Coulomb excitation **1980Ya03,1982Ro07,1996Br09**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen[#]	NDS 147, 1 (2018)	30-Nov-2017

1980Ya03 (also 1976Le18): (^{136}Xe,^{136}Xe′γ), E=547,612,620 MeV. Measured Eγ, Iγ, $\gamma\gamma$, Doppler-broadened line shapes.
1982Ro07 (also 1977Ro27): (α,α') E=12-16 MeV. Measured σ.
1996Br09: (^{58}Ni,^{58}Ni′γ) E=165, 210, 225 MeV. Measured g factors of g.s. band members using $\gamma(\theta$,H,t).
1977Ke06 (also 1974Ke04): (^{84}Kr,^{84}Kr′γ) E=348 MeV, (^{56}Fe,^{56}Fe′γ) E=232 MeV. Measured Doppler-broadened line shapes.
Others:
1997Al25: (^{58}Ni,^{58}Ni′γ) E=220 MeV. Measured g factor of 4^+ in g.s. band using $\gamma(\theta$,H,t).
1983Hu01 (also 1981Hu02): (α,$\alpha'\gamma$) E=12.5 MeV; (^{16}O,^{16}Oγ) E=48 MeV. Measured $\alpha\gamma$, γ-^{16}O coin.
1965Yo04: (^{16}O,^{16}Oγ) E=43.5 MeV. Measured σ.
1962Af01: (^{14}N,^{14}N′γ) E=50 MeV.
1960El07: (p,p′γ) E=4.5 MeV, (d,d′γ) E=4.5 MeV.

^{164}Er Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
0.0[&]	0^+		From measured γ-ray yields for heavy and light projectiles, 1981Hu02 propose the intrinsic shape as prolate.
91.4[&]	2^+	1.57 ns *3*	g=0.343 *8* (1996Br09) B(E2)↑=5.48 *4* (1977Ro27) B(E2)↑: other: 5.04 *35* (1960El07). $T_{1/2}$: from B(E2).
299.5[&]	4^+		g=0.341 *20* (1996Br09) Other: g=0.37 *4* (1997Al25). B(E4)=0.0144 *+432−143* (1977Ro27) implying β_4=−0.03 *3*.
614.4[&]	6^+		g=0.314 *15* (1996Br09)
860.3[a]	2^+	1.9 ps *2*	g=0.404 *30* (1996Br09) Q=2.39 *26* (1983Hu01) B(E2)↑=0.148 *6* (1982Ro07) Q: reorientation effect (1983Hu01). $T_{1/2}$: from B(E2) (1982Ro07) and branching ratio from 1983Hu01. B(E2)↑: other: 0.18 *5* (1965Yo04).
1024.6[&]	8^+	2.59 ps *14*	g=0.340 *16* (1996Br09) $T_{1/2}$: Doppler-broadened line shape. Weighted average of 2.63 ps *20* (1977Ke06) and 2.56 ps *12* (1980Ya03).
1058[@a]	4^+		
1315[#]	2^+		B(E2)↑=0.006 *3* (1982Ro07)
1358[@a]	6^+		
1433[#]	3^-		B(E3)↑=0.15 *3* (1982Ro07)
1484	2^+		B(E2)↑=0.030 *9* (1982Ro07)
1518.1[&]	10^+	1.01 ps *5*	g=0.318 *34* (1996Br09) $T_{1/2}$: from Coul. ex. Weighted average of 0.98 ps *5* (1977Ke06, Doppler broadening); 1.01 ps *6* (1980Ya03, Doppler broadening); and 1.11 ps *10* (1980Ya03, from B(E2)↓(493.4γ)=1.70 *16*).
1568[#]	(3^-)		B(E3)↑=0.091 *34* (1982Ro07)
1745[@a]	8^+		
2082.8[&]	12^+	0.63 ps *10*	$T_{1/2}$: from Coul. ex. Unweighted average of 0.82 ps *8* (1977Ke06, Doppler broadening); 0.55 ps *4* (1980Ya03, Doppler broadening); and 0.52 ps *5* (1980Ya03, from B(E2)↓(564.7γ)=1.89 *19*).
2184[@a]	$(10)^+$		
2703[@&]	14^+		
2733[@a]	(12^+)		

Continued on next page (footnotes at end of table)

Coulomb excitation 1980Ya03,1982Ro07,1996Br09 (continued)

^{164}Er Levels (continued)

E(level)[†]	Jπ[‡]
2875[@ b]	(14+)
3263[@ b]	16+
3267[@ a]	(14+)
3411[@ &]	(16+)
4121[@ &]	(18+)

† From Eγ data.
‡ From Adopted Levels.
# Weakly excited level (1982Ro07).
@ From 1980Ya03.
& Band(A): g.s. band.
a Band(B): γ band.
b Band(C): super (S) band.

γ(^{164}Er)

E_i(level)	J_i^π	E_γ[†]	I_γ[@]	E_f	J_f^π	Mult.[‡]	α[&]	Comments
91.4	2+	91.4		0.0	0+	E2	4.14	
299.5	4+	208.1		91.4	2+	E2	0.221	
614.4	6+	315		299.5	4+			
860.3	2+	768.9	54 *2*	91.4	2+	E2		
		860.3	46 *2*	0.0	0+	E2		B(E2)(860.3)/B(E2)(768.9)=0.490 *9* (1982Ro07), 0.64 *25* (1965Yo04).
1024.6	8+	410.1[# *5*		614.4	6+			
1058	4+	758.8		299.5	4+			
1358	6+	744.2		614.4	6+			
1518.1	10+	493.4[# *5*		1024.6	8+			B(E2)(to 8+,1025)=1.70 *16* (1980Ya03).
1745	8+	386.6		1358	6+			
		720.1		1024.6	8+			
2082.8	12+	564.7[# *5*		1518.1	10+			B(E2)(to 10+,1518)=1.89 *19* (1980Ya03).
2184	(10)+	439.4		1745	8+			
2703	14+	619.8		2082.8	12+			B(E2)(to 12+,2083)=2.3 *3* (1980Ya03).
2733	(12+)	549.0		2184	(10)+			B(E2)(to 10+,2184)=1.5 *7* (1980Ya03).
2875	(14+)	792.0		2082.8	12+			
3263	16+	388.4		2875	(14+)			
		560.5		2703	14+			B(E2)(to 14+,2703)<2.8 (1980Ya03).
3267	(14+)	533.7		2733	(12+)			B(E2)(to 12+,2733)=1.9 *9* (1980Ya03).
3411	(16+)	708.6		2703	14+			B(E2)(to 14+,2703)=1.5 *3* (1980Ya03).
4121	(18+)	710.0		3411	(16+)			

† From Adopted Gammas unless otherwise noted.
‡ From Adopted Gammas.
# From 1977Ke06.
@ From 1983Hu01.
& 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.

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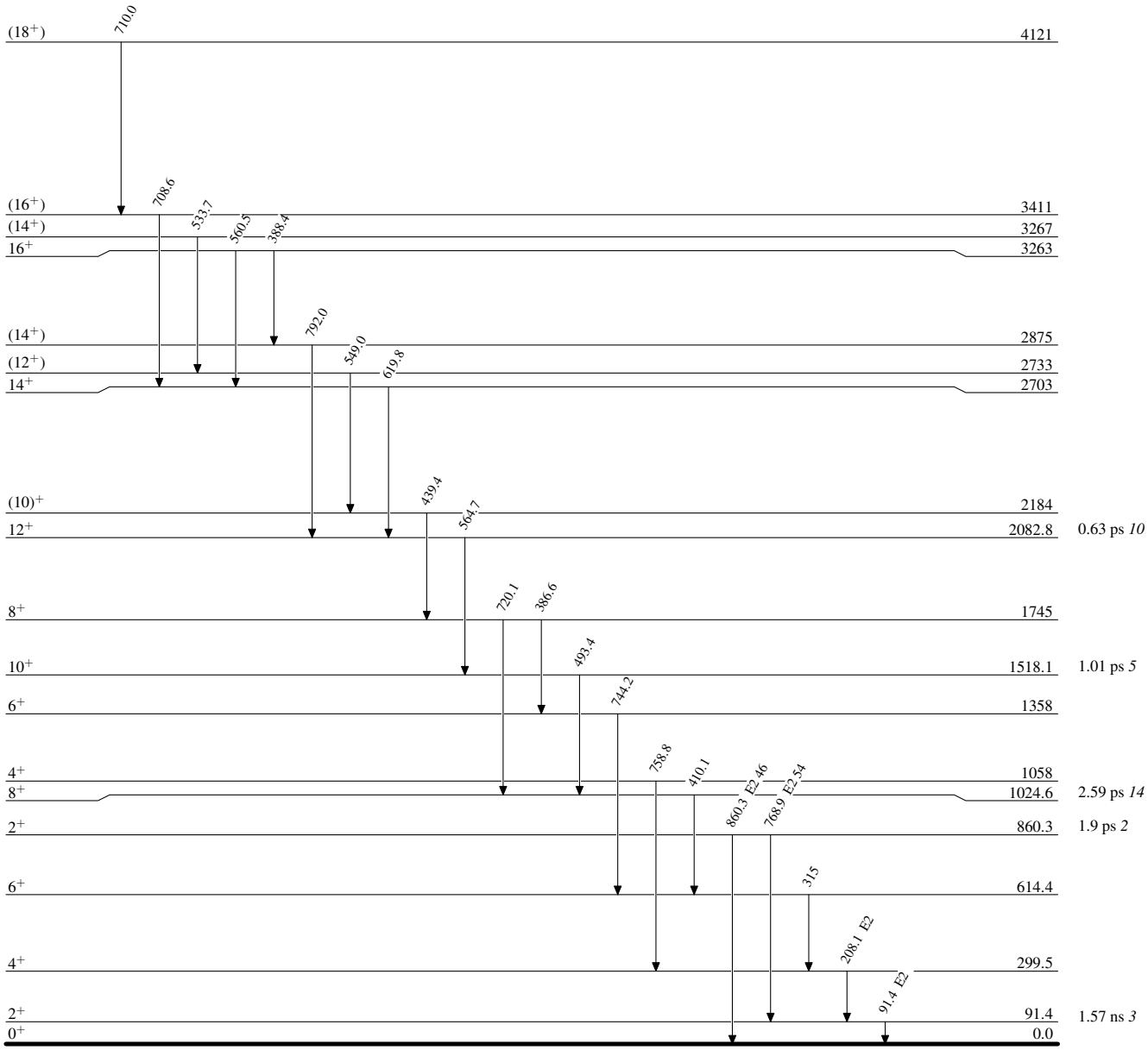
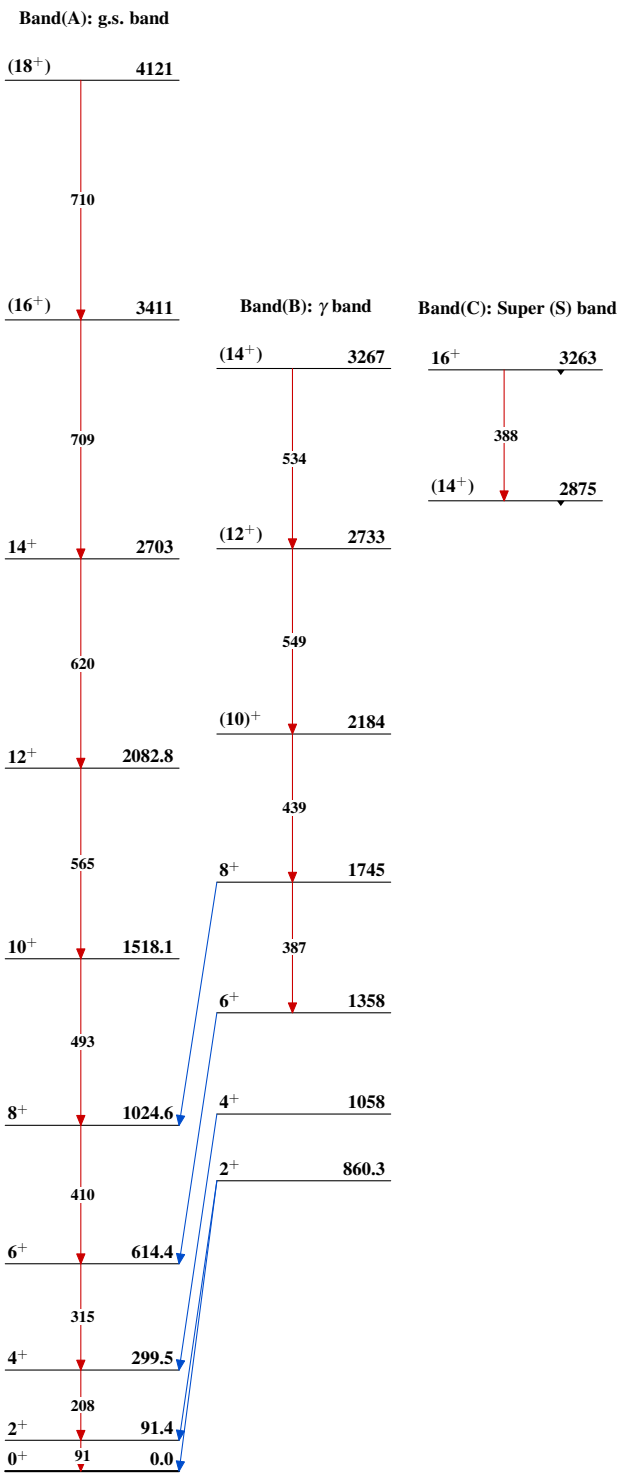
Level Scheme

Intensities: % photon branching from each level



$^{164}_{68}Er_{96}$

Coulomb excitation 1980Ya03,1982Ro07,1996Br09



$^{164}_{68}Er_{96}$