	1304.56	4^+	260.145	4^+	Q+D	+6.3 *+45−18*	A_2=−0.070 *13*, A_4=−0.097 *19*, P_γ=0.63 *+22−19*.
1048.67 *4*	11.6 *17*	1127.32	4^+	78.601	2^+	E2		A_2=+0.270 *14*, A_4=−0.057 *18*, P_γ=3.4 *+26−10*.
1059.2 b *3*	0.23 *5*	2019.08	2^+	959.99	2^+			
1063.8 *7*	0.32 *7*	2190.16	$(4^+,5,6^+)$	1127.32	4^+			
x1068.7 *7*	0.30 *7*							
1070.1 *3*	0.19 *4*	2080.52	2^+	1010.54	3^+			
1080.09 *3*	14.5 *21*	1340.21	3^-	260.145	4^+	D(+Q)	+0.016 *+23−17*	I_γ: 15.1 *8* in 1981Bo40. A_2=−0.181 *7*, A_4=+0.013 *10*, P_γ=1.2 *3*. Other γ(θ), δ: 1983Gr30.
1090.6 df *4*	1.6 d *3*	1350.47	6^+	260.145	4^+			Adopted by evaluator as in Adopted Levels.
1090.6 d *4*	1.6 d *3*	1631.00	6^-	540.68	6^+			
1090.6 df *4*	1.6 d *3*	1982.63?	$(1^+,2^+)$	890.89	0^+			
1099.99 b *11*	2.2 *3*	1640.42	7^-	540.68	6^+			
1111.81 *11*	3.1 *5*	1372.08	5^-	260.145	4^+			Possible multiplet (1992Be63).
1125.28 *3*	5.5 *8*	1385.41	2^+	260.145	4^+	E2		A_2=+0.068 *13*, A_4=+0.013 *18*, P_γ=1.5 *+8−5*.
1138.99 *3*	33 *5*	1217.52	3^+	78.601	2^+	D+Q	+14 *+7−4*	A_2=+0.123 *12*, A_4=+0.073 *11*, P_γ=1.4 *+4−3*. Other γ(θ), δ: 1983Gr30.
1142.78 b *9*	1.16 *17*	1683.58	5^+	540.68	6^+			
x1145.7 *3*	0.17 *5*							
1153.14 *8*	3.8 *6*	1413.13	(5^+)	260.145	4^+			Possible multiplet (1992Be63).
x1159.46 *17*	0.10 *4*							
1164.16 b *18*	0.27 *7*	1704.85	7^-	540.68	6^+			
1172.82 *3*	10.0 *14*	1432.97	4^-	260.145	4^+	D(+Q)	+0.02 *+4−3*	A_2=+0.293 *10*, A_4=+0.012 *14*, P_γ=0.27 *+10−11*. Other γ(θ), δ: 1983Gr30.
1177.8 *3*	0.11 *3*	2112.2	2^+	934.03	2^+			
1182.1 *4*	0.30 *7*	2399.04	$(1^+,2^+)$	1217.52	3^+			
1188.040 *21*	28 *4*	1266.65	1^-	78.601	2^+	E1		δ(D,Q)=0.00 *10* (1992Be29). A_2=−0.019 *6*, A_4=0.0, P_γ=1.03 *+25−20*. Others: A_2=−0.16 *8*, A_4=−0.17 *9* (1983Gr30).
x1215.28 *22*	0.26 *6*							
1223.55 dbf *9*	4.2 d *6*	1483.36	3^+	260.145	4^+			A_2=−0.253 *17*, A_4=+0.05 *3*, P_γ=1.5 *+7−4*, δ(D,Q)=−0.06 *+3−4* for doubly-placed γ.
1223.55 d *9*	4.2 d *6*	1483.77	5^-	260.145	4^+			I_γ: 7 *2* in 1981Bo40.

$^{170}_{68}Er_{102}$-9

^{170}Er(n,n′γ) 1992Be63,1992Be29 (continued)

γ(^{170}Er) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	Comments
								A_2=−0.253 *17*, A_4=+0.05 *3*, P_γ=1.5 *+7−4*, δ(D,Q)=−0.06 *+3−4* for doubly-placed γ.
1226.64[e]	4.1[e&] *9*	1304.56	4^+	78.601	2^+			
1226.64[e] *6*	25[e&] *4*	1305.22	2^-	78.601	2^+			A_2=+0.28 *9*,A_4=+0.08 *8* (1983Gr30) for doublet, 86% of which deexcites this level.
1245.69 *4*	7.8 *11*	1324.30	0^+	78.601	2^+			A_2=+0.001 *8*, A_4=0.0, P_γ=0.85 *+26−22*.
1261.51 *6*	6.3 *10*	1340.21	3^-	78.601	2^+	D+Q		I_γ: 8.1 *7* in 1981Bo40. δ: −0.014 *+4−5* or −3.8 *6* (1992Be29). A_2=−0.181 *11*, A_4=−0.033 *16*.
1266.24 *8*	5.3 *8*	1526.41	4^+	260.145	4^+			
[x]1275.84 *20*	0.58 *9*							
1278.32[b] *23*	0.20 *8*	1819.01	(6^-)	540.68	6^+			
1282.3[b] *4*	0.23 *4*	1823.1	6^+	540.68	6^+			
1283.61[bf] *20*	0.43 *7*	1543.50?	6^+	260.145	4^+			
[x]1292[#]	<5[#]							
[x]1297.5 *4*	0.27 *6*							
1306.810 *24*	10.8 *15*	1385.41	2^+	78.601	2^+	D+Q	−0.74 *+7−12*	Other δ: +0.4≤δ≤+10 (1983Gr30). A_2=−0.139 *14*, A_4=0.000 *15*, P_γ=1.7 *+6−4*. Others: A_2=+0.30 *27*, A_4=+0.18 *22* (1983Gr30).
1312.51 *11*	2.6 *4*	1572.61	4^+	260.145	4^+	D+Q		δ: −0.59 *+7−8* or +3.5 *+10−6*. A_2=−0.02 *3*, A_4=−0.09 *5*, P_γ=1.0 *+10−5*.
1319.1[b] *3*	1.38 *22*	1579.17	3^-	260.145	4^+			Multiplet (1992Be63).
[x]1329.5 *4*	0.21 *4*							
1337.64 *3*	5.9 *8*	1416.26	2^+	78.601	2^+	D+Q	+4.9 *+12−9*	A_2=+0.048 *16*, A_4=+0.046 *23*, P_γ=0.78 *+30−24*.
1352.8 *5*	0.30 *8*	2657.4?		1304.56	4^+			
[x]1354.5 *6*	0.28 *8*							
[x]1361.25 *14*	0.47 *8*							
[x]1369[#] *1*	1.2[#] *7*							
[x]1374.68 *11*	0.42 *7*							
[x]1376.21 *10*	0.84 *13*							
[x]1381.48 *24*	0.42 *9*							
1385.31 *5*	4.7 *7*	1385.41	2^+	0	0^+	E2		A_2=+0.23 *3*, A_4=−0.05 *4*, P_γ=3.0 *+40−12*. Eγ=1400.5 *10*, Iγ=0.9 *4* in 1981Bo40.
[x]1398.8 *5*	0.22 *5*							
1404.73 *4*	5.7 *8*	1483.36	3^+	78.601	2^+	D+Q	+5.1 *+15−12*	A_2=+0.226 *18*, A_4=+0.116 *22*, P_γ=1.6 *+8−5*.
1416.23[d] *7*	6.7[d] *10*	1416.26	2^+	0	0^+			Multiplet (1992Be63).
1416.23[db] *7*	6.7[d] *10*	1677.07	4^-	260.145	4^+			Multiplet (1992Be63).
1423.4[b] *3*	1.21 *18*	1683.58	5^+	260.145	4^+			Possible multiplet (1992Be63).
[x]1427.40 *16*	0.84 *12*							
[x]1434.32 *23*	0.34 *6*							
1441.03 *6*		2451.8	(4^+)	1010.54	3^+			E_γ: from 2002YoZZ.
[x]1441.1 *4*	0.26 *7*							

γ(^{170}Er) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
1447.97[d] *20*	1.9[d] *3*	1526.41	4$^+$	78.601	2$^+$		
1447.97[d] *20*	1.9[d] *3*	1708.16	(5$^-$)	260.145	4$^+$		
[x]1454.78 *16*	0.53 *9*						
1483.38 *17*	1.18 *17*	2720.07?		1236.61	5$^+$		
[x]1486.7 *6*	0.28 *7*						Possible multiplet (1992Be63).
[x]1492.5[#] *10*	0.9[#] *5*						
[x]1507.5[#] *8*	2.2[#] *3*						
[x]1517.92 *15*	0.95 *14*						
1518		2451.8	(4$^+$)	934.03	2$^+$		E_γ: from 1999YoZY.
[x]1519.33 *14*	0.52 *8*						
1530.7[f] *7*	0.12 *3*	2657.4?		1127.32	4$^+$		
[x]1533.0 *7*	0.18 *4*						
[x]1541.15 *18*	0.49 *8*						
1544.96 *8*	1.62 *24*	1805.18	(3,4$^+$)	260.145	4$^+$		
[x]1561.5 *3*	0.44 *12*						
1590.2 *3*	0.50 *11*	2717.3?		1127.32	4$^+$		
[x]1601.1 *4*	0.19 *5*						
1610.2[b] *7*	0.40 *9*	2150.9	5$^-$	540.68	6$^+$		Multiplet (1992Be63).
1612.5 *7*	0.15 *4*	2717.3?		1103.36	4$^+$		
1617.3 *5*	0.08 *3*	2720.07?		1103.36	4$^+$		
[x]1620.60 *10*	1.38 *21*						
[x]1624.17 *15*	0.20 *5*						
[x]1630[#] *1*	2.4[#] *10*						
[x]1631.4[#] *8*	1.2[#] *4*						
[x]1634.0 *3*	0.80 *18*						
1649.5 *5*	0.21 *6*	2190.16	(4$^+$,5,6$^+$)	540.68	6$^+$		
[x]1659.2 *7*	0.15 *4*						
1663.27[b] *6*	3.7 *5*	1741.88		78.601	2$^+$		A_2=+0.161 *16*, A_4=+0.024 *23*.
1675.38 *14*	2.2 *4*	1935.51	3$^-$	260.145	4$^+$		Possible multiplet (1992Be63).
[x]1690.5[#] *10*	0.9[#] *3*						
1699.57 *9*	2.0 *3*	1699.58	(1$^+$)	0	0$^+$		A_2=+0.144 *23*, A_4=0.00.
1726.1 *3*	1.00 *17*	1805.18	(3,4$^+$)	78.601	2$^+$		Possible multiplet (1992Be63).
[x]1728.22 *13*	0.39 *6*						
1746.01 *5*	3.9 *6*	1824.62	1$^-$	78.601	2$^+$	D	δ(D,Q)=−0.1 *3* (1992Be29); δ>>0 solution excluded based on mult(1825γ). A_2=+0.02 *3*, A_4=0.00.
[x]1755.52 *14*	2.6 *4*						Possible multiplet (1992Be63).
1786.4[f] *17*	0.22 *7*	2720.07?		934.03	2$^+$		Possible multiplet (1992Be63).
[x]1801.5 *5*	0.20 *5*						
[x]1810.3 *6*	3.7 *6*					(E2)	A_2=+0.276 *22*, A_4=+0.03 *3*.
[x]1815.0 *3*	0.71 *11*						Possible multiplet (1992Be63).
1820.9 *3*	0.44 *8*	1899.7?		78.601	2$^+$		

$^{170}_{68}$Er$_{102}$-11

^{170}Er(n,n′γ) 1992Be63,1992Be29 (continued)

γ(^{170}Er) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	Comments
1824.6 *3*	2.4 *4*	1824.62	1^-	0	0^+	E1		A_2=−0.14 *3*, A_4=0.00.
x1847.6 *3*	0.10 *3*							
x1849.6 *6*	0.23 *5*							
1856.88 *14*	2.3 *4*	1935.51	3^-	78.601	2^+	D(+Q)	−0.03 *+4−5*	A_2=−0.20 *4*, A_4=−0.03 *5*.
1862.6 *3*	0.08 *3*	2753.3	(1)	890.89	0^+			
x1865.1 *6*	0.22 *5*							
x1869.3 *5*	0.20 *5*							
x1871.36 *18*	0.64 *11*							
1890.8[b] *3*	0.74 *14*	2150.9	5^-	260.145	4^+			
1894.43 *8*	1.65 *24*	1973.05	1^+	78.601	2^+			
x1901[#] *1*	0.9[#] *3*							
x1904[#] *1*	1.1[#] *3*							
1940.41[b] *20*	2.8 *5*	2019.08	2^+	78.601	2^+			A_2=+0.18 *4*, A_4=+0.05 *6*.
x1943.7 *3*	1.10 *9*							A_2=+0.37 *8*, A_4=0.00 *14*.
1960.7 *6*	0.85 *13*	2039.3	(1)	78.601	2^+			Multiplet (1992Be63); however, based on adopted 2039 level branching, essentially all Iγ belongs to this placement, unless the 2039.3γ is itself a multiplet.
x1966.5 *7*	0.36 *7*							Possible multiplet (1992Be63).
1973.1 *3*	1.39 *20*	1973.05	1^+	0	0^+	D		A_2=−0.12 *5*, A_4=0.0.
x1985.5 *11*	0.50 *10*							Possible multiplet (1992Be63).
1992.8 *3*	3.9 *6*	2071.3	2^+	78.601	2^+	D+Q		δ: −0.14 *+6−5* or +3.5 *+7−6* (1992Be29).
								A_2=+0.100 *19*, A_4=+0.06 *3*.
1996.7 *3*	0.57 *9*	2930.9	(1)	934.03	2^+			
x1998.8 *3*	0.23 *4*							
x2002.70 *17*	1.5 *3*					D+Q		δ: −0.58 *+10−16* or −9.2 *+4−54* (1992Be29) if ΔJ=0 transition.
								A_2=−0.11 *4*, A_4=+0.13 *6*.
x2014.6 *7*	0.69 *11*							Possible multiplet (1992Be63).
x2031.8 *8*	0.28 *5*							Multiplet (1992Be63).
2034.6 *5*	0.13 *3*	2112.2	2^+	78.601	2^+			
2039.3 *3*	1.65 *23*	2039.3	(1)	0	0^+	D		A_2=−0.13 *3*, A_4=−0.01 *5*.
2051.9 *6*	0.10 *3*	2943.0	(1)	890.89	0^+			
2054.37 *15*	1.28[a] *19*	2132.97	(1)	78.601	2^+			
2071.0 *5*	0.81 *13*	2071.3	2^+	0	0^+			
x2073.0 *4*	1.32 *19*							
2080.53 *15*	4.1 *6*	2080.52	2^+	0	0^+	E2		I_γ: 1.7 *4* in 1981Bo40.
								A_2=+0.26 *4*, A_4=−0.01 *5*.
								A_2=+0.25 *5*, A_4=+0.14 *7*.
x2096.1 *4*	0.58 *10*							
x2099.4 *3*	1.5 *3*							
2102.3 *5*	0.66 *11*	2993.5?		890.89	0^+			
2113.0[f] *5*	1.00 *23*	2112.2	2^+	0	0^+	(E2)		A_2=+0.27 *5*, characteristic of 2^+ to 0^+ transition (1992Be63).
2132.9 *4*	1.24 *18*	2132.97	(1)	0	0^+			Multiplet (1992Be63).
								A_2=−0.15 *4*, A_4=−0.03 *6*.

$^{170}_{68}Er_{102}$-12

^{170}Er(n,n′γ) 1992Be63,1992Be29 (continued)

γ(^{170}Er) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Comments
x2148.0 5	0.56 12					Possible multiplet (1992Be63).
x2157.6 5	0.28 5					
x2160.4 5	0.23 4					
x2167.1 3	0.85 17					
2176.6[f] 10	0.32 20	2717.3?		540.68	6^+	Possible multiplet (1992Be63).
x2184.3 4	0.21 4					
x2187.7 3	0.81 12					
x2205.0 7	0.31 6					Possible multiplet (1992Be63).
x2235.4 7	1.01 16					Possible multiplet (1992Be63).
x2242.55 24	0.84 13					
x2271.9 6	1.05 21					
x2283.1 9	0.25 5					Possible multiplet (1992Be63). Placed from 3607 level in 1992Be63 but not in 2000Gr14.
x2295.5 9	0.22 5					Possible multiplet (1992Be63).
x2357.5 6	0.40 7					
x2376.1 7	0.26 4					
x2378.8 3	0.45 7					
x2385.1 4	0.58 9					Possible multiplet (1992Be63).
2398.7 3	0.41 7	2399.04	$(1^+,2^+)$	0	0^+	
x2403.2 4	0.21 4					Possible multiplet (1992Be63).
x2405.8 4	0.66 10					Possible multiplet (1992Be63).
2472.4 6	0.47 9	3405.9	1^+	934.03	2^+	Possible multiplet (1992Be63).
x2477.4 5	0.37 7					
x2557.7 9	0.33 9					
x2588.0 9	0.13 5					
x2603.8 4	0.18 4					
2606.0 8	0.14 6	2683.9	1,2	78.601	2^+	
2622.4 4	0.73[a] 11	2700.83	(1)	78.601	2^+	
x2669.7 9	0.28 8					
2673.1 9	0.37 9	2753.3	(1)	78.601	2^+	
2683.6 5	0.73[a] 12	2683.9	1,2	0	0^+	
2700.7 3	0.75 12	2700.83	(1)	0	0^+	
2711.2 12	0.13 6	2790.3	1^+	78.601	2^+	
2716.1 4	0.39 7	3607.0	$1^{(+)},2^{(+)}$	890.89	0^+	Placement indicated as tentative in 2000Gr14.
x2746.8 10	0.29 6					
x2757.5 10	0.27 5					
x2760.0 20	0.09 3					Possible multiplet (1992Be63).
x2766.0 11	0.08 3					
x2778.8 10	0.12 4					
x2786.8 4	0.18 4					
2790.3 4	0.30 5	2790.3	1^+	0	0^+	
x2799.3 7	0.14 5					
x2817.1 5	0.32 6					
x2824.5 11	0.33 6					Possible multiplet (1992Be63).

$^{170}_{68}Er_{102}$-13

^{170}Er(n,n′γ) 1992Be63,1992Be29 (continued)

γ(^{170}Er) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Comments
x2831.4 5	0.34 6					
x2848.7 7	0.08 3					
2852.6 5	0.29 6	2930.9	(1)	78.601	2+	
2865.1 10	0.14 4	2943.0	(1)	78.601	2+	
x2872.5 5	0.09 3					
x2882.8 6	0.23 5					Erroneously shown deexciting 2972 level in table 1 of 1992Be63.
2893.4 6	0.39 7	2971.5		78.601	2+	
x2899.9 6	0.13 3					
2919.0 18	0.14 5	2993.5?		78.601	2+	
2938 f 3	0.10 4	2943.0	(1)	0	0+	Possible multiplet (1992Be63).
x2951.1 8	0.13 4					
2968.8 13	0.15 4	2971.5		0	0+	
x2976.4 9	0.18 4					
2984.1 15	0.37 7	3063.4?	(1)	78.601	2+	Possible multiplet (1992Be63).
x3018.7 7	0.15 3					
x3040.1 6	0.08 3					
x3042.8 5	0.15 3					
x3045.7 9	0.13 4					
x3060.2 15	0.09 3					Possible multiplet (1992Be63).
3063.8 11	0.08 3	3063.4?	(1)	0	0+	
x3076.7 7	0.09 3					
x3083.9 5	0.08 3					
x3167.4 9	0.13 4					
x3172.2 7	0.15 5					
x3306.6 11	0.18 5					
3326.3 7	0.18 5	3405.9	1+	78.601	2+	
x3356.8 10	0.36 7					Multiplet (1992Be63).
x3385.0 19	0.10 4					Possible multiplet (1992Be63).
3406.2 8	0.14 4	3405.9	1+	0	0+	
x3436.7 12	0.17 6					
x3476.9 10	0.12 4					
x3483 3	0.12 5					Possible multiplet (1992Be63).
x3507.1 7	0.13 4					
x3578 3	0.20 7					Possible multiplet (1992Be63).
x3591.0 17	0.15 5					Possible multiplet (1992Be63).
x3618.0 7	0.13 4					
x3622.9 8	0.13 3					
x3683.7 7	0.20 5					
x3733.4 9	0.09 3					
x4336 3	0.11 3					Possible multiplet (1992Be63).
x4462.7 11	0.34 6					Possible multiplet (1992Be63).
x4507.1 22	0.13 3					Multiplet (1992Be63).

$^{170}_{68}Er_{102}$-14

γ(^{170}Er) (continued)

† From 1992Be63, except as noted. Eγ from 1992Be63 has greater precision than Eγ from 1981Bo40; Iγ data from 1992Be63 and 1981Bo40 are consistent, unless noted otherwise.
‡ Based on γ(θ) and/or γ-ray linear polarization ($P_γ$) data from 1992Be29, except as noted.
# From 1981Bo40; γ-ray absent in 1992Be63. Iγ normalized so I(847γ, ^{56}Fe)=1000.
@ Placed by 1992Be63 from 2159 level, but Eγ is too high and much stronger lines known from $β^-$ decay to deexcite that level are absent in (n,n′γ).
& The 1226.64 *6* γ is a possible multiplet with components deexciting the 1304.5 and 1305.2 levels. Based on I(1044.4γ) and adopted branching from 1304.5 level, (1226.6γ)=4.1 *9* from 1304.5 level is expected; this leaves I(1226.6γ)=25 *4* deexciting the 1305.2 level.
[a] Based on adopted branching for parent level, Iγ is somewhat higher than expected suggesting that γ may be complex here.
[b] Placement from 2000Gr14.
[c] 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.
[d] Multiply placed with undivided intensity.
[e] Multiply placed with intensity suitably divided.
[f] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

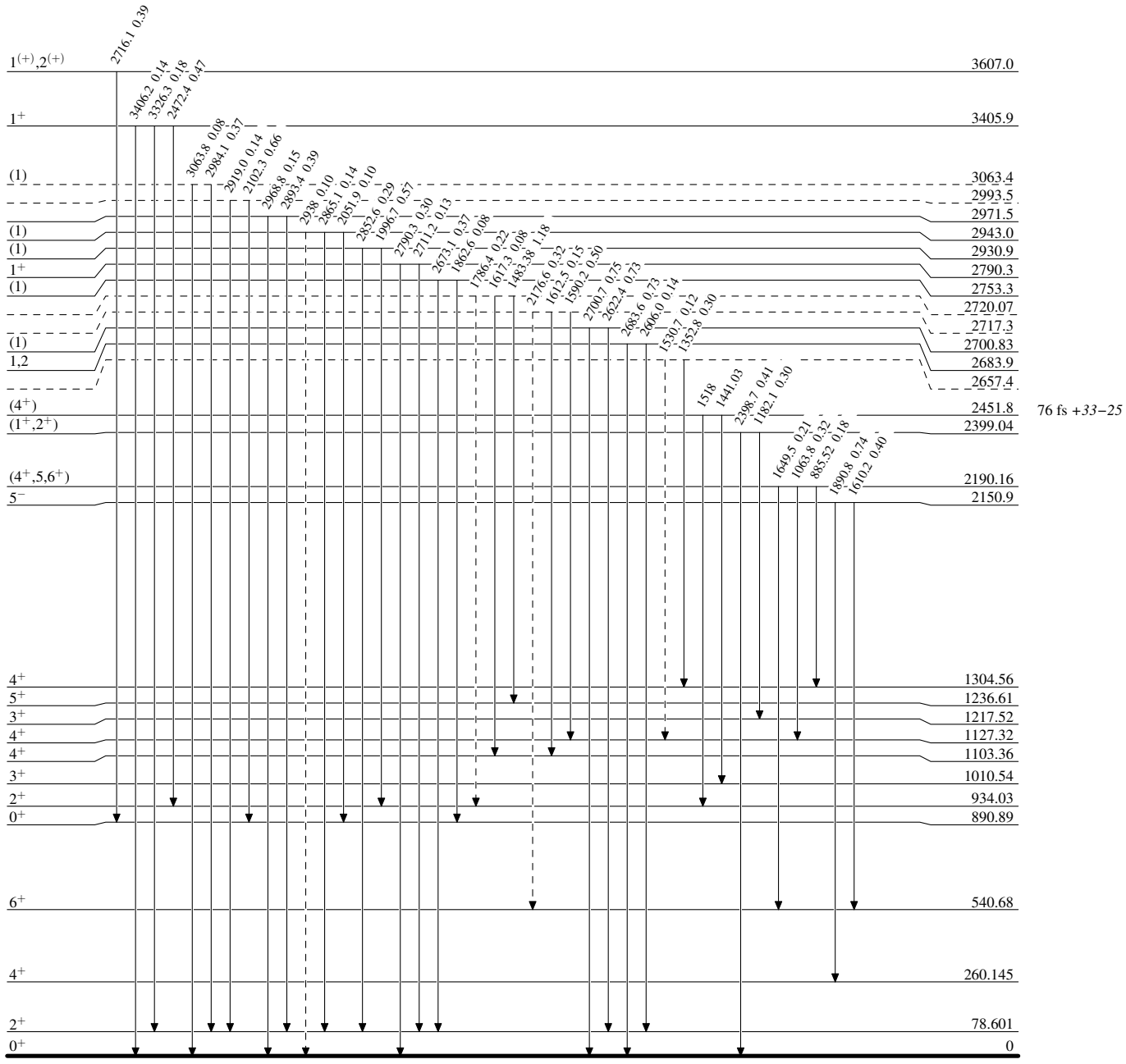
$^{170}_{68}Er_{102}$-15

^{170}Er(n,n′γ) 1992Be63,1992Be29

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)



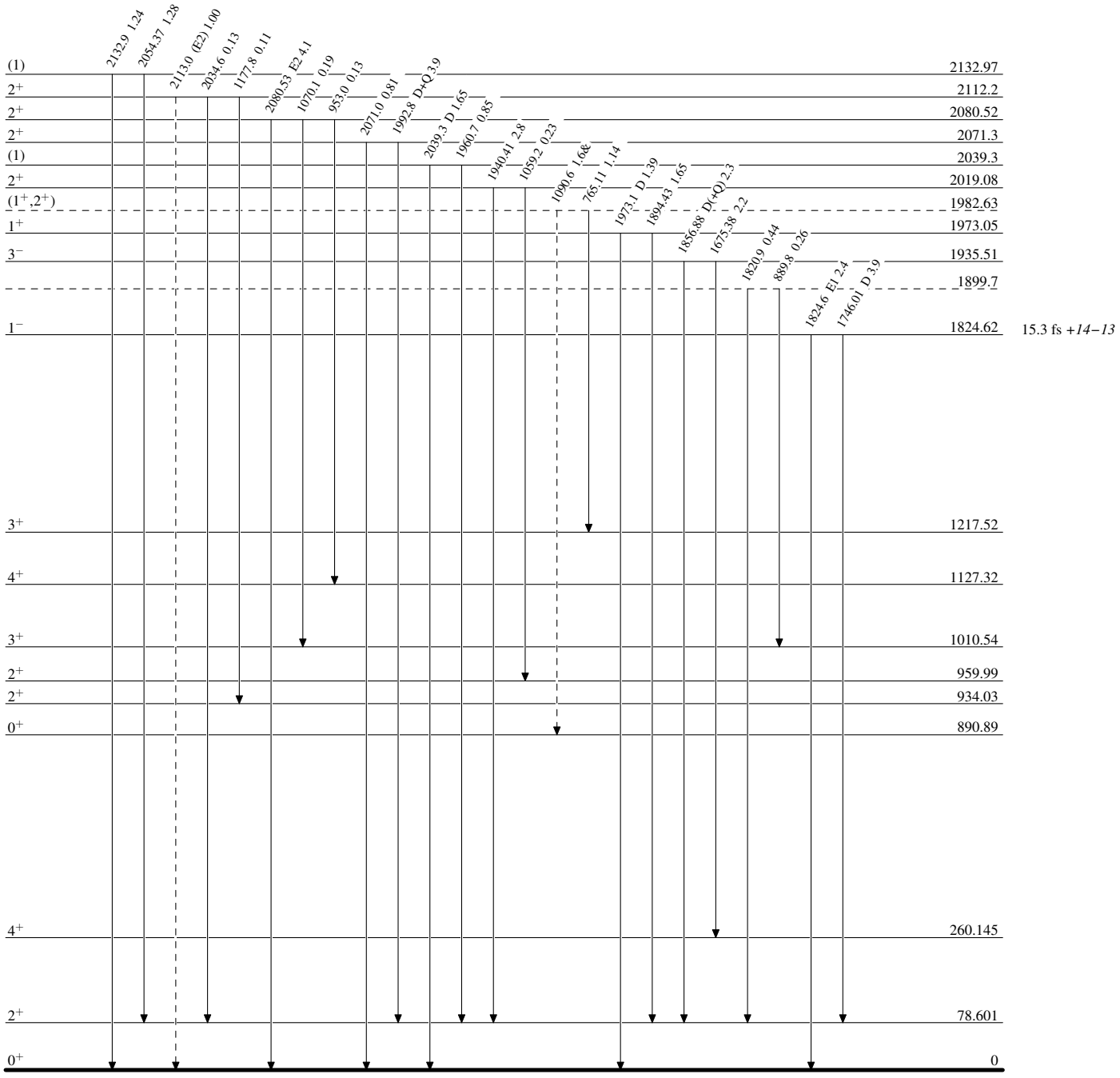
$^{170}_{68}Er_{102}$

^{170}Er(n,n′γ) 1992Be63,1992Be29

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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)



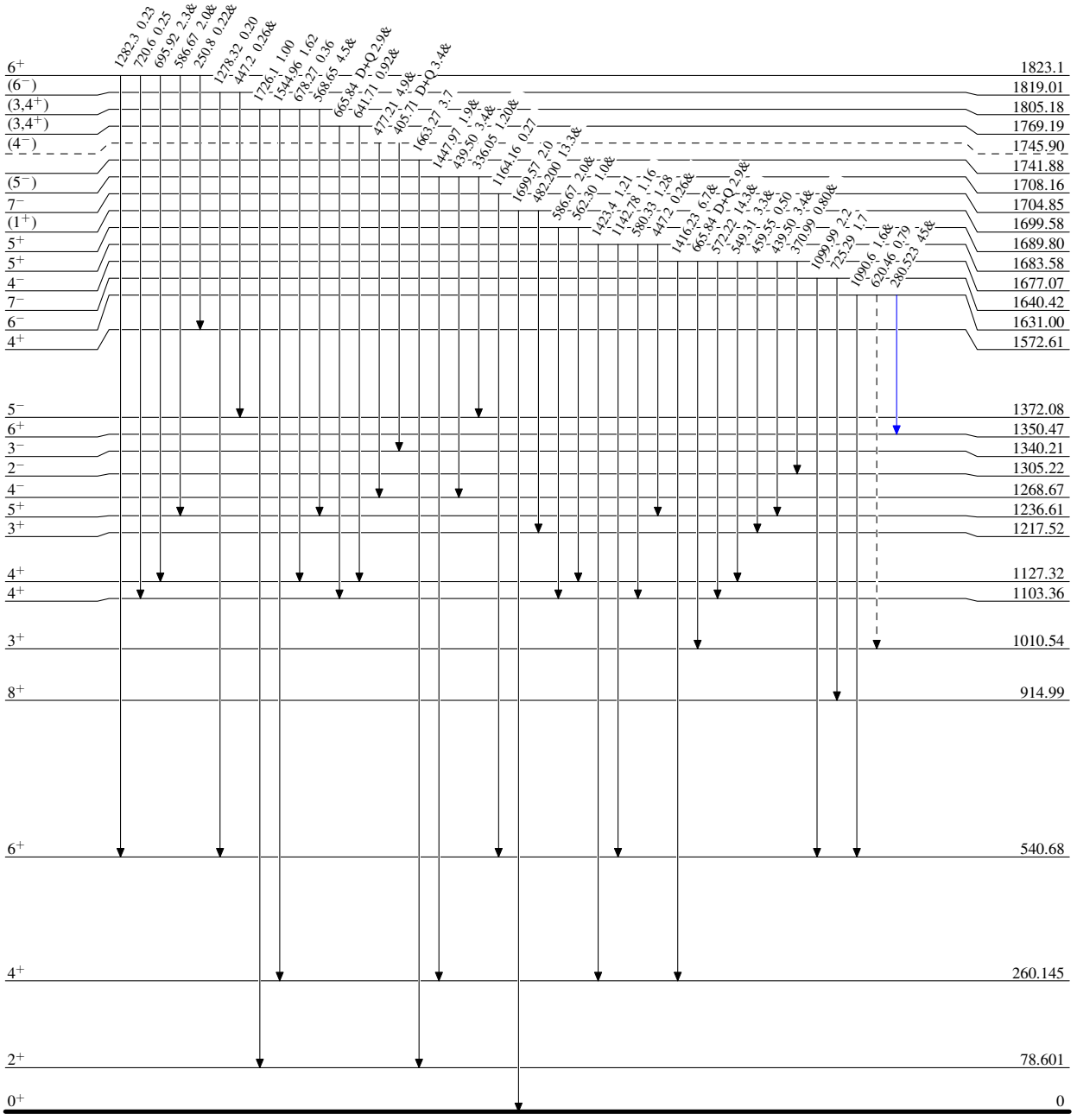
$^{170}_{68}Er_{102}$

^{170}Er(n,n′γ) 1992Be63,1992Be29

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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)



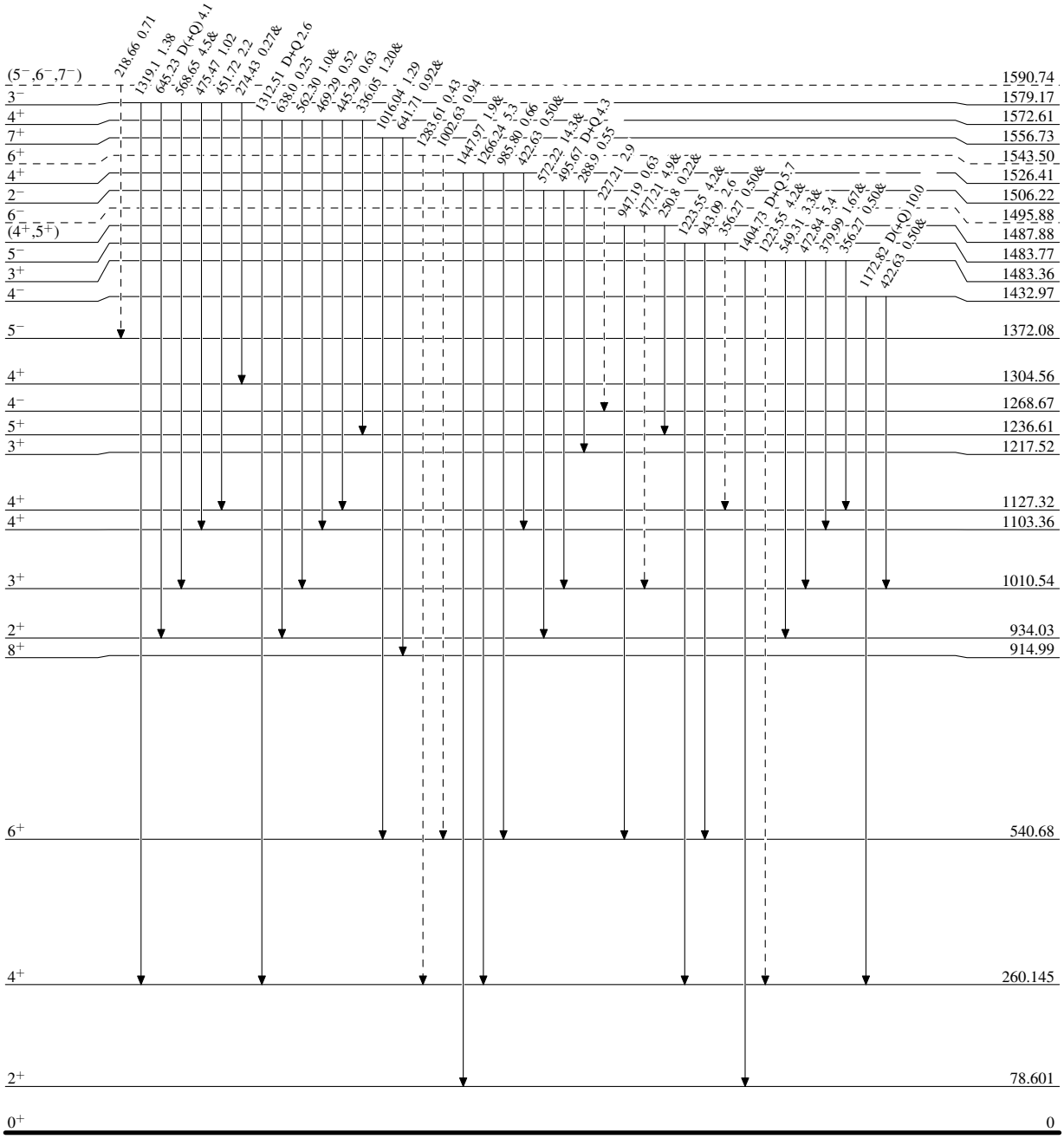
$^{170}_{68}Er_{102}$

^{170}Er(n,n′γ) 1992Be63,1992Be29

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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)



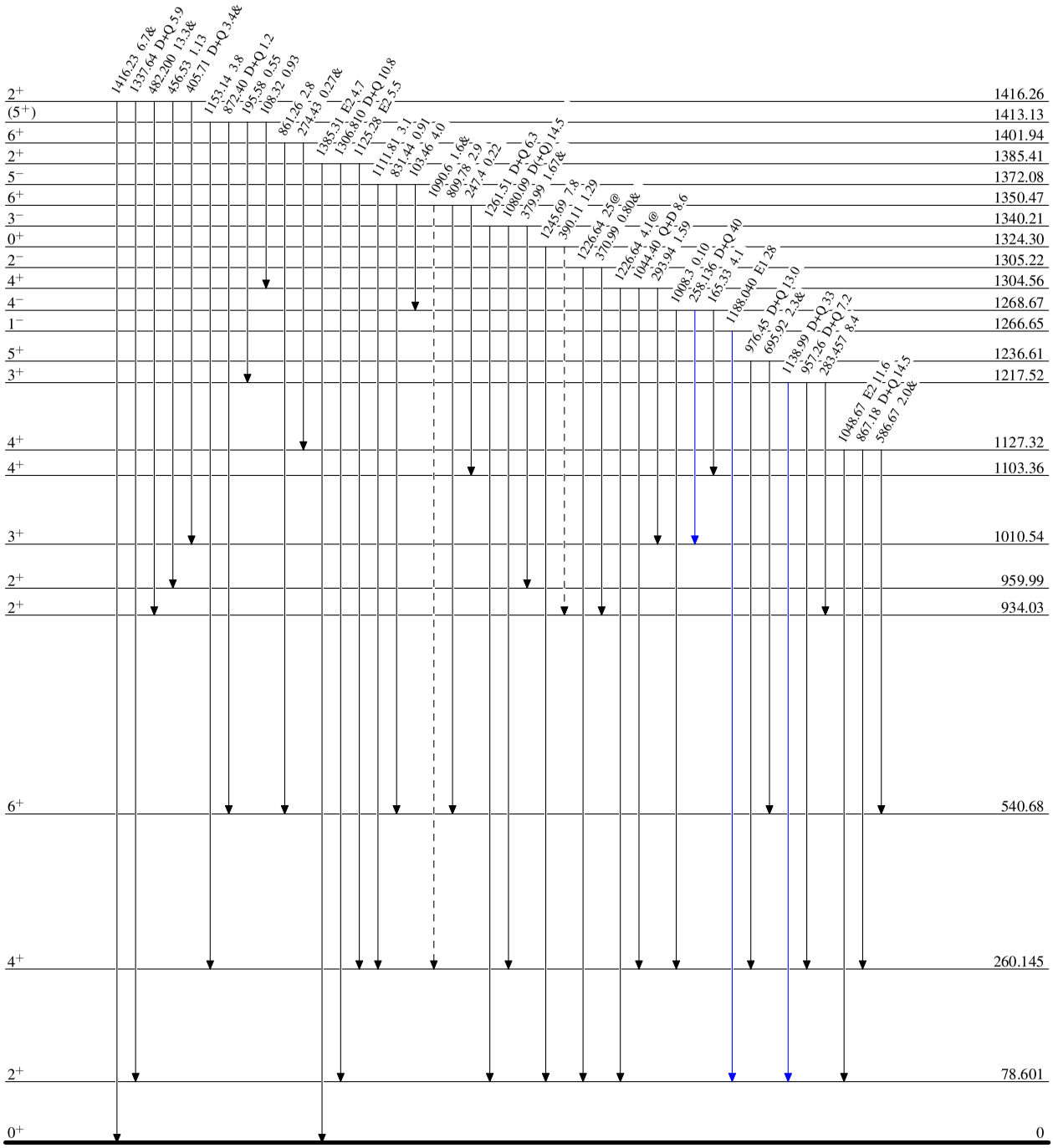
$^{170}_{68}Er_{102}$

^{170}Er(n,n′γ) 1992Be63,1992Be29

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

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

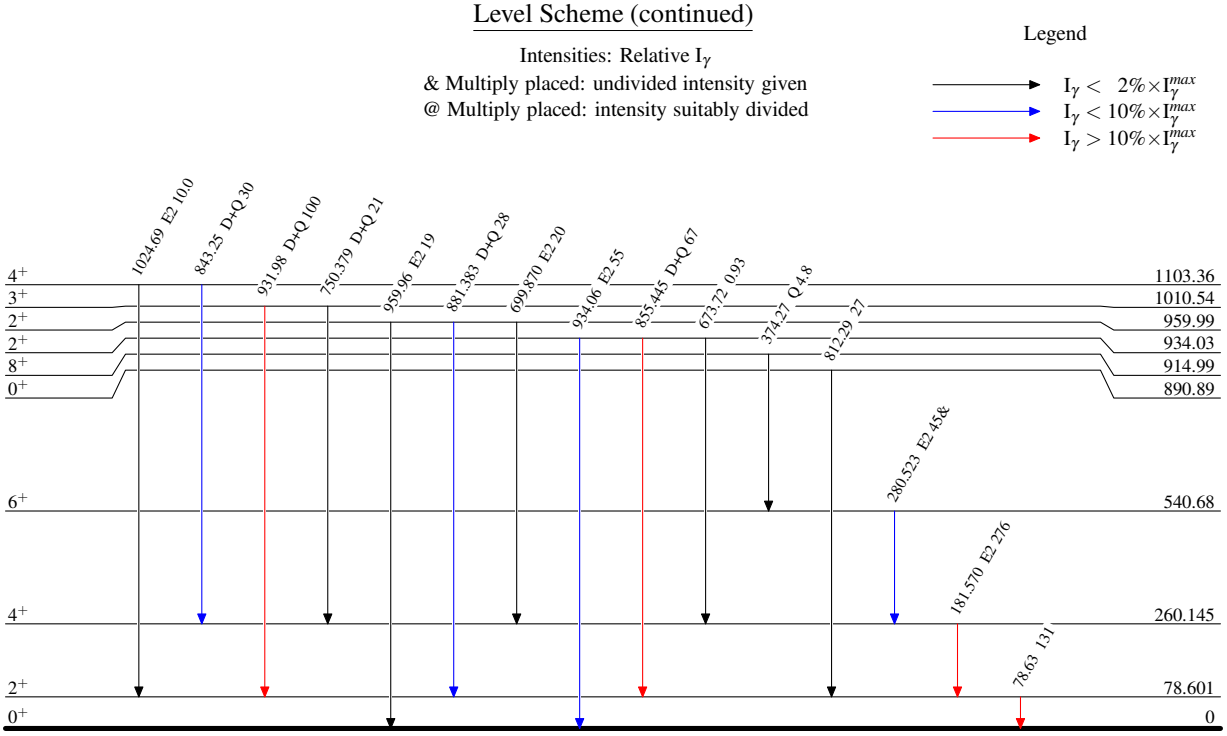


$^{170}_{68}Er_{102}$

^{170}Er(n,n′γ) 1992Be63,1992Be29

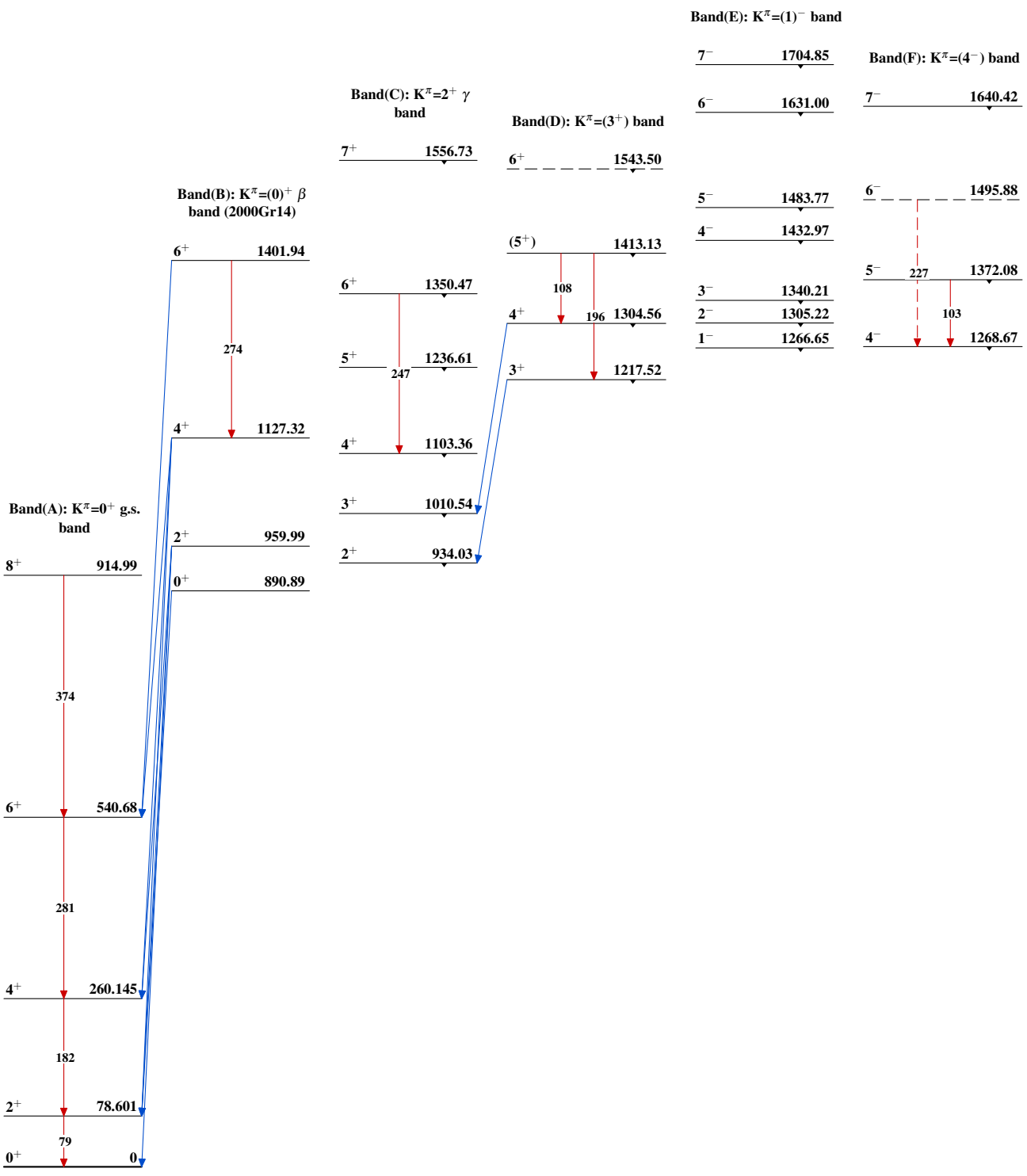
Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



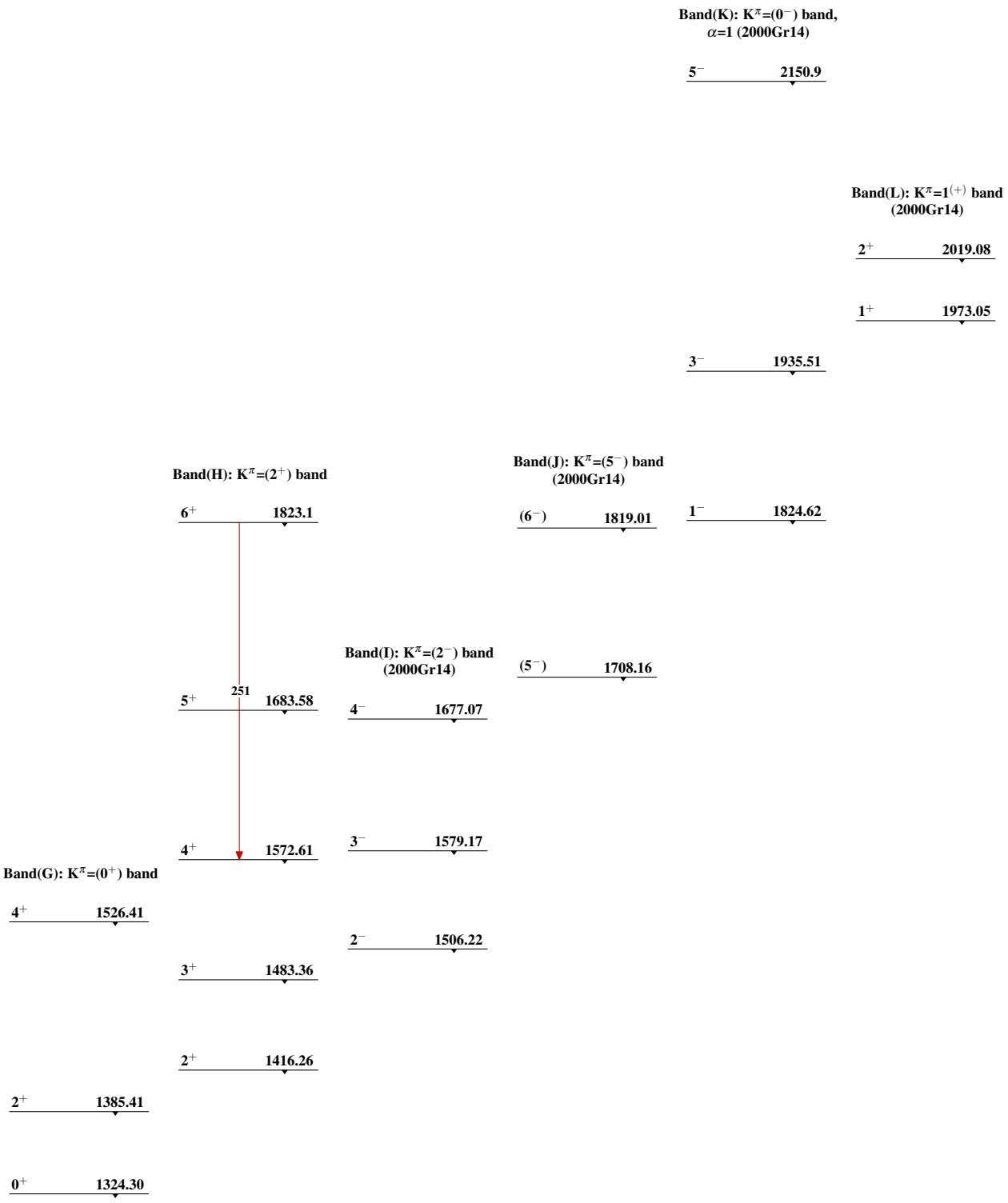
$^{170}_{68}Er_{102}$

^{170}Er(n,n′γ) 1992Be63,1992Be29



$^{170}_{68}Er_{102}$

^{170}Er(n,n′γ) 1992Be63,1992Be29 (continued)



$^{170}_{68}Er_{102}$