^{166}Er(^{18}O,4nγ),^{168}Er(^{16}O,4nγ) 1988Li02,1990Dr02,2005Mo33

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 126, 151 (2015)	1-Feb-2015

2005Mo33: E(^{16}O)=80 MeV. Measured Eγ, Iγ, deduced $T_{1/2}$ using delayed coincidence method with a pulsed beam. γ-rays detected with a low-energy photon (LEP) Ge detector positioned at 0° to the beam direction.

1990Dr02: E(^{16}O)=87 MeV. Measured Eγ, Iγ, E(ce), I(ce) using a Compton-suppressed Ge detector and a superconducting, solenoidal electron spectrometer operated in lens mode coupled to a cooled Si(Li) detector (FWHM=2.6 keV); determined α(K), α(L), and α(M) coefficients.

1988Li02: E(^{18}O)=85 MeV. Measured Eγ, Iγ, γγ coin, γ(θ), E(ce), I(ce) using five Compton-suppressed Ge detectors and a mini-orange electron spectrometer with a Si(Li) detector. A subset of results were published earlier in 1982Ne14 and 1982Ne01. A later work by the same first author using the ^{150}Nd(^{36}S,6nγ) reaction (1999Li03) finds some discrepancies with the results presented in 1988Li02. Differences are noted in the comments, see also the ^{150}Nd(^{36}S,6nγ),^{150}Nd(^{34}S,4nγ) dataset.

1982Dr03: E(^{16}O)=92 MeV. Measured Eγ, Iγ, γγ coin, γ(θ), γγ(t), E(ce), I(ce) using two Ge(Li) detectors (one with Compton-suppression), a LEPS detector, and a mini-orange spectrometer with a cooled Si(Li) detector.

Others: 1999ShZW, 1983Ne14, 1983Dr17, 1981Dr06, 1980Dr10.

^{180}Os Levels

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	Comments
0.0[@]	0+		
132.21[@] *24*	2+	0.67 ns *7*	
408.7[@] *3*	4+		
795.1[@] *3*	6+		
831.1[i] *3*	2+		
870.40[&] *24*	2+		
1023.1[&] *3*	3+		
1052.6[i] *4*	4+		
1196.8[&] *3*	4+		
1257.5[@] *3*	8+		
1379.0[i] *3*	6+		
1405.6[&] *3*	5+		
1514.6[b] *3*	4−		
1515.6 *3*	4+		
1604.4[d] *3*	5−		
1627.4[&] *3*	6+		
1761.3[b] *3*	6−		
1767.9[@] *4*	10+		
1862.6[d] *3*	7−	≤0.21 ns	
1877.1 *3*	6+		
1881.2[&] *4*	7+		
1928.7[a] *3*	7−	15.2 ns *14*	$T_{1/2}$: from beam-γ(t) using 1134γ in 2005Mo33. Authors state a similar result is obtained by analysis of the long-lived components of the time distributions of the ground state band transitions. Other: 15.9 ns *21* from γγ(t) (1982Dr03). configuration: ν7/2[633]ν7/2[514].
1955.8[gm] *4*	(8+)		
2055.0[a] *4*	8−		
2086.2[b] *4*	8−		
2175.9[d] *3*	9−		
2217.8[a] *4*	9−		
2276.7[gm] *4*	(10+)		

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^{166}Er(^{18}O,4nγ),^{168}Er(^{16}O,4nγ) 1988Li02,1990Dr02,2005Mo33 (continued)

^{180}Os Levels (continued)

E(level)[†]	J^{π}[‡]	E(level)[†]	J^{π}[‡]	E(level)[†]	J^{π}[‡]	E(level)[†]	J^{π}[‡]
2286.3[e] 4	7^{-}	3342.5[h] 5	(14^{+})	4770.6[e] 7	17^{-}	6595.7[a] 9	(24^{-})
2309.1[@] 4	12^{+}	3384.5[a] 5	14^{-}	4821.8[@] 7	20^{+}	6766.7[f] 8	(26^{+})[k]
2409.0[a] 4	10^{-}	3402.5[f] 5	16^{+}[jk]	4920.2[a] 6	19^{-}	6772.9[e] 9	(23^{-})
2410.9[&] 4	9^{+}	3452.4[b] 5	14^{-}	5045.7[d] 7	21^{-}	6817.1[hm] 13	(24^{+})
2428.7? 6		3476.5[d] 4	15^{-}	5136.5[c] 8	20^{-}	6972.1[a] 12	(25^{-})
2463.1[b] 4	10^{-}	3495.0[@] 5	16^{+}	5164.9[b] 12	20^{-}	7018.7[dm] 9	(27^{-})
2544.6[d] 4	11^{-}	3629.5[c] 4	14^{-}	5235.7[a] 7	20^{-}	7094.3[@m] 16	(26^{+})
2598.8[h] 5	(10^{+})	3656.4[e] 5	13^{-}	5236.9[f] 7	22^{+}[k]	7149.6[bm] 13	(26^{-})
2625.1[a] 4	11^{-}	3677.2[a] 5	15^{-}	5254.9[h] 7	(20^{+})	7290.9[am] 11	(26^{-})
2635.9[c] 4	8^{-}	3886.3[h] 6	(16^{+})	5387.3[e] 7	19^{-}	7531.4[em] 9	(25^{-})
2675.9[e] 4	9^{-}	3925.8[f] 5	18^{+}[k]	5551.7[@] 10	(22^{+})	7532.9[hm] 14	(26^{+})
2694.4[g] 4	(12^{+})	3973.2[a] 5	16^{-}	5567.7[a] 7	21^{-}	7544.9[fm] 9	(28^{+})[k]
2696.0[lm] 4		3982.1[d] 5	17^{-}	5667.1[d] 8	23^{-}	7616.7[dm] 9	(29^{-})
2860.6[a] 5	12^{-}	4027.8[b] 6	16^{-}	5731.8[c] 11	(22^{-})	7652.5[am] 14	(27^{-})
2875.3[@] 4	14^{+}	4067.8[c] 7	16^{-}	5788.0[b] 12	22^{-}	7821.3[@m] 17	(28^{+})
2915.1[h] 4	(12^{+})	4135.0[@] 6	18^{+}	5893.6[a] 8	22^{-}	8136.4?[em] 14	(27^{-})
2919.9[b] 4	12^{-}	4200.5[e] 6	15^{-}	5981.7[f] 8	24^{+}[k]	8219.1?[hm] 16	(28^{+})
2925.6[c] 4	10^{-}	4284.3[a] 6	17^{-}	6023.9[h] 12	(22^{+})	8268.0[fm] 9	(30^{+})[k]
2982.2[d] 4	13^{-}	4497.6[d] 7	19^{-}	6055.5[e] 8	(21^{-})	8294.6?[dm] 10	(31^{-})
3008.1[f] 4	14^{+}[k]	4531.8[h] 7	(18^{+})	6239.5[a] 11	(23^{-})	8554.0[@m] 19	(30^{+})
3118.2[a] 5	13^{-}	4543.0[f] 6	20^{+}[k]	6324.2[@] 13	(24^{+})	9375.3?[@m] 21	(32^{+})
3139.3[e] 4	11^{-}	4581.3[c] 7	18^{-}	6373.6[c] 15	(24^{-})		
3200.4[gm] 4	(14^{+})	4593.2[a] 6	18^{-}	6378.8[d] 8	(25^{-})		
3246.5[c] 4	12^{-}	4599.7[b] 6	18^{-}	6496.7[b] 13	24^{-}		

† From a least-squares fit to Eγ by evaluator.

‡ Spin and parity assignments are based on measured γ-ray multipolarities, decay patterns, and assumed band structure.

From centroid shift technique in ^{168}Er(^{16}O,4nγ) (2005Mo33), except where noted.

@ Band(A): $K^{\pi}=0^{+}$ g.s. rotational band.

& Band(B): $K^{\pi}=2^{+}$ γ-vibrational band.

a Band(C): $K^{\pi}=7^{-}$ rotational band. 1999Li03 in the ^{150}Nd(^{36}S,6nγ) reaction, identify a new state at 1987-keV which is assigned as the 8^{-} member of this band. As a result, the excited band members given here differ from those in the ^{150}Nd(^{36}S,6nγ),^{150}Nd(^{34}S,4nγ) dataset and in the Adopted Levels by 59 keV and ΔJ=1.

b Band(D): Low K rotational band (K=1-3) with configuration ν9/2[624]ν7/2[514] and strong mixing with either π5/2[402]π9/2[514] or π5/2[402]π1/2[541]. α=0.

c Band(E): $K^{\pi}=8^{-}$ rotational band. Configuration: ν9/2[624]ν1/2[770].

d Band(F): Low K rotational band (K=1-3) with configuration ν9/2[624]ν7/2[514] and strong mixing with either π5/2[402]π9/2[514] or π5/2[402]π1/2[541]. α=1.

e Band(G): $K^{\pi}=7^{-}$ rotational band.

f Band(H): Rotational band.

g Band(I): $K^{\pi}=8^{+}$ rotational band.

h Band(J): Rotational band.

i Band(K): $K^{\pi}=0^{+}$ β-vibrational band.

j $J^{\pi}=14^{+}$ was originally assigned by 1988Li02 based on M1+E2 for 527γ. A measurement of the conversion electron spectrum with significantly better energy resolution suggested an E2 multipolarity for this γ-ray, and consequently, $J^{\pi}=16^{+}$ for this level (1990Dr02). See also 1983Ne14, 1983Dr17.

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^{166}Er(^{18}O,4nγ),^{168}Er(^{16}O,4nγ) 1988Li02,1990Dr02,2005Mo33 (continued)

^{180}Os Levels (continued)

k Spin assignments from 1982Dr03. These differ from those proposed by 1988Li02 by ΔJ=2; see comment on 3403 level.
l Level decays by D(+Q) 928γ to 10$^+$, and is populated by Q 312γ from 14$^+$. Data are inconsistent.
m Level is not adopted based on results from 1999Li03 using the ^{150}Nd(^{36}S,6nγ) reaction.

γ(^{180}Os)

E_γ †	I_γ †	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	δ‡	Comments
51.6 2	7.2 18	1928.7	7$^-$	1877.1	6$^+$	E1		E_γ: from 1982Dr03. I_γ: from Iγ(51γ)/Iγ(1134γ)=2.1 3 (1982Dr03) and Iγ(1134γ)=3.5 7 (1988Li02). Mult.: from α(exp) deduced from intensity balance in 1982Dr03.
90.3 10	0.3 2	1604.4	5$^-$	1514.6	4$^-$			
101.4 7	0.1 1	1862.6	7$^-$	1761.3	6$^-$			
110.2 3	0.5 3	2286.3	7$^-$	2175.9	9$^-$	Q		
126.3 3	3.8 8	2055.0	8$^-$	1928.7	7$^-$	D+Q	−1.4 3	
132.2 3	61 4	132.21	2$^+$	0.0	0$^+$	Q		
153.1 5	0.1 1	3629.5	14$^-$	3476.5	15$^-$	D+Q		
157.1 5	0.5 3	1761.3	6$^-$	1604.4	5$^-$	D+Q	+0.25 12	
x158.9 3	0.2 1					D(+Q)	−0.10 10	
162.8 3	2.5 5	2217.8	9$^-$	2055.0	8$^-$	D+Q	−0.94 16	
170.1 3	0.7 3	2598.8	(10$^+$)	2428.7?				
172.9 3	0.1 1	2635.9	8$^-$	2463.1	10$^-$			
176.2 5	0.2 1	3629.5	14$^-$	3452.4	14$^-$			
x176.5 3	0.3 2					D+Q		
191.1 3	1.9 6	2409.0	10$^-$	2217.8	9$^-$	D+Q	−1.8 3	
202.4& 6	0.4 2	3402.5	16$^+$	3200.4	(14$^+$)			
216.1 3	1.8 5	2625.1	11$^-$	2409.0	10$^-$	D+Q	−2.5 5	
x216.3 3	0.4 2							
220.7 3	0.2 1	2915.1	(12$^+$)	2694.4	(12$^+$)			
223.0 5	0.8 4	2086.2	8$^-$	1862.6	7$^-$	D+Q	+0.28 5	
225.3 3	0.5 2	1604.4	5$^-$	1379.0	6$^+$			
235.3 3	0.9 5	1862.6	7$^-$	1627.4	6$^+$			
235.5 3	0.9 3	2860.6	12$^-$	2625.1	11$^-$	D+Q	−1.8 5	
246.8 3	2.6 7	1761.3	6$^-$	1514.6	4$^-$	Q		
257.6 3	0.5 2	3118.2	13$^-$	2860.6	12$^-$			
258.0 3	4.4 10	1862.6	7$^-$	1604.4	5$^-$	Q		
264.4 3	0.2 2	3246.5	12$^-$	2982.2	13$^-$			
266.3 3	0.4 1	3384.5	14$^-$	3118.2	13$^-$	D+Q	−0.98 21	
276.4 3	124 9	408.7	4$^+$	132.21	2$^+$	E2		Mult.: from α(L)exp=0.032 6 (1982Dr03).
287.2 3	0.6 2	2463.1	10$^-$	2175.9	9$^-$	D(+Q)	−0.07 20	
289.0 3	4.7 9	2217.8	9$^-$	1928.7	7$^-$	Q		
289.9 3	1.0 4	2925.6	10$^-$	2635.9	8$^-$			
292.5 3	0.2 1	3677.2	15$^-$	3384.5	14$^-$	D+Q	−10 41	
295.8 3	0.1 1	3973.2	16$^-$	3677.2	15$^-$	D+Q		
309.3 8	0.1 1	4593.2	18$^-$	4284.3	17$^-$	D+Q	−5.5 23	
311.1 3	0.1 1	4284.3	17$^-$	3973.2	16$^-$			
312.0 3	0.9 3	3008.1	14$^+$	2696.0		(Q)		
313.2 3	13.0 10	2175.9	9$^-$	1862.6	7$^-$	Q		
316.0 8	0.1 1	5235.7	20$^-$	4920.2	19$^-$			
316.2 3	2.4 4	2915.1	(12$^+$)	2598.8	(10$^+$)	Q		
320.9 5	1.3 6	2276.7	(10$^+$)	1955.8	(8$^+$)			E_γ: not reported in ^{150}Nd(^{36}S,6nγ); not included in the Adopted Gammas.
321.0 3	0.9 3	3246.5	12$^-$	2925.6	10$^-$	Q		

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$^{166}Er(^{18}O,4n\gamma),^{168}Er(^{16}O,4n\gamma)$ 1988Li02,1990Dr02,2005Mo33 (continued)

$\gamma(^{180}Os)$ (continued)

E_γ †	I_γ †	E_i(level)	J^π_i	E_f	J^π_f	Mult. ‡	δ ‡	Comments
321.9 *5*	0.6 *4*	2598.8	(10+)	2276.7	(10+)			
324.4 *3*	2.5 *5*	1928.7	7−	1604.4	5−			
324.9 *3*	6.2 *10*	2086.2	8−	1761.3	6−	Q		
325.2 *3*	0.8 *4*	3200.4	(14+)	2875.3	14+			
326.4 *5*	2.1 *5*	1379.0	6+	1052.6	4+	Q		
326.8@ *5*	0.4@ *2*	3246.5	12−	2919.9	12−			
326.8@ *8*	0.1@ *1*	4920.2	19−	4593.2	18−			
354.0 *3*	7.1 *12*	2409.0	10−	2055.0	8−	Q		
355.9 *3*	2.8 *7*	1761.3	6−	1405.6	5+	D		
361.4 *3*	5.0 *10*	1877.1	6+	1515.6	4+	Q		
368.8 *3*	10.3 *10*	2544.6	11−	2175.9	9−	Q		
375.1 *3*	0.7 *2*	2919.9	12−	2544.6	11−	D+Q		
376.9 *3*	5.3 *8*	2463.1	10−	2086.2	8−	Q		
380.9 *3*	0.2 *1*	2925.6	10−	2544.6	11−			
382.5 *3*	2.1 *9*	1405.6	5+	1023.1	3+	(Q)		
383.1 *3*	1.1 *3*	3629.5	14−	3246.5	12−			
385.0& *10*	0.7 *5*	2694.4	(12+)	2309.1	12+			
386.3 *3*	114 *8*	795.1	6+	408.7	4+	E2		Mult.: from α(K)exp=0.033 *6* (1988Li02); α(K)exp=0.033 *5*, α(L)exp=0.011 *3* (1982Dr03).
389.7 *3*	3.5 *12*	2675.9	9−	2286.3	7−	Q		
ˣ392.6 *3*	0.2 *1*							
394.4 *3*	5.6 *8*	3402.5	16+	3008.1	14+	E2		Mult.: from α(K)exp=0.028 *6* (1990Dr02).
407.4 *3*	6.4 *10*	2625.1	11−	2217.8	9−	Q		
407.6 *3*	3.4 *8*	1604.4	5−	1196.8	4+			
408.0 *3*	2.7 *7*	2175.9	9−	1767.9	10+			
417.7 *3*	1.8 *5*	2694.4	(12+)	2276.7	(10+)	Q		
ˣ418.6 *3*	2.0 *8*							
423.6 *3*	2.2 *3*	2286.3	7−	1862.6	7−	M1+E2	−0.40 *20*	Mult.: D+Q from γ(θ), M1+E2 from α(K)exp=0.058 *17* (1988Li02). δ: Other: 0.9 +*8*−*5* from α(K)exp.
427.4 *3*	2.3 *4*	3342.5	(14+)	2915.1	(12+)	Q		
430.6 *3*	1.0 *3*	1627.4	6+	1196.8	4+			
437.8 *3*	10.6 *20*	2982.2	13−	2544.6	11−	Q		
438.3 *5*	1.7 *5*	4067.8	16−	3629.5	14−			
451.6 *3*	6.6 *11*	2860.6	12−	2409.0	10−	Q		
456.7 *3*	3.7 *5*	2919.9	12−	2463.1	10−	Q		
460.0 *3*	0.3 *1*	2635.9	8−	2175.9	9−			
462.0& *10*	0.3 *2*	2925.6	10−	2463.1	10−			
462.4 *3*	76 *6*	1257.5	8+	795.1	6+	E2		Mult.: from α(K)exp=0.0197 *9* (1990Dr02); α(K)exp=0.025 *6*, α(L)exp<0.009 (1982Dr03); and α(K)exp=0.019 *3* (1988Li02).
463.1 *10*	6.3 *25*	3139.3	11−	2675.9	9−			
470.5 *10*	0.6 *2*	3452.4	14−	2982.2	13−	D+Q	+0.41 *7*	
471.3 *3*	1.7 *4*	1877.1	6+	1405.6	5+			
475.5 *3*	1.5 *5*	1881.2	7+	1405.6	5+	(Q)		
483.4 *3*	2.1 *4*	1862.6	7−	1379.0	6+	D+Q	+0.09 *8*	
491.6 *3*	1.8 *6*	1514.6	4−	1023.1	3+	D		
493.1 *3*	5.7 *10*	3118.2	13−	2625.1	11−	Q		
494.5 *3*	11.6 *15*	3476.5	15−	2982.2	13−	Q		
500.1 *3*	1.8 *5*	2675.9	9−	2175.9	9−	D(+Q)	+0.10 *20*	
505.6 *3*	5.9 *15*	3982.1	17−	3476.5	15−	Q		
506.1 *3*	1.9 *8*	3200.4	(14+)	2694.4	(12+)			

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$^{166}Er(^{18}O,4n\gamma),^{168}Er(^{16}O,4n\gamma)$ 1988Li02,1990Dr02,2005Mo33 (continued)

$\gamma(^{180}Os)$ (continued)

E_γ†	I_γ†	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	δ‡	Comments
508.7 *3*	1.3 *7*	2276.7	(10^+)	1767.9	10^+			E_γ: not reported in $^{150}Nd(^{36}S,6n\gamma)$; not included in the Adopted Gammas.
510.3 *3*	65 *5*	1767.9	10^+	1257.5	8^+	E2		Mult.: from α(K)exp=0.014 *1*, α(L1)exp+α(L2)exp=0.0027 *3* (1990Dr02); α(K)exp=0.019 *7* (1988Li02).
513.5 *3*	1.9 *8*	4581.3	18^-	4067.8	16^-	Q		
515.5 *4*	5.5 *10*	4497.6	19^-	3982.1	17^-	Q		
517.1 *3*	5.8 *12*	3656.4	13^-	3139.3	11^-	Q		
523.3 *3*	13.5 *20*	3925.8	18^+	3402.5	16^+	(E2)		Mult.: from α(K)exp(523γ doublet)=0.014 *2* (1990Dr02); α(K)exp=0.019 *12* (1988Li02).
523.9 *3*	5.0 *11*	3384.5	14^-	2860.6	12^-	(E2)		α(K)=0.0154; α(L)=0.00380 Mult.: from α(K)exp(524γ doublet)=0.014 *2* (1990Dr02); α(K)exp=0.019 *12* (1988Li02). Other: 1982Dr03.
527.3 *3*	9.7 *8*	3402.5	16^+	2875.3	14^+	E2		Mult.: from α(K)exp=0.015 *2*, α(L)exp=0.004 *1* (1990Dr02). α(K)exp=0.050 *15* measured by 1988Li02 is inaccurate because of contribution from nearby transitions to the conversion electron intensity, that could not be resolved in their measurement. Consequently, the M1+E2 multipolarity assigned by 1988Li02 seems to be incorrect. Other: 1982Dr03.
529.7 *3*	1.6 *5*	2410.9	9^+	1881.2	7^+	Q		
532.2 *3*	2.8 *5*	3452.4	14^-	2919.9	12^-	Q		
541.2 *3*	44 *3*	2309.1	12^+	1767.9	10^+	E2		Mult.: from α(K)exp=0.0131 *4* (1990Dr02); α(K)exp=0.016 *3* (1988Li02); α(K)exp=0.0166 *21*, α(L)exp=0.0042 *9* (1982Dr03).
543.8 *3*	2.1 *4*	3886.3	(16^+)	3342.5	(14^+)	Q		
544.1 *3*	4.6 *10*	4200.5	15^-	3656.4	13^-			
548.1 *3*	4.4 *15*	5045.7	21^-	4497.6	19^-	Q		
549.7 *3*	0.6 *6*	2635.9	8^-	2086.2	8^-	D+Q		
555.2 *3*	1.1 *4*	5136.5	20^-	4581.3	18^-	Q		
559.1 *3*	3.5 *6*	3677.2	15^-	3118.2	13^-	Q		
565.2 *10*	2.0 *5*	5164.9	20^-	4599.7	18^-			
566.2 *3*	34 *3*	2875.3	14^+	2309.1	12^+	E2		Mult.: from α(K)exp=0.013 *1*, α(L)exp=0.0029 *2* (1990Dr02); α(K)exp=0.014 *2* (1982Dr03).
570.1 *3*	4.0 *7*	4770.6	17^-	4200.5	15^-	Q		
571.9 *3*	1.9 *5*	4599.7	18^-	4027.8	16^-	Q		
575.4 *3*	2.5 *5*	4027.8	16^-	3452.4	14^-	Q		
583.6 *3*	3.3 *6*	1379.0	6^+	795.1	6^+	E0+M1(+E2)	−0.20 *20*	Mult.: from α(K)exp=0.094 *7* (1990Dr02); α(K)exp=0.055 *22* (1988Li02); α(K)exp=0.090 *9* (1982Dr03).
588.7 *3*	2.3 *3*	3973.2	16^-	3384.5	14^-	Q		
594.7 *5*	0.2 *2*	3139.3	11^-	2544.6	11^-			
595.3 *8*	0.7 *3*	5731.8	(22^-)	5136.5	20^-			
597.9 *3*	0.3 *2*	7616.7	(29^-)	7018.7	(27^-)	(Q)		
601.1 *5*	1.0 *5*	3476.5	15^-	2875.3	14^+	D		
604.9 *3*	6.4 *11*	1862.6	7^-	1257.5	8^+	E1(+M2)	+0.05 *5*	Mult.: from α(K)exp<0.006 (1982Dr03).

Continued on next page (footnotes at end of table)

^{166}Er(^{18}O,4nγ),^{168}Er(^{16}O,4nγ) 1988Li02,1990Dr02,2005Mo33 (continued)

γ(^{180}Os) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	Comments
605.0[&] *10*		8136.4?	(27⁻)	7531.4	(25⁻)		
607.2 *3*	3.0 *6*	4284.3	17⁻	3677.2	15⁻	Q	
616.7 *3*	1.8 *6*	5387.3	19⁻	4770.6	17⁻		
617.1 *3*	12.3 *15*	4543.0	20⁺	3925.8	18⁺	(E2)	Mult.: from α(K)exp(620γ doublet)=0.010 *2* (1988Li02); α(K)exp=0.013 *2* (1982Dr03).
619.7 *3*	16.0 *15*	3495.0	16⁺	2875.3	14⁺	(E2)	Mult.: from α(K)exp(620γ doublet)=0.010 *2* (1988Li02); α(K)exp=0.013 *2* (1982Dr03).
619.9 *3*	2.0 *3*	4593.2	18⁻	3973.2	16⁻		
621.4 *3*	3.6 *8*	5667.1	23⁻	5045.7	21⁻		
623.1 *3*	1.4 *4*	5788.0	22⁻	5164.9	20⁻	Q	
636.0 *3*	1.7 *4*	4920.2	19⁻	4284.3	17⁻	Q	
639.9 *3*	0.4 *2*	7018.7	(27⁻)	6378.8	(25⁻)		
640.0 *3*	7.9 *8*	4135.0	18⁺	3495.0	16⁺	Q	
641.8 *10*	0.4 *2*	6373.6	(24⁻)	5731.8	(22⁻)	(Q)	
642.3 *5*	1.0 *3*	5235.7	20⁻	4593.2	18⁻		
643.9 *3*	3.2 *10*	1052.6	4⁺	408.7	4⁺	E0+M1+E2	Mult.: from α(K)exp=0.081 *4*, α(L)exp=0.0012 *1* (1990Dr02); α(K)exp=0.085 *25* (1988Li02); α(K)exp=0.094 *8* (1982Dr03). δ=−0.8 *4*. A_2=−0.10 *5* suggests dipole (1988Li02).
645.0 *3*	2.0 *8*	1515.6	4⁺	870.40	2⁺	Q	
645.5 *3*	1.7 *4*	4531.8	(18⁺)	3886.3	(16⁺)		
647.5 *3*	1.0 *3*	5567.7	21⁻	4920.2	19⁻	Q	
647.6 *5*	0.2 *1*	3629.5	14⁻	2982.2	13⁻		
652.9 *3*	0.5 *2*	7149.6	(26⁻)	6496.7	24⁻	Q	
657.9 *3*	0.4 *2*	5893.6	22⁻	5235.7	20⁻	Q	
668.2 *3*	1.1 *4*	6055.5	(21⁻)	5387.3	19⁻	(Q)	
671.1 *3*	2.4 *6*	1928.7	7⁻	1257.5	8⁺	(E1)	Mult.: E1 or E2 from α(K)exp=0.006 *5* (1988Li02), γ(θ) favors D.
671.8 *8*	0.8 *3*	6239.5	(23⁻)	5567.7	21⁻		
673.2 *3*	0.5 *4*	2982.2	13⁻	2309.1	12⁺	D	
677.9[&] *3*	0.1 *1*	8294.6?	(31⁻)	7616.7	(29⁻)		
680.4 *8*	0.1 *1*	7652.5	(27⁻)	6972.1	(25⁻)	(Q)	
684.5 *3*	3.0 *8*	1515.6	4⁺	831.1	2⁺	(Q)	
686.2[&] *9*	0.4 *2*	8219.1?	(28⁺)	7532.9	(26⁺)		
686.8 *3*	4.0 *5*	4821.8	20⁺	4135.0	18⁺	E2	Mult.: from α(K)exp=0.009 *3* (1988Li02).
693.9 *3*	5.6 *8*	5236.9	22⁺	4543.0	20⁺	Q	
695.2 *5*	0.1 *1*	7290.9	(26⁻)	6595.7	(24⁻)		
698.3 *3*	1.0 *5*	1955.8	(8⁺)	1257.5	8⁺		
699.0[@] *3*	3.5[@] *8*	831.1	2⁺	132.21	2⁺		Mult.: α(K)exp(699γ doublet)=0.025 *7* (1988Li02). α(K)exp(699γ doublet)=0.043 *6* (1990Dr02). Transition may contain a significant E0 component (1990Dr02).
699.0[@] *3*	5.5[@] *6*	3008.1	14⁺	2309.1	12⁺		Mult.: α(K)exp≈0.012 (consistent with E2) if other member of the 699γ doublet is M1+E2+E0 (1990Dr02).
702.1 *5*	0.2 *1*	6595.7	(24⁻)	5893.6	22⁻		
702.3 *5*	0.2 *1*	3246.5	12⁻	2544.6	11⁻		
708.7 *3*	0.6 *2*	6496.7	24⁻	5788.0	22⁻		
709.5 *3*	0.2 *1*	3629.5	14⁻	2919.9	12⁻		
711.7 *3*	1.6 *4*	6378.8	(25⁻)	5667.1	23⁻		
715.8 *5*	0.3 *2*	7532.9	(26⁺)	6817.1	(24⁺)		
717.4 *3*	0.4 *2*	6772.9	(23⁻)	6055.5	(21⁻)		
723.1[@] *3*	0.7[@] *3*	5254.9	(20⁺)	4531.8	(18⁺)		
723.1[@] *3*	0.5[@] *3*	8268.0	(30⁺)	7544.9	(28⁺)		

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^{166}Er(^{18}O,4nγ),^{168}Er(^{16}O,4nγ) 1988Li02,1990Dr02,2005Mo33 (continued)

γ(^{180}Os) (continued)

E_γ †	I_γ †	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	δ‡	Comments
727.0 *7*	0.5 *2*	7821.3	(28+)	7094.3	(26+)	(Q)		
729.9 *7*	1.8 *4*	5551.7	(22+)	4821.8	20+	(Q)		
732.6 *5*	0.2 *1*	6972.1	(25−)	6239.5	(23−)	(Q)		
732.7 *7*	0.3 *2*	8554.0	(30+)	7821.3	(28+)			
738.0 *3*	2.7 *6*	870.40	2+	132.21	2+	D+Q	>6	
744.8 *3*	3.2 *8*	5981.7	24+	5236.9	22+	Q		
758.5 *3*	0.1 *1*	7531.4	(25−)	6772.9	(23−)	(Q)		
769.0 *9*	0.5 *3*	6023.9	(22+)	5254.9	(20+)			
770.1 *9*	0.5 *2*	7094.3	(26+)	6324.2	(24+)			
772.5 *9*	0.7 *2*	6324.2	(24+)	5551.7	(22+)	(Q)		
776.7 *3*	0.3 *2*	2544.6	11−	1767.9	10+	D(+Q)	−0.01 *25*	
778.2 *3*	0.7 *3*	7544.9	(28+)	6766.7	(26+)			
782.9 *5*	0.3 *2*	3246.5	12−	2463.1	10−			
785.0 *3*	1.1 *3*	6766.7	(26+)	5981.7	24+			
788.1 *3*	3.4 *7*	1196.8	4+	408.7	4+	(M1+E2)	+1.8 *4*	Mult.: α(K)exp<0.009 suggests E2, E1, or M1+E2 with δ>1.7 (1982Dr03). Level scheme requires M1+E2.
793.2 *5*	0.5 *3*	6817.1	(24+)	6023.9	(22+)	Q		
809.2 *3*	5.1 *7*	1604.4	5−	795.1	6+	E1(+M2)	+0.02 *5*	Mult.: from α(K)exp=0.002 *1* (1988Li02).
821.3& *10*		9375.3?	(32+)	8554.0	(30+)			
830.3 *3*	0.9 *3*	3139.3	11−	2309.1	12+			
832.4 *5*	2.3 *8*	1627.4	6+	795.1	6+			
870.4 *3*	6.5 *7*	870.40	2+	0.0	0+	Q		
891.0 *3*	4.4 *7*	1023.1	3+	132.21	2+	M1+E2	−7 *3*	Mult.: from α(K)exp=0.007 *3* (1988Li02). δ: Other: >0.7 from α(K)exp.
907.9 *3*	1.6 *3*	2675.9	9−	1767.9	10+	D(+Q)	−0.05 *12*	
918.4 *3*	1.3 *3*	2175.9	9−	1257.5	8+	D(+Q)	−0.01 *11*	
928.0 *3*	0.6 *2*	2696.0		1767.9	10+	D(+Q)	+0.6 *9*	E_γ: not reported in ^{150}Nd(^{36}S,6nγ); not included in the Adopted Gammas.
966.1 *3*	2.5 *5*	1761.3	6−	795.1	6+	E1+M2	−0.35 *30*	Mult.: α(K)exp<0.005 (1988Li02) and δ from γ(θ) consistent only with E1+M2.
996.9 *3*	5.5 *10*	1405.6	5+	408.7	4+	M1+E2	−12 *4*	Mult.: from α(K)exp=0.011 *6* (1988Li02).
1029.0 *3*	1.0 *2*	2286.3	7−	1257.5	8+	D(+Q)	+0.02 *24*	
x1050.5# *3*	0.6 *3*					Q		
1064.7 *3*	3.3 *6*	1196.8	4+	132.21	2+	Q		
1067.5 *3*	0.3 *2*	1862.6	7−	795.1	6+			
1082.1 *3*	3.1 *6*	1877.1	6+	795.1	6+	M1+E2	−0.6 *3*	Mult.: from α(K)exp=0.015 *8* (1988Li02); α(K)exp=0.010 *2* (1982Dr03).
1086.2 *4*	0.8 *3*	1881.2	7+	795.1	6+	D+Q	<−8	
x1093.4# *3*	0.3 *2*					(Q)		
1105.8 *3*	1.8 *4*	1514.6	4−	408.7	4+	E1+M2	−0.8 *7*	Mult.: E1 or E2 from α(K)exp<0.005 (1988Li02), D from γ(θ) rules out E2.
1133.8 *6*	3.5 *7*	1928.7	7−	795.1	6+	E1(+M2)	+0.02 *6*	Mult.: E1 or E2 from α(K)exp<0.004 (1982Dr03), D from γ(θ) rules out E2.
1147.3 *3*	0.8 *3*	2915.1	(12+)	1767.9	10+	(Q)		
1153.4 *3*	0.7 *3*	2410.9	9+	1257.5	8+			
1195.8 *3*	1.0 *2*	1604.4	5−	408.7	4+	D(+Q)	+0.1 *3*	
1218.7 *5*	2.1 *7*	1627.4	6+	408.7	4+	Q		
x1240.2# *3*	0.5 *2*							
1418.3 *3*	0.2 *1*	2675.9	9−	1257.5	8+			E_γ: not reported in ^{150}Nd(^{36}S,6nγ); not included in the Adopted Gammas.
1468.5 *3*	2.1 *4*	1877.1	6+	408.7	4+	Q		
1492.6 *10*	0.3 *2*	2286.3	7−	795.1	6+			E_γ: not reported in ^{150}Nd(^{36}S,6nγ); not included in the Adopted Gammas.

Continued on next page (footnotes at end of table)

^{166}Er(^{18}O,4nγ),^{168}Er(^{16}O,4nγ) 1988Li02,1990Dr02,2005Mo33 (continued)

γ(^{180}Os) (continued)

† From ^{166}Er(^{18}O,4nγ), E=85 MeV (1988Li02), except where noted.

‡ From $\gamma(\theta)$ of 1988Li02 and 1982Dr03, except where noted.

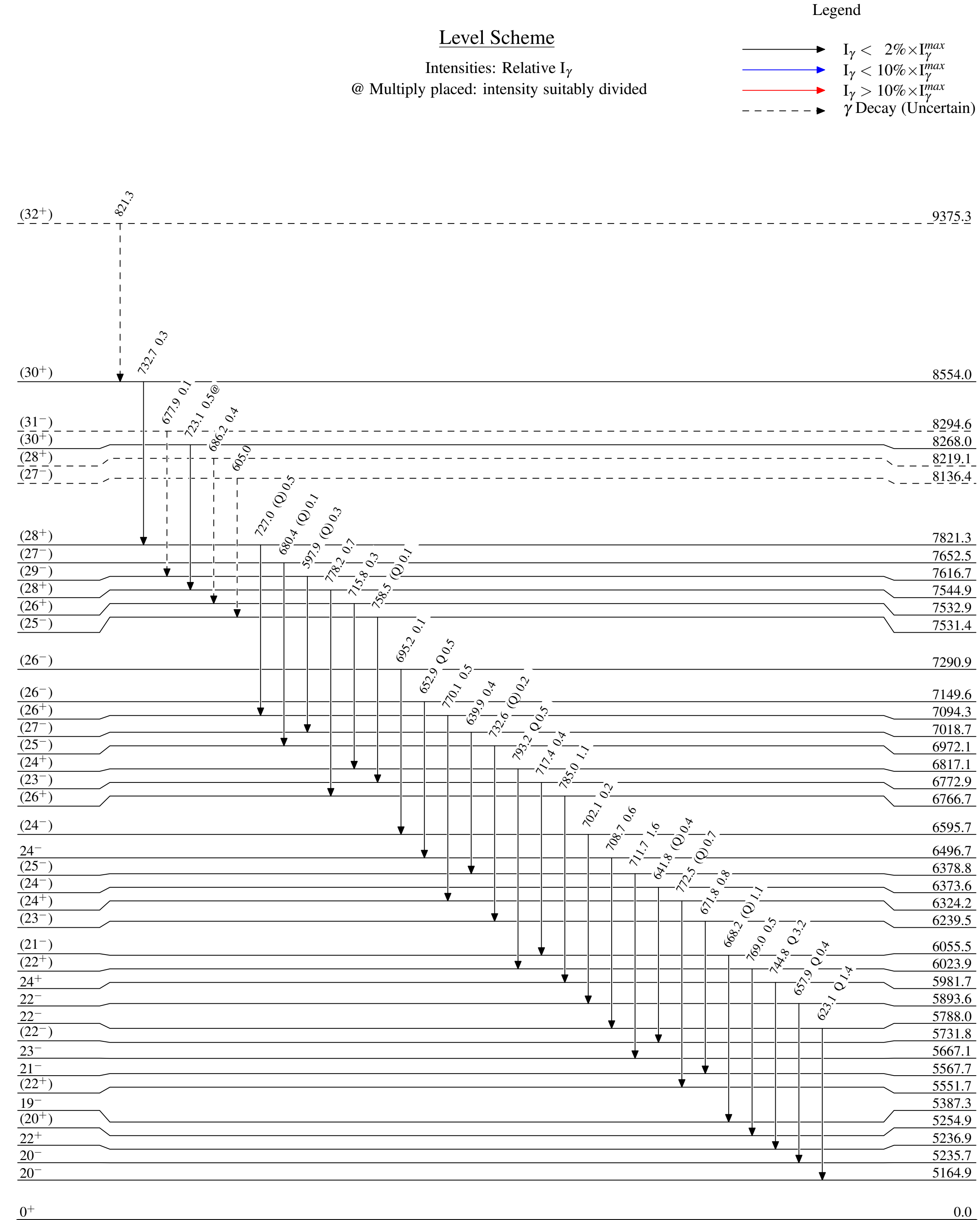
Original placement by 1988Li02 is inconsistent with the current spins and parities assigned to the corresponding levels. Later work by the same first author (1999Li03) found no evidence for the placement of this transition using the ^{150}Nd(^{36}S,6nγ) reaction. See also 1983Ne14, 1983Dr17.

@ Multiply placed with intensity suitably divided.

& Placement of transition in the level scheme is uncertain.

x γ ray not placed in level scheme.

$^{166}Er(^{18}O,4n\gamma),^{168}Er(^{16}O,4n\gamma)$ 1988Li02,1990Dr02,2005Mo33



$^{180}_{76}Os_{104}$

$^{166}Er(^{18}O,4n\gamma),^{168}Er(^{16}O,4n\gamma)$ 1988Li02,1990Dr02,2005Mo33

Level Scheme (continued)

Intensities: Relative I_γ

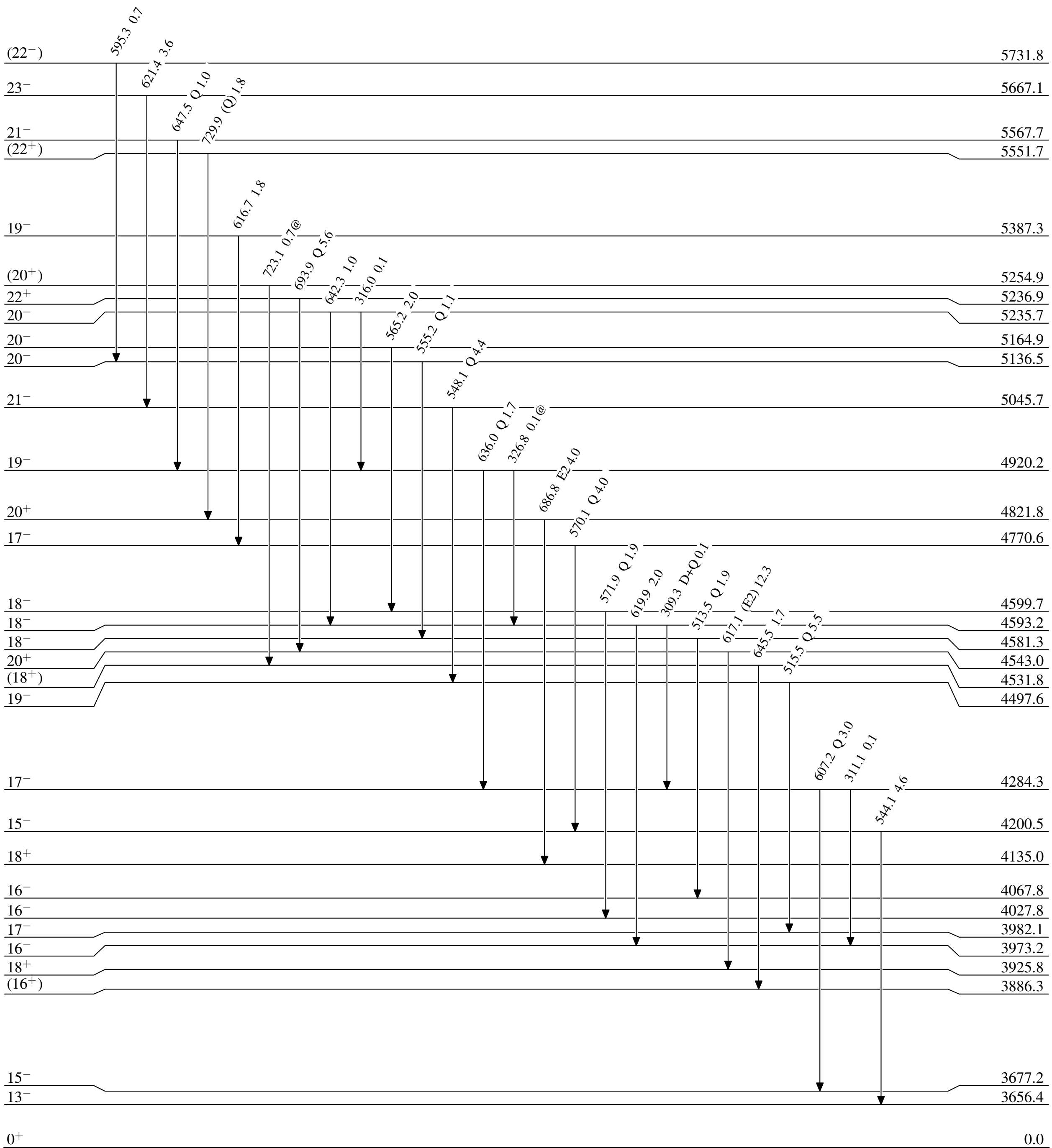
@ Multiply placed: intensity suitably divided

Legend

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

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

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



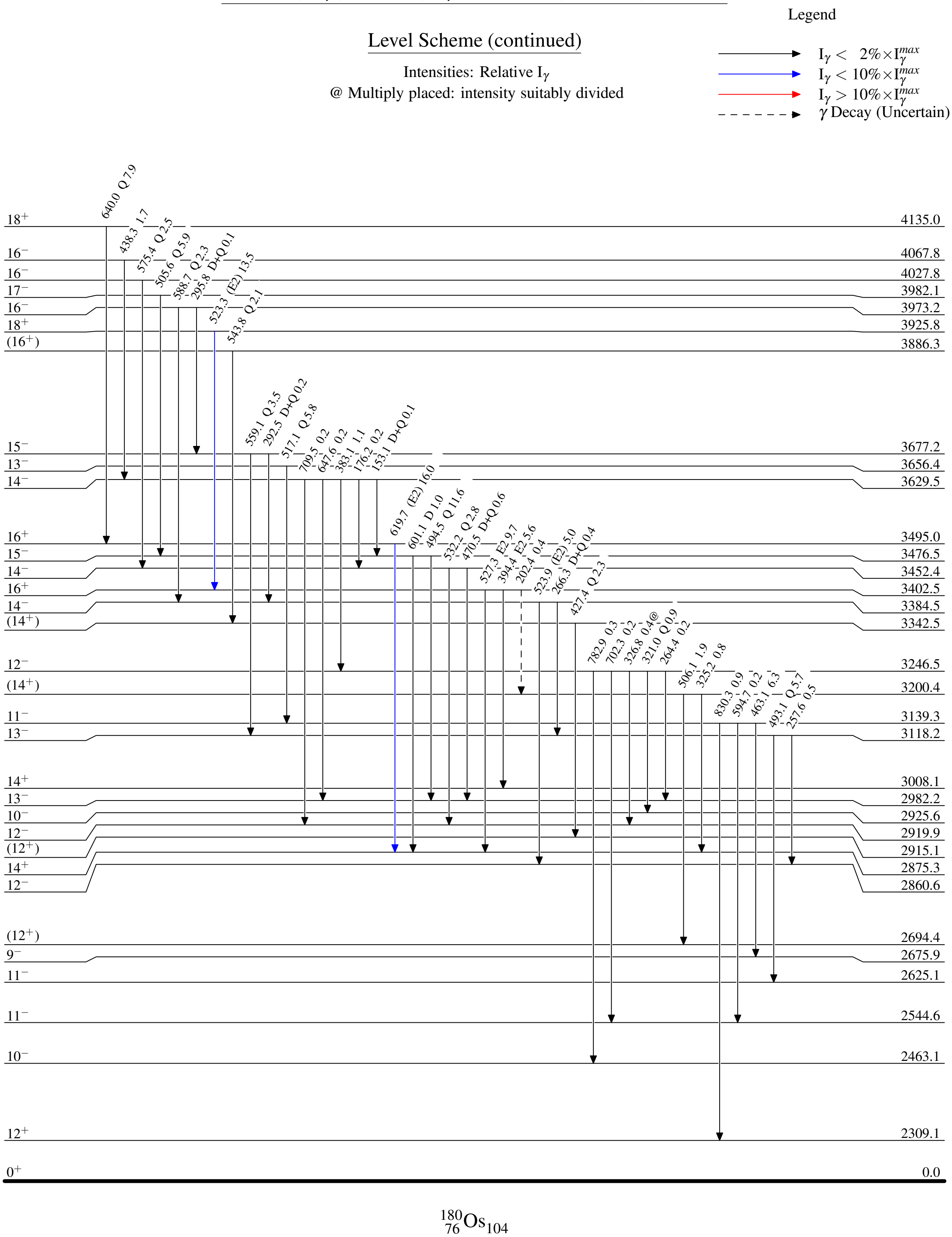
$^{180}_{76}Os_{104}$

^{166}Er(^{18}O,4nγ),^{168}Er(^{16}O,4nγ) 1988Li02,1990Dr02,2005Mo33

Level Scheme (continued)

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided

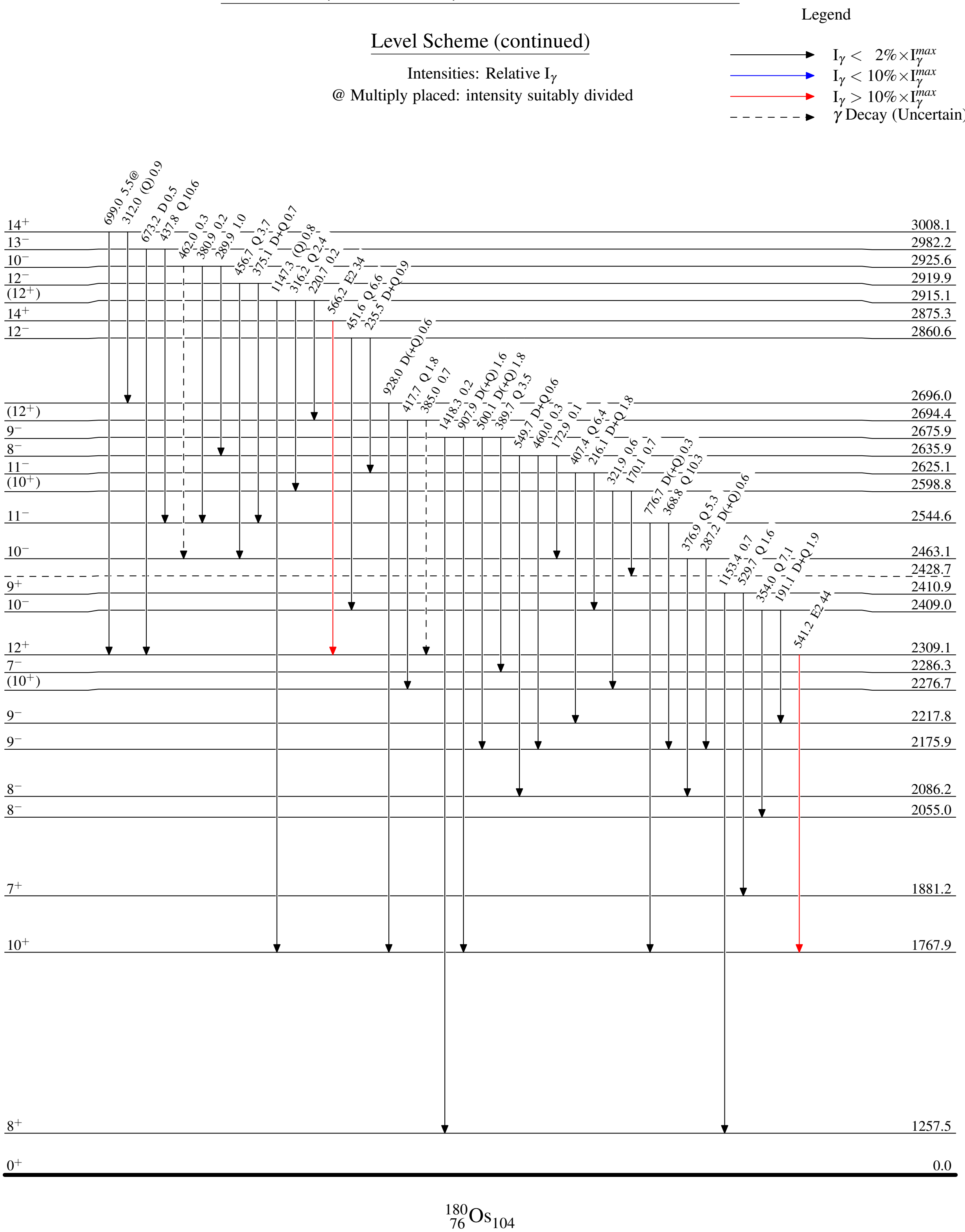


^{166}Er(^{18}O,4nγ),^{168}Er(^{16}O,4nγ) 1988Li02,1990Dr02,2005Mo33

Level Scheme (continued)

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided



$^{166}Er(^{18}O,4n\gamma),^{168}Er(^{16}O,4n\gamma)$ **1988Li02,1990Dr02,2005Mo33**

Level Scheme (continued)

Intensities: Relative I_γ

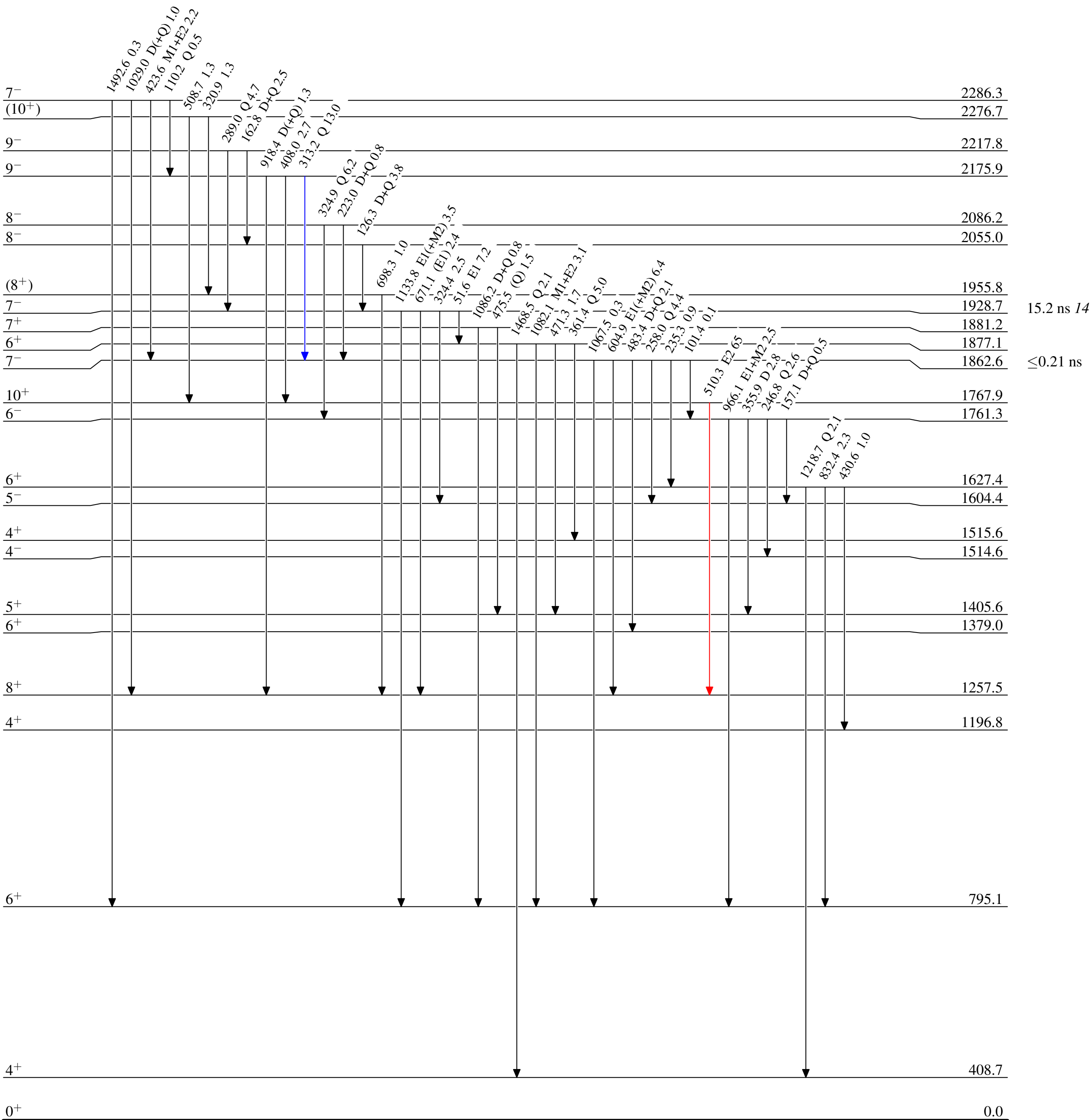
@ Multiply placed: intensity suitably divided

Legend

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

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

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



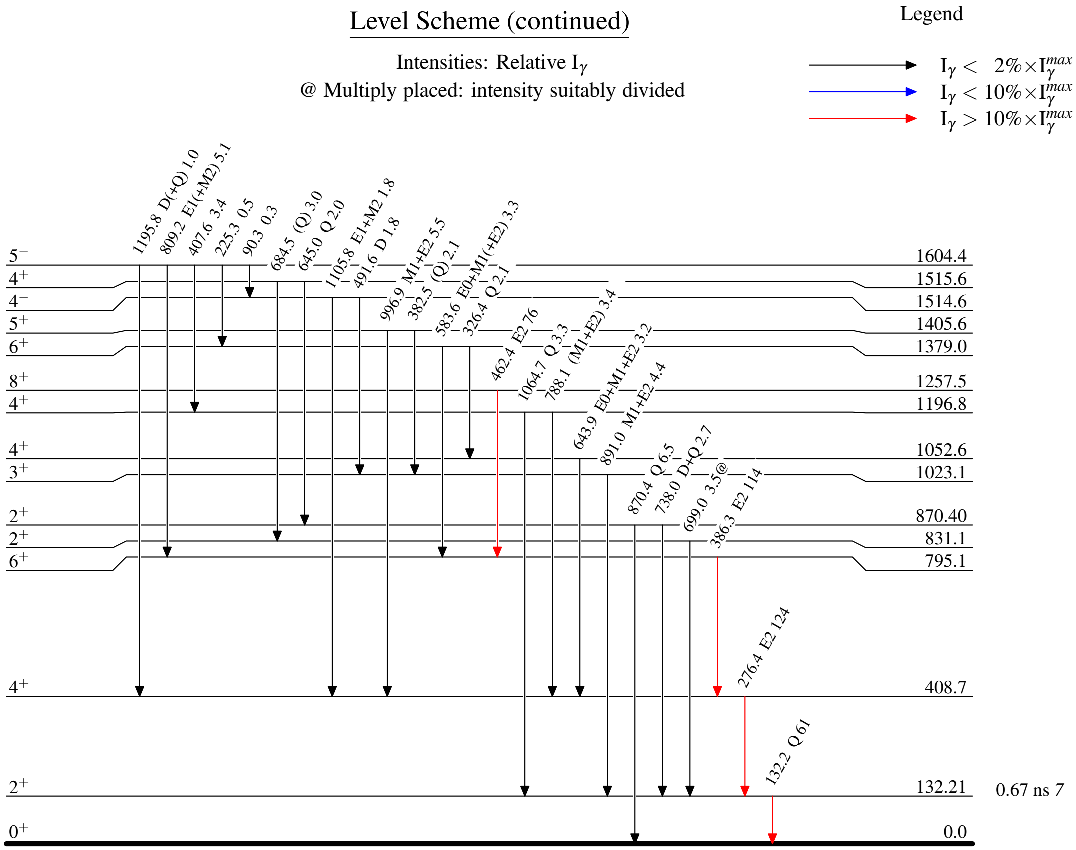
$^{180}_{76}Os_{104}$

$^{166}Er(^{18}O,4n\gamma),^{168}Er(^{16}O,4n\gamma)$ 1988Li02,1990Dr02,2005Mo33

Level Scheme (continued)

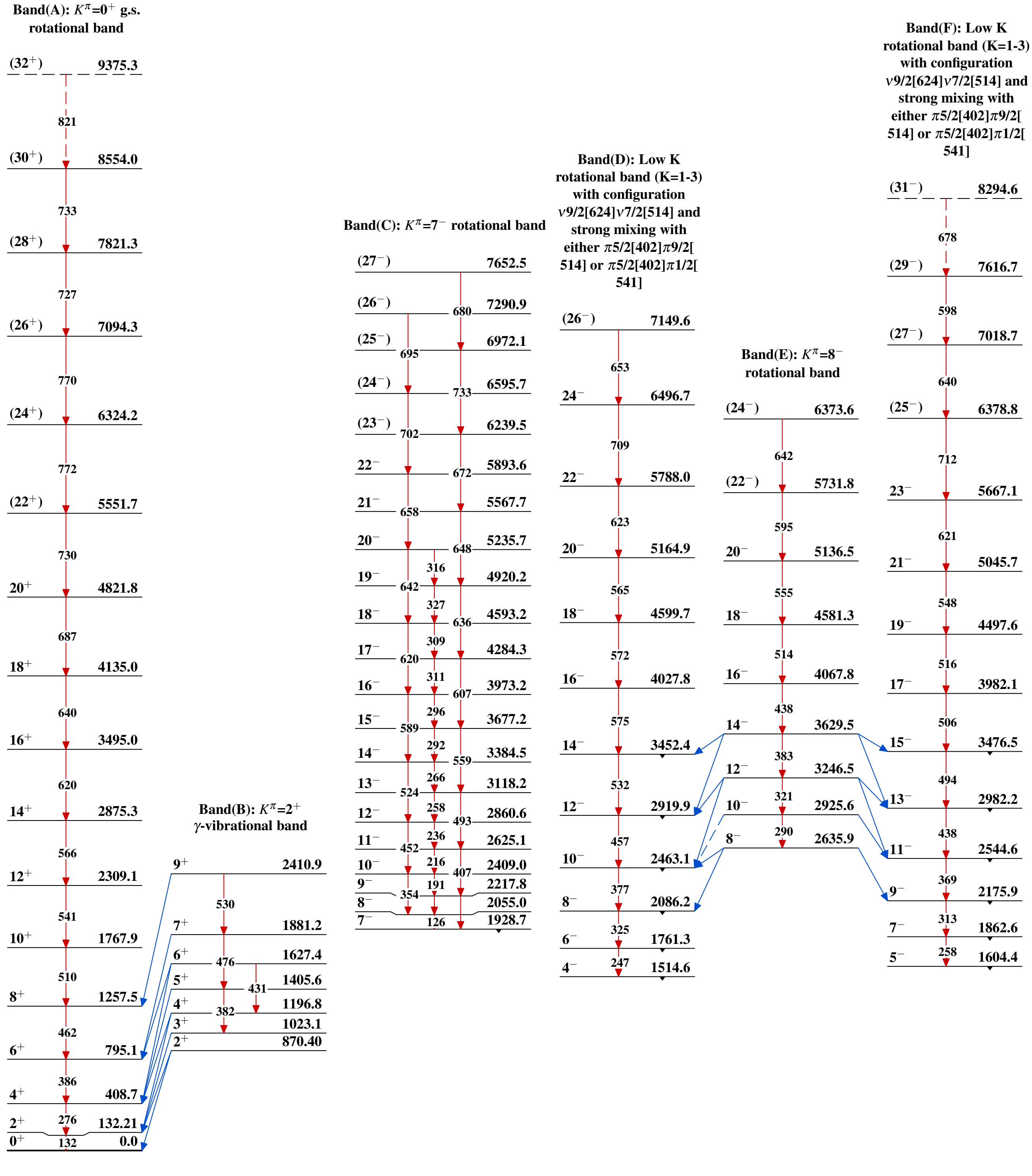
Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided



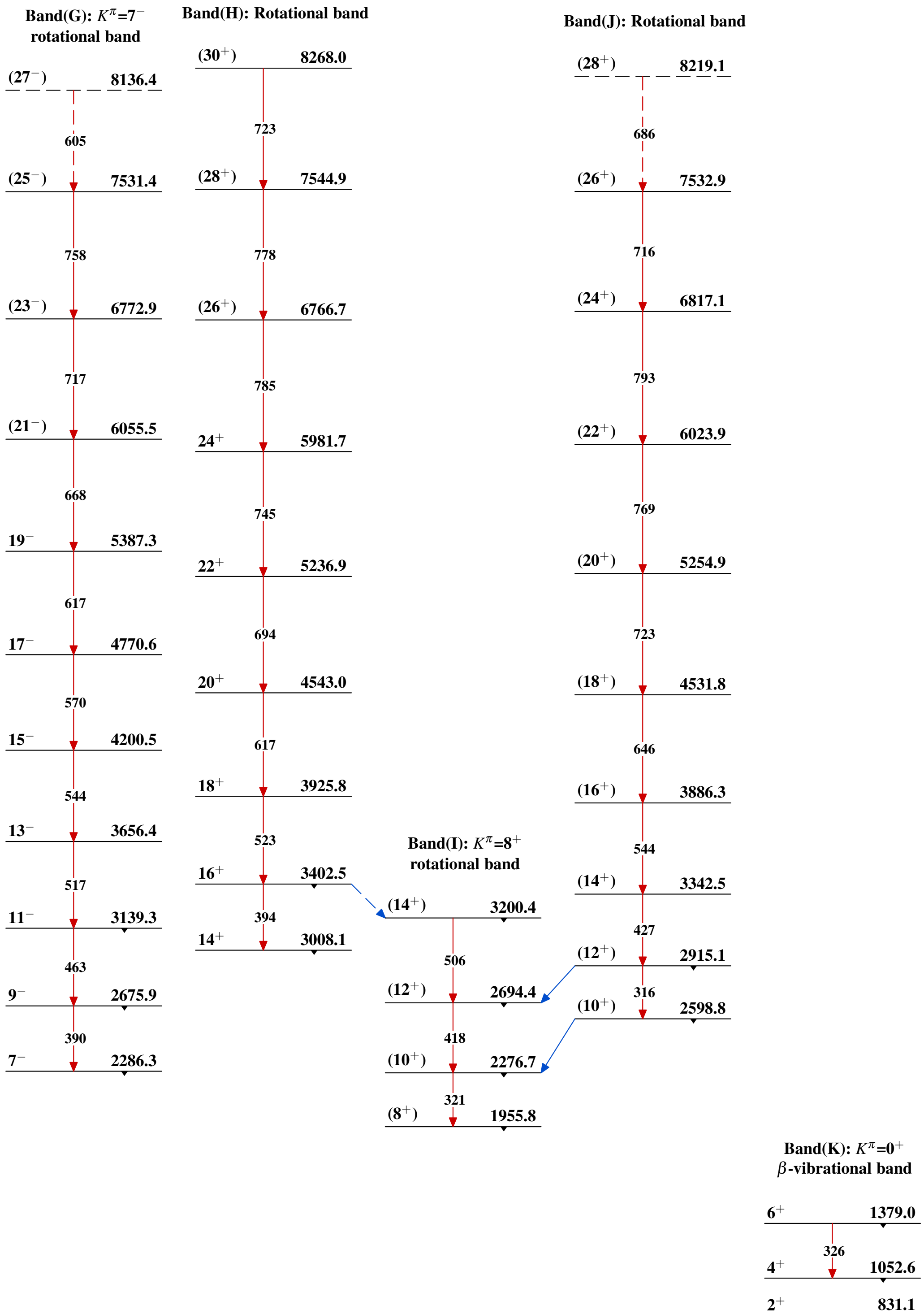
$^{180}_{76}Os_{104}$

$^{166}Er(^{18}O,4n\gamma),^{168}Er(^{16}O,4n\gamma)$ 1988Li02,1990Dr02,2005Mo33



$^{180}_{76}Os_{104}$

$^{166}Er(^{18}O,4n\gamma),^{168}Er(^{16}O,4n\gamma)$ 1988Li02,1990Dr02,2005Mo33 (continued)



$^{180}_{76}Os_{104}$