^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 159, 1 (2019)	30-Aug-2019

2000Da09,1994Da11: Produced using the ^{170}Er(^{11}B,4nγ) reaction. Projectiles: ^{11}B, E=55 MeV. Targets: isotopically enriched ^{170}Er, 5.5 mg/cm^2 thick in the γγ(t) and γ(t) experiments, which stopped most of the recoiling nuclei and a 1.5 mg/cm^2 thick during the conversion electron measurements. Detectors: six HPGe Compton-suppressed detectors and one (unsuppressed) planar germanium detector (LEPS) during the γγ(t) and γ(t) experiments and a superconducting solenoid spectrometer with a Si(Li) detector and one HPGe Compton-suppressed detector during the conversion electron measurements. Pulsed beams of 1 ns on/1700 ns off (γγ(t)), 2 μs on/ 103 μs off (γ(t)) and 1 ns on/ 900 ns off, and 80 μs on/ 720 μs off (conversion electron experiment) were used. Measured: Eγ, Iγ, γγ coin, γ(t), γγ(t), γ(θ) and ce. Deduced: level scheme, lifetimes, transition multipolarities, J^π, K, and configurations. See also 1994Da11.

1995Ar18, 1993Ri09: Produced using the ^{170}Er(^{11}B,4nγ) reaction. Projectiles: ^{11}B, E=55 and 60 MeV. Targets: ^{170}Er, two self-supporting 1.0 mg/cm^2 thick foils. Detectors: five HPGe Compton-suppressed detectors (55 MeV) and ten HPGe Compton-suppressed detectors with a 28-element BGO multiplicity filter (60 MeV). Measured: Eγ, Iγ and γγ coin. Deduced: level scheme, J^π, K and configurations.

Additional information 1.

^{177}Ta Levels

E(level)[†]	J^π[‡]	$T_{1/2}$	Comments
0.0[#]	7/2$^+$	56.36 h *13*	J^π,$T_{1/2}$: From Adopted Levels.
70.59[a] *22*	5/2$^+$	69.3 ns *21*	J^π: From Adopted Levels. $T_{1/2}$: From γ(t) and γγ(t) in 2000Da09.
73.37[b] *22*	9/2$^-$	410 ns *7*	J^π: From Adopted Levels. $T_{1/2}$: From 73.3γ(t) in 2000Da09.
131.05[#] *21*	9/2$^+$		
172.3[a] *3*	7/2$^+$		
186.14[@] *24*	5/2$^-$	3.67 μs *14*	J^π: From Adopted Levels. $T_{1/2}$: From γ(t) in 2000Da09.
216.59[@] *25*	1/2$^-$	0.72 ns *4*	J^π,$T_{1/2}$: From Adopted Levels.
220.04[b] *24*	11/2$^-$		
245.8[@] *6*	9/2$^-$		
288.55[#] *20*	11/2$^+$		
300.9[a] *3*	9/2$^+$		
372.5[&] *3*	3/2$^-$	<0.1 ns	E(level),J^π,$T_{1/2}$: From Adopted Levels.
391.68[b] *24*	13/2$^-$		
402.4[@] *7*	13/2$^-$		
455.1[a] *3*	11/2$^+$		
470.60[#] *23*	13/2$^+$		
586.95[b] *25*	15/2$^-$		
633.0[a] *3*	13/2$^+$		
659.3[@] *7*	17/2$^-$		
675.53[#] *25*	15/2$^+$		
737.3[&] *7*	(11/2$^-$)		
805.02[b] *25*	17/2$^-$		
833.6[a] *4*	15/2$^+$		
899.36[c] *22*	(11/2$^-$)	<1.4 ns	$T_{1/2}$: From centroid-shift analysis in 2000Da09.
901.5[#] *3*	17/2$^+$		
1011.7[@] *8*	21/2$^-$		

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^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)

^{177}Ta Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$	Comments
1029.2[&] 7	(15/2$^-$)		
1043.6[b] 3	19/2$^-$		
1054.7[a] 4	17/2$^+$		
1059.0[c] 3	(13/2$^-$)		
1146.8[#] 3	19/2$^+$		
1239.2[c] 3	(15/2$^-$)		
1295.6[a] 4	19/2$^+$		
1302.3[b] 3	21/2$^-$		
1354.9[f] 3	21/2$^-$	5.96 μs 21	T$_{1/2}$: From γ(t) in 2000Da09 (the gating transitions were not given by the authors).
1406.0[&] 7	(19/2$^-$)		
1408.9[#] 4	21/2$^+$		
1431.6[c] 3	(17/2$^-$)		
1452.4[@] 8	25/2$^-$		
1475.8[d] 3	(17/2)	<1.4 ns	T$_{1/2}$: From centroid-shift analysis in 2000Da09.
1522.95[e] 23	17/2$^+$	5.5 ns 14	T$_{1/2}$: From γ(t) and $\gamma\gamma$(t) in 2000Da09, but the gating transitions were not given by the authors.
1553.5[a] 4	21/2$^+$		
1577.2[b] 4	23/2$^-$		
1602.7[g] 3	19/2$^-$	<1.4 ns	T$_{1/2}$: From centroid-shift analysis in 2000Da09.
1605.4[e] 4	19/2$^+$		E(level): This level is missing in 1995Ar18, due to the non observation of the 82.5γ. Thus, the spins reported for the K^{π}=17/2$^+$ band by 1995Ar18 should be increased by one unit.
1625.8[f] 4	23/2$^-$		
1650.8[d] 5	(19/2)		
1685.8[#] 4	23/2$^+$		
1698.5[i] 4	23/2$^+$	<1 ns	T$_{1/2}$: From centroid-shift analysis in 2000Da09.
1737.4[e] 4	21/2$^+$		
1766.1[g] 3	21/2$^-$		
1828.2[a] 5	23/2$^+$		
1834.6[i] 4	25/2$^+$		
1864.9[&] 8	(23/2$^-$)		
1869.1[b] 4	25/2$^-$		
1874.7[h] 4	25/2$^-$		
1904.7[e] 4	23/2$^+$		
1920.1[f] 4	25/2$^-$		
1949.4[g] 3	23/2$^-$		
1973.1[@] 9	29/2$^-$		
1975.1[#] 4	25/2$^+$		
2037.1[i] 4	27/2$^+$		
2098.2[j] 5	25/2$^+$	<2.8 ns	T$_{1/2}$: From centroid-shift analysis in 2000Da09.
2101.6[e] 5	25/2$^+$		
2116.0[a] 5	(25/2$^+$)		
2116.7[h] 4	27/2$^-$		
2154.2[g] 4	25/2$^-$		
2171.5[b] 4	27/2$^-$		
2192.6[f] 4	27/2$^-$		
2271.2[i] 4	29/2$^+$		
2274.2[#] 4	27/2$^+$		

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^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)

^{177}Ta Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	Comments
2324.2[e] *5*	27/2+		
2324.4[j] *6*	27/2+		
2380.5[h] *5*	29/2−		
2381.1[g] *4*	27/2−		
2399.0[&] *10*	(27/2−)		
2417.5[a] *5*	(27/2+)		
2470.9[f] *4*	(29/2−)		
2487.4[b] *4*	29/2−		
2530.0[i] *5*	31/2+		
2565.8[@] *9*	(33/2−)		
2570.0[e] *5*	29/2+		
2570.1[j] *6*	29/2+		
2582.3[#] *4*	29/2+		
2628.6[g] *5*	(29/2−)		
2666.0[h] *5*	31/2−		
2671.2[k] *4*	(29/2+)	<2.8 ns	$T_{1/2}$: From centroid-shift analysis in 2000Da09.
2727.4[a] *5*	(29/2+)		
2755.0[f] *5*	(31/2−)		
2807.3[b] *5*	(31/2−)		
2810.3[i] *5*	33/2+		
2826.4[l] *4*	31/2+	23 ns *4*	$T_{1/2}$: From a two-level lifetimes fit using 363.2γ-(sum of 555.3γ, 789.3γ and 436.6γ)(Δt) (2000Da09).
2831.2[j] *4*	(31/2+)		
2840.0[e] *5*	31/2+		
2852.6[m] *5*	33/2−	46 ns *4*	$T_{1/2}$: From a two-level lifetimes fit using 363.2γ-(sum of 555.3γ, 789.3γ and 436.6γ)(Δt) (2000Da09). The value is consistent with that of 59 ns *17* deduced from 26γ(t) in the LEPS detector (2000Da09).
2893.7[#] *5*	31/2+		
2896.3[g] *5*	(31/2−)		
2956.9[o] *6*	35/2+	1.8 ns *4*	$T_{1/2}$: Weighted average of 1.7 ns *4* from 104.2γ(t) in the LEPS detector and 2.1 ns *7* from 104.2γ-(sum of 232.5γ, 321.7γ, 357.0γ and 461.5γ)(Δt) (2000Da09).
2971.2[h] *5*	(33/2−)		
3000.6[&] *10*	(31/2−)		
3046.4[f] *5*	(33/2−)		
3048.5[a] *5*	(31/2+)		
3109.6[i] *5*	35/2+		
3129.5[e] *5*	33/2+		
3135.4[b] *5*	(33/2−)		
3145.6[l] *5*	(33/2+)		
3181.1[g] *6*	(33/2−)		
3189.4[o] *7*	37/2+		
3210.1[#] *5*	33/2+		
3215.7[m] *6*	35/2−		
3223.2[@] *10*	(37/2−)		
3287.1[n] *6*	(37/2)−	<1.4 ns	$T_{1/2}$: From centroid-shift analysis in 2000Da09.
3294.5[h] *5*	(35/2−)		
3345.6[f] *5*	(35/2−)		
3373.3[a] *6*	(33/2+)		
3426.1[i] *5*	(37/2+)		

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^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)

^{177}Ta Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$	Comments
3438.2[e] 5	35/2$^+$		
3458.3[b] 6	(35/2$^-$)		
3480.8[g] 6	(35/2$^-$)		
3483.7[l] 4	(35/2$^+$)		
3511.1[o] 7	39/2$^+$		
3531.1[#] 6	(35/2$^+$)		
3589.7[m] 7	(37/2$^-$)		
3615.9[n] 7	(39/2$^-$)		
3633.2[h] 6	(37/2$^-$)		
3653.6[f] 5	(37/2$^-$)		
3661.6[&] 15	(35/2$^-$)		
3707.5?[a] 4	(35/2$^+$)		
3757.8[i] 5	(39/2$^+$)		
3764.4[e] 6	37/2$^+$		
3779.1[g] 4	(37/2$^-$)		
3803.1[b] 6	(37/2$^-$)		
3859.9[#] 6	(37/2$^+$)		
3868.1[o] 7	41/2$^+$		
3940.0[@] 10	(41/2$^-$)		
3958.5[n] 7	(41/2$^-$)		
3968.5[f] 6	(39/2$^-$)		
3977.7[m] 4	(39/2$^-$)		
3987.7[h] 6	(39/2$^-$)		
4059.3?[a] 5	(37/2$^+$)		
4093.3[b] 6	(39/2$^-$)		
4103.2[i] 6	(41/2$^+$)		
4195.8[#] 6	(39/2$^+$)		
4248.7[o] 7	(43/2$^+$)		
4316.8[n] 7	(43/2$^-$)		
4329.5[p] 7	43/2$^+$	0.69 ns 21	T$_{1/2}$: From 461.5γ(t) in the LEPS detector in 2000Da09.
4352.5[h] 7	(41/2$^-$)		
4425.8?[a] 5	(39/2$^+$)		
4459.4[i] 6	(43/2$^+$)		
4504.9[b] 7	(41/2$^-$)		
4541.4[#] 7	(41/2$^+$)		
4570.3[q] 8	45/2$^-$	<0.7 ns	T$_{1/2}$: From centroid-shift analysis in 2000Da09.
4647.3[o] 7	(45/2$^+$)		
4656.4[r] 9	49/2$^-$	133 μs 4	T$_{1/2}$: From sum of 461γ(t), 357γ(t) and 104γ(t) in 2000Da09.
4691.7[n] 7	(45/2$^-$)		
4715.2[@] 10	(45/2$^-$)		
4727.7[h] 7	(43/2$^-$)		
4740.4[p] 5	(45/2$^+$)		
4825.3[i] 4	(45/2$^+$)		
4900.9?[#] 5	(43/2$^+$)		
4983.3[q] 13	(47/2$^-$)		
5058.4[o] 8	(47/2$^+$)		
5083.1[n] 8	(47/2$^-$)		
5195.5[i] 5	(47/2$^+$)		

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^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)

^{177}Ta Levels (continued)

E(level)[†]	J$^{\pi}$[‡]
5271.0[#] *7*	(45/2^{+})
5413.2[q] *6*	(49/2^{-})
5478.9[o] *8*	(49/2^{+})
5547.9[@s] *11*	(49/2^{-})
5904.9[o] *5*	(51/2^{+})
6436.8[@s] *11*	(53/2^{-})

[†] From a least-squares fit to Eγ.

[‡] From the 2000Da09 data, unless otherwise specified. The assignment is based on the measured angular distributions, conversion electron coefficients, the apparent band structures with both cascade (ΔJ=1) and crossover (ΔJ=2) transitions, and the complex γ-ray decay pattern.

[#] Band(A): K^{π}=7/2^{+}: π7/2[404] ($g_{7/2}$) band. The assignment is supported by the observed in-band properties, such as alignment and g_K-g_R values ((g_K-g_R)/Q_0=+0.0667 *23*, weighted average from values deduced from the 11/2^{+} to 21/2^{+} levels) and systematics of similar structures in neighboring nuclei.

[@] Band(B): K^{π}=1/2^{-}: π1/2[541] ($h_{9/2}$) (α=+1/2) band. The assignment is supported by the observed in-band properties, such as alignment and large signature splittings, and systematics of similar structures in neighboring nuclei.

[&] Band(C): K^{π}=1/2^{-}: π1/2[541] ($h_{9/2}$) (α=−1/2) band. The assignment is supported by the observed in-band properties, such as alignment and large signature splittings, and systematics of similar structures in neighboring nuclei.

[a] Band(D): K^{π}=5/2^{+}: π5/2[402] ($d_{5/2}$) band. The assignment is supported by the observed in-band properties, such as alignment and g_K-g_R values ((g_K-g_R)/Q_0=+0.191 *7*, weighted average from values deduced from the 9/2^{+} to (31/2^{+}) levels), and systematics of similar structures in neighboring nuclei.

[b] Band(E): K^{π}=9/2^{-}: π9/2[514] ($h_{11/2}$) band. The assignment is supported by the observed in-band properties, such as alignment, g_K-g_R values ((g_K-g_R)/Q_0=+0.125 *4*, weighted average from values deduced from the 13/2^{-} to (31/2^{-}) levels), and systematics of similar structures in neighboring nuclei.

[c] Band(F): K^{π}=11/2^{-}:π 11/2[505] ($h_{11/2}$) band. (g_K-g_R)/Q_0=0.042 *1*, weighted average from values deduced from the (15/2^{-}) to (17/2^{-}) levels, is somewhat lower than that expected for the 11/2[505] ($h_{11/2}$) configuration. Alternatively, a coupling of the quadrupole vibration to the π 9/2[514] orbital is also possible. See 2000Da09 for details.

[d] Band(G): Tentative K=(17/2): configuration=ν^2(1/2[521],7/2[514])⊗ π(9/2[514]).

[e] Band(H): K^{π}=17/2^{+}: configuration=π^3(1/2[541],7/2[404],9/2[514]). The assignment is supported by the observed in-band properties, such as alignment, g_K-g_R values ((g_K-g_R)/Q_0=+0.0527 *5*, weighted average from values deduced from the 23/2^{+} to 37/2^{+} levels), systematics of similar structures in neighboring nuclei and results from multi-quasiparticle blocking calculations. See 1996Ko17 and 2000Da09 for details.

[f] Band(I): K^{π}=21/2^{-}: At low spin configuration=π^3(5/2[402],7/2[404], 9/2[514]). At high spin configuration=ν^2⊗π^1. The assignment is supported by the observed in-band properties, such as alignment, g_K-g_R values ((g_K-g_R)/Q_0=+0.047 *5*, weighted average from values deduced from the 25/2^{-} to (35/2^{-})levels), systematics of similar structures in neighboring nuclei and results from multi-quasiparticle blocking calculations. See 1997Ko13 and 2000Da09 for details.

[g] Band(J): K^{π}=19/2^{-}:configuration=ν^2(7/2[514],7/2[633])⊗π(5/2[402]) or configuration=ν^2(5/2[642],7/2[514])⊗π(7/2[404]). The assignment is supported by the observed in-band properties, such as alignment, g_K-g_R values ((g_K-g_R)/Q_0=+0.0096 *27*, weighted average from values deduced from the 23/2^{-} to 27/2^{-} levels), systematics of similar structures in neighboring nuclei, and results from multi-quasiparticle blocking calculations. See 1997Ko13 and 2000Da09 for details.

[h] Band(K): K^{π}=(21/2^{-}): configuration=ν^2(7/2[514],7/2[633])⊗π(5/2[402]) or configuration=ν^2(7/2[514],9/2[624])⊗π(5/2[402]). The assignment is supported by the observed in-band properties, such as alignment, g_K-g_R values ((g_K-g_R)/Q_0=+0.024 *3*, weighted average from values deduced from the 29/2^{-} to (35/2^{-}) levels), systematics of similar structures in neighboring nuclei, and results from multi-quasiparticle blocking calculations. See 1997Ko13 and 2000Da09 for details.

[i] Band(L): K^{π}=23/2^{+}: configuration=ν^2(7/2[514],7/2[633])⊗π(9/2[514]). The assignment is supported by the observed in-band properties, such as alignment, g_K-g_R values ((g_K-g_R)/Q_0=+0.024 *3*, weighted average from values deduced from the 29/2^{+} to (35/2^{+}) levels), systematics of similar structures in neighboring nuclei, and results from multi-quasiparticle blocking calculations.

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^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)

^{177}Ta Levels (continued)

See 1997Ko13 and 2000Da09 for details.

[j] Band(M): K^π=25/2$^+$: configuration=ν^2(7/2[514],9/2[624])$\otimes\pi$(9/2[514]). The assignment is supported by the observed in-band properties, such as alignment and g_K-g_R values ((g_K-g_R)/Q_0=+0.015 *6* deduced from the branching ratios at the (29/2$^+$) level), and results from multi-quasiparticle blocking calculations. See 1997Ko13 and 2000Da09 for details.

[k] Band(N): K^π=(29/2$^+$): configuration=ν(5/2[512],7/2[514])$\otimes$ π^3(1/2[541],7/2[404],9/2[514]). See 2000Da09 for details.

[l] Band(O): K^π=31/2$^+$: configuration=ν^4(1/2[521],5/2[512],7/2[514], 9/2[624])$\otimes$ π(9/2[514]) or configuration=ν^2(1/2[521],9/2[624])$\otimes$ π^3(5/2[402],7/2[404],9/2[514]). See 2000Da09 for details.

[m] Band(P): K^π=33/2$^-$: configuration=ν^2(5/2[512],7/2[514])$\otimes$ π^3(5/2[402],7/2[404],9/2[514]). The assignment is supported by the observed in-band properties, such as alignment and g_K-g_R values ((g_K-g_R)/Q_0=0.030 *+12−36*, deduced from the branching ratios at the (37/2$^-$) level), and results from multi-quasiparticle blocking calculations. See 1997Ko13 and 2000Da09 for details.

[n] Band(Q): K^π=(37/2)$^-$: configuration=ν^4(5/2[512],7/2[514],7/2[633], 9/2[624])$\otimes\pi$(9/2[514]). The assignment is supported by the observed in-band properties, such as alignment and g_K-g_R values ((g_K-g_R)/Q_0=0.028 *1*, weighted average from values deduced from the (41/2$^-$) to (45/2$^-$) levels), and results from multi-quasiparticle blocking calculations. See 1997Ko13 and 2000Da09 for details.

[o] Band(R): K^π=35/2$^+$: configuration=ν^2(7/2[514],7/2[633])$\otimes$ π^3(5/2[402],7/2[404],9/2[514]). The assignment is supported by the observed in-band properties, such as alignment and g_K-g_R values ((g_K-g_R)/Q_0=+0.057 *1*, weighted average from values deduced from the 39/2$^+$ to (47/2$^+$) levels), and results from multi-quasiparticle blocking calculations. See 1997Ko13 and 2000Da09 for details.

[p] Band(S): K^π=43/2$^+$: configuration=ν^4(1/2[521],5/2[512],7/2[514], 9/2[624])$\otimes\pi^3$(5/2[402],7/2[404],9/2[514]). The assignment is supported by the results from multi-quasiparticle blocking calculations. See 1997Ko13 and 2000Da09 for details.

[q] Band(T): K^π=45/2$^-$: configuration=ν^4(1/2[521],7/2[514],7/2[633], 9/2[624])$\otimes\pi^3$(5/2[402],7/2[404],9/2[514]). The assignment is supported by the results from multi-quasiparticle blocking calculations. See 1997Ko13 and 2000Da09 for details.

[r] Band(U): K^π=49/2$^-$: configuration=ν^4(5/2[512],7/2[514],7/2[633], 9/2[624])$\otimes\pi^3$(5/2[402],7/2[404],9/2[514]). The assignment is supported by the results from multi-quasiparticle blocking calculations. See 1997Ko13 and 2000Da09 for details.

[s] From 1995Ar18.

γ(^{177}Ta)

Mixing ratios values are deduced by the evaluator from the branching ratios and the rotational model, and by assuming pure K, unless otherwise stated.

E_γ[†]	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	Comments
26.2 *3*	132 *32*	2852.6	33/2$^-$	2826.4	31/2$^+$	E1	Mult.: α(exp)=3.0 *10* (2000Da09).
(30.45 *5*)		216.59	1/2$^-$	186.14	5/2$^-$	(E2)	E_γ,Mult.: From adopted gammas.
53 *1*	8[#] *3*	1354.9	21/2$^-$	1302.3	21/2$^-$	M1+E2	Mult.: α(exp)=11 *6* (2000Da09).
59.7 *5*		245.8	9/2$^-$	186.14	5/2$^-$	[E2]	E_γ: From adopted gammas.
70.5 *3*	139 *26*	70.59	5/2$^+$	0.0	7/2$^+$	M1+E2	Mult.: From adopted gammas.
71.5 *3*	4[#] *3*	3287.1	(37/2)$^-$	3215.7	35/2$^-$	M1(+E2)	Mult.: α(exp)=7.0 *20* (2000Da09).
73.3 *3*	1013 *49*	73.37	9/2$^-$	0.0	7/2$^+$	E1	Mult.: From adopted gammas.
82.5 *3*	30[#] *3*	1605.4	19/2$^+$	1522.95	17/2$^+$	[M1+E2]	E_γ: This transition is missing in 1995Ar18.
86.1 *3*	2[#] *1*	4656.4	49/2$^-$	4570.3	45/2$^-$	E2	Mult.: α(exp)=7.3 *9* (2000Da09) and α(L)exp=4.0 *10* (2000Da09).
101.8 *3*	67 *6*	172.3	7/2$^+$	70.59	5/2$^+$	M1+E2	Mult.: A_2=0.10 *17*.
104.2 *3*	211 *7*	2956.9	35/2$^+$	2852.6	33/2$^-$	E1	Mult.: A_2=−0.15 *6*. α(exp)=0.4 *1*, α(L)exp=0.05 *5*, and α(M)exp=0.03 *5* (2000Da09).
115.6 *3*	455 *20*	186.14	5/2$^-$	70.59	5/2$^+$	E1	Mult.: From adopted gammas.
128.6 *3*	157[#] *13*	300.9	9/2$^+$	172.3	7/2$^+$	[M1+E2]	δ: 0.16 *1* (2000Da09) and 0.26 *4* (1995Ar18), assuming K=5/2.
131.2 *3*	196 *22*	131.05	9/2$^+$	0.0	7/2$^+$	(M1+E2)	Mult.: A_2=0.09 *7*. The value overlaps with that for the 131.9γ.

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^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)

γ(^{177}Ta) (continued)

E_γ†	I_γ†	E_i(level)	J_i^π	E_f	J_f^π	Mult.@	Comments
131.9 *3*	100# *12*	1737.4	21/2+	1605.4	19/2+	(M1+E2)	Mult.: A_2=0.09 *7*. The value overlaps with that for the 131.2γ.
136.1 *3*	264 *17*	1834.6	25/2+	1698.5	23/2+	M1+E2	Mult.: α(exp)=1.93 *20* and α(L)exp=0.35 *12* (2000Da09).
146.6 *3*	1000# *27*	220.04	11/2−	73.37	9/2−	M1+E2	Mult.: A_2=−0.04 *5*.
154.0 *3*	131# *19*	455.1	11/2+	300.9	9/2+	[M1+E2]	δ: 0.17 *2* (2000Da09) and 0.17 *2* (1995Ar18), assuming K=5/2.
155.2 *3*	9# *3*	2826.4	31/2+	2671.2	(29/2+)	M1(+E2)	Mult.: α(exp)=2.0 *6* (2000Da09).
155.95 *9*		372.5	3/2−	216.59	1/2−	M1+E2	E_γ,Mult.: From adopted gammas.
156.6 *3*	333# *20*	402.4	13/2−	245.8	9/2−	(E2)	Mult.: A_2=0.18 *5*. The value overlaps with that for the 157.3γ.
157.3 *3*	204# *40*	288.55	11/2+	131.05	9/2+	(M1+E2)	Mult.: A_2=0.18 *5*. The value overlaps with that for the 156.6γ. δ: 0.45 *8* (2000Da09) and 0.68 *8* (1995Ar18), assuming K=7/2.
159.7 *3*	39# *8*	1059.0	(13/2−)	899.36	(11/2−)	M1+E2	Mult.: A_2=0.12 *14*.
163.5 *3*	46# *12*	1766.1	21/2−	1602.7	19/2−	M1+E2	Mult.: A_2=0.33 *29*.
167.1 *3*	131# *19*	1904.7	23/2+	1737.4	21/2+	M1+E2	Mult.: A_2=0.10 *11*. δ: 0.28 *3* (2000Da09) and 0.34 *2* (1995Ar18), using J=23/2, assuming K=17/2.
171 *1*	9# *3*	1602.7	19/2−	1431.6	(17/2−)		
171.6 *3*	1129 *30*	391.68	13/2−	220.04	11/2−	M1+E2	Mult.: A_2=−0.01 *5*. δ: 0.26 *2* (2000Da09) and 0.25 *3* (1995Ar18), assuming K=9/2.
175.0 *3*	14 *6*	1650.8	(19/2)	1475.8	(17/2)		
177.9 *3*	113 *13*	633.0	13/2+	455.1	11/2+	M1+E2	Mult.: A_2=0.01 *13*. δ: 0.12 *1* (2000Da09) and 0.16 *1* (1995Ar18), assuming K=5/2.
180.2 *3*	29# *6*	1239.2	(15/2−)	1059.0	(13/2−)	[M1+E2]	δ: 0.54 *12* (2000Da09), assuming K=11/2.
182.0 *3*	130# *9*	470.60	13/2+	288.55	11/2+	[M1+E2]	δ: 0.43 *3* (2000Da09) and 0.49 *3* (1995Ar18), assuming K=7/2.
183.1 *3*	40# *14*	1949.4	23/2−	1766.1	21/2−	[M1+E2]	δ: 6.2 *43* (2000Da09), assuming K=19/2.
186.1 *3*	68# *7*	186.14	5/2−	0.0	7/2+	E1	Mult.: From adopted gammas.
187 *1*	12# *3*	372.5	3/2−	186.14	5/2−		
192.5 *3*	15 *3*	1431.6	(17/2−)	1239.2	(15/2−)	[M1+E2]	δ: 0.56 *10* (2000Da09), assuming K=11/2.
195.3 *3*	1071 *21*	586.95	15/2−	391.68	13/2−	M1+E2	Mult.: A_2=−0.03 *7*. α(K)exp=0.39 *9* (2000Da09). Approximately 84% *195.3*γ and 16% *196.9*γ. δ: 0.21 *2* (2000Da09) and 0.20 *1* (1995Ar18), assuming K=9/2.
196.8 *3*	9# *5*	2116.7	27/2−	1920.1	25/2−	(M1+E2)	Mult.: A_2=−0.09 *15*. The value overlaps with that for the 196.9γ.
196.9 *3*	71# *11*	2101.6	25/2+	1904.7	23/2+	(M1+E2)	Mult.: A_2=−0.09 *15*. The value overlaps with that for the 196.8γ. α(K)exp=0.39 *9* (2000Da09). Approximately 84% *195.3*γ and 16% *196.9*γ. δ: 0.30 *6* (2000Da09) and 0.38 *1* (1995Ar18), using J=25/2, assuming K=17/2.
200.6 *3*	104 *13*	833.6	15/2+	633.0	13/2+	M1+E2	Mult.: A_2=0.08 *39*. δ: 0.12 *1* (2000Da09) and 0.13 *1* (1995Ar18), assuming K=9/2.
202.5 *3*	413 *15*	2037.1	27/2+	1834.6	25/2+	M1+E2	Mult.: A_2=0.14 *9*. α(K)exp=0.41 *8* (2000Da09). δ: 0.33 *6* (2000Da09), assuming K=23/2.
204.7 *3*	53# *11*	2154.2	25/2−	1949.4	23/2−	(M1+E2)	Mult.: A_2=0.13 *18*. The value overlaps with that for

Continued on next page (footnotes at end of table)

^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)

γ(^{177}Ta) (continued)

$E_γ$[†]	$I_γ$[†]	E_i(level)	$J^π_i$	E_f	$J^π_f$	Mult.[@]	Comments
							the 204.9γ. δ: 1.1 *5* (2000Da09), assuming K=19/2.
204.9 *3*	76[#] *9*	675.53	15/2+	470.60	13/2+	(M1+E2)	Mult.: A_2=0.13 *18*. The value overlaps with that for the 204.7γ. δ: 0.37 *3* (2000Da09) and 0.43 *3* (1995Ar18), assuming K=7/2.
208.8 *3*	9[#] *2*	1834.6	25/2+	1625.8	23/2−	E1	Mult.: α(exp)=0.05 *2* (2000Da09).
218.1 *3*	831 *19*	805.02	17/2−	586.95	15/2−	M1+E2	Mult.: A_2=−0.02 *4*; α(K)exp=0.48 *7* and α(L)exp=0.091 *24* (2000Da09). δ: 0.18 *1* (2000Da09) and 0.21 *1* (1995Ar18), assuming K=9/2.
221.2 *3*	69[#] *9*	1054.7	17/2+	833.6	15/2+	[M1+E2]	δ: 0.12 *1* (2000Da09) and 0.13 *1* (1995Ar18), assuming K=5/2.
222.7 *3*	59[#] *9*	2324.2	27/2+	2101.6	25/2+	[M1+E2]	δ: 0.27 *4* (2000Da09) and 0.29 *1* (1995Ar18), using J=27/2, assuming K=17/2.
226.0 *3*	58[#] *9*	901.5	17/2+	675.53	15/2+	(M1+E2)	Mult.: A_2=0.42 *24*. The value overlaps with that for the 226.2γ and 226.9γ. δ: 0.37 *3* (2000Da09) and 0.39 *3* (1995Ar18), assuming K=7/2.
226.2 *3*	10[#] *3*	2324.4	27/2+	2098.2	25/2+	(M1+E2)	Mult.: A_2=0.42 *24*. The value overlaps with that for the 226.0γ and 226.9γ.
226.9 *3*	25[#] *8*	2381.1	27/2−	2154.2	25/2−	(M1+E2)	Mult.: A_2=0.42 *24*. The value overlaps with that for the 226.0γ and 226.2γ. δ: 1.4 *8* (2000Da09), assuming K=19/2.
[x]228							$E_γ$: Feed the 805-keV level.
230.1 *3*	25[#] *4*	300.9	9/2+	70.59	5/2+	[E2]	
232.5 *3*	107 *9*	3189.4	37/2+	2956.9	35/2+	M1+E2	Mult.: A_2=−0.20 *12*. α(exp)=0.45 *4*, α(K)exp=0.18 *3* (2000Da09). Approximately 69% *232.5*γ and 31% *234.1*γ.
234.1 *3*	276 *16*	2271.2	29/2+	2037.1	27/2+	M1+E2	Mult.: A_2=0.14 *7*. α(K)exp=0.18 *3* (2000Da09). Approximately 69% *232.5*γ and 31% *234.1*γ. δ: 0.33 *5* (2000Da09), assuming K=23/2.
238.7 *3*	567[#] *29*	1043.6	19/2−	805.02	17/2−	M1+E2	Mult.: A_2=−0.06 *6*. δ: 0.18 *1* (2000Da09) and 0.20 *1* (1995Ar18), assuming K=9/2.
240.8 *3*	24[#] *4*	4570.3	45/2−	4329.5	43/2+	E1	Mult.: A_2=0.01 *10*. The value overlaps with that for the 240.9γ. α(exp)=0.043 *4* and α(K)exp=0.059 *21* (2000Da09).
240.9 *3*	48[#] *9*	1295.6	19/2+	1054.7	17/2+	(M1+E2)	Mult.: A_2=0.01 *10*. The value overlaps with that for the 240.8γ. δ: 0.12 *2* (2000Da09) and 0.13 *1* (1995Ar18), assuming K=5/2.
242.1 *3*	57[#] *10*	2116.7	27/2−	1874.7	25/2−	M1+E2	Mult.: A_2=0.30 *21*.
244[&] *1*		2826.4	31/2+	2582.3	29/2+		
245.4 *3*	27[#] *4*	1146.8	19/2+	901.5	17/2+	(M1+E2)	Mult.: A_2=0.10 *11*. The value overlaps with that for the 245.6γ and 245.8γ. δ: 0.34 *3* (2000Da09) and 0.32 *1* (1995Ar18), assuming K=7/2.
245.6 *3*	6[#] *2*	2570.1	29/2+	2324.4	27/2+	M1+E2	Mult.: A_2=0.10 *11*. The value overlaps with that for the 245.4γ and 245.8γ. δ: 1.0 *4* (2000Da09), assuming K=25/2.
245.8 *3*	49 *7*	2570.0	29/2+	2324.2	27/2+	(M1+E2)	Mult.: A_2=0.10 *11*. The value overlaps with that for the

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^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)

γ(^{177}Ta) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	Comments
							245.4γ and 245.6γ. δ: 0.26 *4* (2000Da09) and 0.34 *1* (1995Ar18), using J=29/2, assuming K=17/2.
247.5[&] *3*		2628.6	(29/2$^-$)	2381.1	27/2$^-$		
248.9 *3*	162[#] *27*	1874.7	25/2$^-$	1625.8	23/2$^-$	M1+E2	Mult.: A_2=0.23 *10*. α(exp)=0.38 *3* (2000Da09).
256.7 *3*	455 *11*	659.3	17/2$^-$	402.4	13/2$^-$	E2	Mult.: A_2=0.23 *4*.
257 *1*	7[#] *2*	2826.4	31/2$^+$	2570.0	29/2$^+$	[M1(+E2)]	
258.0 *3*	43[#] *8*	1553.5	21/2$^+$	1295.6	19/2$^+$	[M1+E2]	δ: 0.11 *2* (2000Da09) and 0.10 *1* (1995Ar18), assuming K=7/2.
258.7 *3*	339[#] *17*	1302.3	21/2$^-$	1043.6	19/2$^-$	(M1+E2)	Mult.: A_2=−0.02 *7*. The value overlaps with that for the 258.8γ. δ: 0.17 *1* (2000Da09) and 0.18 *1* (1995Ar18), assuming K=9/2.
258.8 *3*	116[#] *18*	2530.0	31/2$^+$	2271.2	29/2$^+$	(M1+E2)	Mult.: A_2=−0.02 *7*. The value overlaps with that for the 258.7γ. δ: 0.38 *4* (2000Da09), assuming K=23/2.
261[&] *1*		2831.2	(31/2$^+$)	2570.1	29/2$^+$		
262.2 *3*	24[#] *4*	1408.9	21/2$^+$	1146.8	19/2$^+$	[M1+E2]	δ: 0.33 *3* (2000Da09) and 0.33 *1* (1995Ar18), assuming K=7/2.
263.9 *3*	32[#] *5*	2380.5	29/2$^-$	2116.7	27/2$^-$	M1+E2	Mult.: A_2=0.34 *39*. δ: 0.73 *13* (2000Da09), assuming K=21/2.
269.9 *3*	35[#] *7*	2840.0	31/2$^+$	2570.0	29/2$^+$	[M1+E2]	δ: 0.35 *5* (2000Da09) and 0.32 *1* (1995Ar18), using J=31/2, assuming K=17/2.
271.0 *3*	249 *30*	1625.8	23/2$^-$	1354.9	21/2$^-$	M1(+E2)	Mult.: A_2=+0.08 *4*; α(K)exp=0.25 *6* (2000Da09).
272.6 *3*	85[#] *18*	2192.6	27/2$^-$	1920.1	25/2$^-$	M1+E2	Mult.: A_2=0.33 *13*. δ: 0.31 *8* (2000Da09), assuming K=21/2.
274.8 *3*	27[#] *9*	1828.2	23/2$^+$	1553.5	21/2$^+$	(M1+E2)	Mult.: A_2=−0.07 *5*. The value overlaps with that for the 274.9γ. δ: 0.11 *2* (2000Da09) and 0.10 *1* (1995Ar18), assuming K=5/2.
274.9 *3*	120[#] *15*	1577.2	23/2$^-$	1302.3	21/2$^-$	(M1+E2)	Mult.: A_2=−0.07 *5*. The value overlaps with that for the 274.8γ. δ: 0.16 *1* (2000Da09) and 0.16 *1* (1995Ar18), assuming K=7/2.
276.9 *3*	18[#] *4*	1685.8	23/2$^+$	1408.9	21/2$^+$	[M1+E2]	δ: 0.19 *2* (2000Da09) and 0.18 *1* (1995Ar18), assuming K=7/2.
278.4 *3*	72[#] *15*	2470.9	(29/2$^-$)	2192.6	27/2$^-$	[M1+E2]	δ: 0.35 *6* (2000Da09), assuming K=21/2.
280.3 *3*	74[#] *11*	2810.3	33/2$^+$	2530.0	31/2$^+$	M1+E2	Mult.: A_2=0.04 *5*. δ: 0.41 *7* (2000Da09), assuming K=23/2.
282.8 *3*	55 *7*	455.1	11/2$^+$	172.3	7/2$^+$	[E2]	
283.8 *3*	16[#] *4*	1522.95	17/2$^+$	1239.2	(15/2$^-$)	[E1]	
284.2 *3*	25[#] *9*	2755.0	(31/2$^-$)	2470.9	(29/2$^-$)	[M1+E2]	δ: 0.51 *14* (2000Da09), assuming K=21/2.
285.6 *3*	15[#] *4*	2666.0	31/2$^-$	2380.5	29/2$^-$	[M1+E2]	δ: 0.71 *19* (2000Da09), assuming K=21/2.
287.9 *3*	21[#] *4*	2116.0	(25/2$^+$)	1828.2	23/2$^+$	[M1+E2]	δ: 0.10 *2* (2000Da09) and 0.10 *1* (1995Ar18), assuming K=5/2.
288.6 *3*	153[#] *30*	288.55	11/2$^+$	0.0	7/2$^+$	E2	Mult.: A_2=0.13 *5*.
289.4 *3*	18[#] *8*	1975.1	25/2$^+$	1685.8	23/2$^+$	[M1+E2]	δ: 0.28 *6* (2000Da09) and 0.28 *1* (1995Ar18), assuming K=7/2.
289.4 *3*	24[#] *5*	3129.5	33/2$^+$	2840.0	31/2$^+$	[M1+E2]	δ: 0.26 *4* (2000Da09) and 0.25 *2* (1995Ar18), using J=33/2, assuming K=17/2.
291.4 *3*	31[#] *10*	3046.4	(33/2$^-$)	2755.0	(31/2$^-$)	[M1+E2]	δ: 0.36 *8* (2000Da09), assuming K=21/2.

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^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)

γ(^{177}Ta) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	Comments
292 *1*	9[#] *3*	1029.2	(15/2⁻)	737.3	(11/2⁻)	[E2]	
292.0 *3*	56[#] *6*	1869.1	25/2⁻	1577.2	23/2⁻	[M1+E2]	δ: 0.17 *1* (2000Da09) and 0.17 *1* (1995Ar18), assuming K=9/2.
294.3 *3*	88[#] *23*	1920.1	25/2⁻	1625.8	23/2⁻	[M1+E2]	δ: 0.35 *9* (2000Da09), assuming K=21/2.
296[&] *1*		2570.0	29/2⁺	2274.2	27/2⁺		
296.5 *3*	23[#] *7*	2826.4	31/2⁺	2530.0	31/2⁺		Mult.: A_2=0.32 *16*. α(K)exp=0.024 *14* (2000Da09). The α(K)exp value is in disagreement with the placement of the transition in the level scheme.
299.3 *3*	26[#] *3*	1904.7	23/2⁺	1605.4	19/2⁺	[E2]	
299.3 *3*	11[#] *4*	2274.2	27/2⁺	1975.1	25/2⁺	[M1+E2]	δ: 0.25 *4* (2000Da09) and 0.20 *1* (1995Ar18), assuming K=7/2.
299.4 *3*	44[#] *7*	3109.6	35/2⁺	2810.3	33/2⁺	[M1+E2]	δ: 0.45 *6* (2000Da09), assuming K=23/2.
299.4 *3*	28[#] *8*	3345.6	(35/2⁻)	3046.4	(33/2⁻)	[M1+E2]	δ: 0.28 *7* (2000Da09), assuming K=21/2.
301.2 *3*	18[#] *3*	2417.5	(27/2⁺)	2116.0	(25/2⁺)	[M1+E2]	δ: 0.09 *1* (2000Da09) and 0.10 *1* (1995Ar18), assuming K=5/2.
302.6 *3*	40[#] *5*	2171.5	27/2⁻	1869.1	25/2⁻	M1+E2	Mult.: A_2=−0.02 *10*. δ: 0.14 *1* (2000Da09) and 0.15 *1* (1995Ar18), assuming K=5/2.
305.2 *3*	13[#] *3*	2971.2	(33/2⁻)	2666.0	31/2⁻	[M1+E2]	δ: 0.72 *17* (2000Da09), assuming K=21/2.
308.1 *3*	30 *7*	3653.6	(37/2⁻)	3345.6	(35/2⁻)	[M1+E2]	δ: 0.14 *3* (2000Da09), assuming K=21/2.
308.5 *3*	13[#] *4*	2582.3	29/2⁺	2274.2	27/2⁺	[M1+E2]	δ: 0.23 *4* (2000Da09) and 0.22 *1* (1995Ar18), assuming K=7/2.
308.8 *3*	17[#] *3*	3438.2	35/2⁺	3129.5	33/2⁺	[M1+E2]	δ: 0.30 *5* (2000Da09) and 0.37 *5* (1995Ar18), using J=35/2, assuming K=17/2.
309.8 *3*	14[#] *3*	2727.4	(29/2⁺)	2417.5	(27/2⁺)	[M1+E2]	δ: 0.10 *2* (2000Da09) and 0.09 *1* (1995Ar18), assuming K=5/2.
311.3 *3*	1042 *20*	1354.9	21/2⁻	1043.6	19/2⁻	M1(+E2)	Mult.: α(K)exp=0.17 *2* and α(L)exp=0.030 *9* (2000Da09).
311.7 *3*	9[#] *1*	2893.7	31/2⁺	2582.3	29/2⁺	[M1+E2]	δ: 0.19 *2* (2000Da09), assuming K=7/2.
315[&] *1*		3968.5	(39/2⁻)	3653.6	(37/2⁻)		
315.9 *3*	44[#] *6*	2487.4	29/2⁻	2171.5	27/2⁻	M1+E2	Mult.: A_2=−0.40 *20*. δ: 0.13 *2* (2000Da09) and 0.15 *1* (1995Ar18), assuming K=9/2.
316.5 *3*	6[#] *1*	3210.1	33/2⁺	2893.7	31/2⁺	[M1+E2]	δ: 0.12 *2* (2000Da09), assuming K=7/2.
316.6 *3*	25[#] *4*	3426.1	(37/2⁺)	3109.6	35/2⁺	[M1+E2]	δ: 0.35 *5* (2000Da09), assuming K=23/2.
317.9 *3*	25[#] *5*	2192.6	27/2⁻	1874.7	25/2⁻		
318.3 *3*	245[#] *30*	391.68	13/2⁻	73.37	9/2⁻	E2	Mult.: A_2=0.13 *14*.
319.2 *3*	7 *3*	3145.6	(33/2⁺)	2826.4	31/2⁺	[M1+E2]	
320.0 *3*	23[#] *6*	2807.3	(31/2⁻)	2487.4	29/2⁻	[M1+E2]	δ: 0.14 *3* (2000Da09) and 0.16 *1* (1995Ar18), assuming K=9/2.
321.2 *3*	4.8 *8*	3048.5	(31/2⁺)	2727.4	(29/2⁺)	[M1+E2]	I_γ: From the branching ratios given in 1995Ar18 and Iγ=11 *4* for the 630.8γ, ΔJ=2 in-band transition from 2000Da09. δ: 0.09 *1* (1995Ar18), assuming K=5/2.
321.7 *3*	112 *12*	3511.1	39/2⁺	3189.4	37/2⁺	M1+E2	Mult.: A_2=−0.05 *21*. α(K)exp=0.18 *3* and α(L)exp=0.031 *8* (2000Da09). δ: 0.24 *4* (2000Da09), assuming K=35/2.
323[&] *1*		3458.3	(35/2⁻)	3135.4	(33/2⁻)		
323.4 *3*	5[#] *2*	3294.5	(35/2⁻)	2971.2	(33/2⁻)	[M1+E2]	δ: 0.58 *19* (2000Da09), assuming K=21/2.
326.3 *3*	7[#] *2*	3764.4	37/2⁺	3438.2	35/2⁺	[M1+E2]	δ: 0.46 *11* (2000Da09), assuming K=17/2.

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^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)

γ(^{177}Ta) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult. @	Comments
328.2 *3*	12# *3*	3135.4	(33/2−)	2807.3	(31/2−)	[M1+E2]	δ: 0.15 *1* (1995Ar18), assuming K=9/2.
328.9 *3*	32# *8*	3615.9	(39/2−)	3287.1	(37/2)−	[M1+E2]	
330.1 *3*	57# *11*	3287.1	(37/2)−	2956.9	35/2+	[E1]	Mult.: A_2=0.20 *19*. This value is in disagreement with what would be expected for a pure E1 transition.
331.7 *3*	18# *2*	3757.8	(39/2+)	3426.1	(37/2+)	[M1+E2]	
332.1 *3*	45# *9*	633.0	13/2+	300.9	9/2+	[E2]	
334.6 *3*	13# *3*	1766.1	21/2−	1431.6	(17/2−)	[E2]	
335.0 *3*	10# *4*	737.3	(11/2−)	402.4	13/2−	[M1+E2]	
338& *1*		3483.7	(35/2+)	3145.6	(33/2+)		
338.7 *3*	23# *7*	2037.1	27/2+	1698.5	23/2+	[E2]	
339.5 *3*	209# *18*	470.60	13/2+	131.05	9/2+	(E2)	Mult.: A_2=0.43 *10*. The value overlaps with that for the 340.1γ.
340.1 *3*	19 *5*	1239.2	(15/2−)	899.36	(11/2−)	(E2)	Mult.: A_2=0.43 *10*. The value overlaps with that for the 339.5γ.
342.9 *3*	28# *4*	3958.5	(41/2−)	3615.9	(39/2−)	[M1+E2]	δ: 1.9 *3* (2000Da09), assuming K=37/2.
343.5 *3*	759 *20*	1698.5	23/2+	1354.9	21/2−	E1	Mult.: A_2=−0.25 *4*. α(K)exp=0.016 *6* (2000Da09).
346.9 *3*	60# *15*	1949.4	23/2−	1602.7	19/2−	[E2]	
352.3 *3*	332 *8*	1011.7	21/2−	659.3	17/2−	E2	Mult.: A_2=0.20 *4*. α(K)exp=0.028 *3* (2000Da09).
354.6 *3*	9# *4*	2470.9	(29/2−)	2116.7	27/2−		
357.0 *3*	83 *11*	3868.1	41/2+	3511.1	39/2+	M1+E2	Mult.: A_2=0.33 *7*. α(K)exp=0.120 *17* (2000Da09). δ: 0.22 *4* (2000Da09), assuming K=35/2.
358.5 *3*	9# *3*	4316.8	(43/2−)	3958.5	(41/2−)	[M1+E2]	δ: 0.79 *36* (2000Da09), assuming K=37/2.
363.2 *3*	104# *21*	3215.7	35/2−	2852.6	33/2−	M1(+E2)	Mult.: A_2=0.22 *5*. The value overlaps with that for the 363.4γ. α(K)exp=0.08 *2* (2000Da09).
363.4 *3*	11# *3*	1602.7	19/2−	1239.2	(15/2−)	(E2)	Mult.: A_2=0.22 *5*. The value overlaps with that for the 363.2γ.
364.3 *3*	30# *11*	2101.6	25/2+	1737.4	21/2+	[E2]	
367.0 *3*	332# *40*	586.95	15/2−	220.04	11/2−	E2	Mult.: A_2=0.26 *6*.
369.6 *3*	8# *4*	1029.2	(15/2−)	659.3	17/2−	[M1+E2]	
372.7 *3*	25# *4*	1431.6	(17/2−)	1059.0	(13/2−)	[E2]	
374.0 *3*	24# *6*	3589.7	(37/2−)	3215.7	35/2−	[M1+E2]	δ: 0.6 *4* (2000Da09), assuming K=37/2.
375.0 *3*	8# *2*	4691.7	(45/2−)	4316.8	(43/2−)	[M1+E2]	δ: 0.55 *17* (2000Da09), assuming K=37/2.
377 *1*	10# *4*	1406.0	(19/2−)	1029.2	(15/2−)	[E2]	
378.5 *3*	60# *9*	833.6	15/2+	455.1	11/2+	[E2]	
380.8 *3*	28# *5*	4248.7	(43/2+)	3868.1	41/2+	[M1+E2]	δ: 0.34 *6* (2000Da09), assuming K=35/2.
387.0 *3*	160# *13*	675.53	15/2+	288.55	11/2+	E2	Mult.: A_2=0.22 *5*.
388.0 *3*	94# *15*	2154.2	25/2−	1766.1	21/2−	[E2]	
388& *1*		3977.7	(39/2−)	3589.7	(37/2−)		
391.4 *3*	7# *2*	5083.1	(47/2−)	4691.7	(45/2−)	[M1+E2]	
394.2 *3*	11# *4*	1406.0	(19/2−)	1011.7	21/2−	[M1+E2]	
398.7 *3*	14# *3*	4647.3	(45/2+)	4248.7	(43/2+)	[M1+E2]	δ: 0.28 *5* (2000Da09), assuming K=35/2.
399.7 *3*	26# *13*	2098.2	25/2+	1698.5	23/2+	(M1+E2)	Mult.: A_2=−0.59 *21*. The value overlaps with that for the 399.8γ. α(K)exp=0.11 *3* (2000Da09).
399.8 *3*	17# *11*	2671.2	(29/2+)	2271.2	29/2+	(M1+E2)	Mult.: A_2=−0.59 *21*. The value overlaps with that for the 399.7γ.
411& *1*		4740.4	(45/2+)	4329.5	43/2+		
411.1 *3*	11# *2*	5058.4	(47/2+)	4647.3	(45/2+)	[M1+E2]	δ: 0.28 *5* (2000Da09), assuming K=35/2.

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^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)

γ(^{177}Ta) (continued)

E_γ†	I_γ†	E_i(level)	J_i^π	E_f	J_f^π	Mult.@	Comments
412 *1*	9# *2*	1864.9	(23/2⁻)	1452.4	25/2⁻	[M1+E2]	
413 *1*		4983.3	(47/2⁻)	4570.3	45/2⁻	[M1+E2]	
413.4 *3*	345 *34*	805.02	17/2⁻	391.68	13/2⁻	E2	Mult.: A_2=0.13 *5*. α(K)exp=0.023 *10* (2000Da09).
419.5 *3*	30# *6*	2324.2	27/2⁺	1904.7	23/2⁺	[E2]	
420.5 *3*	7# *1*	5478.9	(49/2⁺)	5058.4	(47/2⁺)	[M1+E2]	
421.7 *3*	56# *11*	1054.7	17/2⁺	633.0	13/2⁺	[E2]	
426 *1*	3# *1*	2399.0	(27/2⁻)	1973.1	29/2⁻	[M1+E2]	
426& *1*		5904.9	(51/2⁺)	5478.9	(49/2⁺)		
430& *1*		5413.2	(49/2⁻)	4983.3	(47/2⁻)		
431.0 *3*	187 *9*	901.5	17/2⁺	470.60	13/2⁺	E2	Mult.: A_2=0.14 *52*.
431.7 *3*	84# *15*	2381.1	27/2⁻	1949.4	23/2⁻	[E2]	
434 *1*	2# *1*	3000.6	(31/2⁻)	2565.8	(33/2⁻)	[M1+E2]	
436.6 *3*	64 *7*	2271.2	29/2⁺	1834.6	25/2⁺	[E2]	
440.6 *3*	267 *10*	1452.4	25/2⁻	1011.7	21/2⁻	E2	Mult.: A_2=0.19 *3*.
456.7 *3*	351# *45*	1043.6	19/2⁻	586.95	15/2⁻	E2	Mult.: A_2=0.17 *6*. α(K)exp=0.014 *9* (2000Da09).
459 *1*	10# *4*	1864.9	(23/2⁻)	1406.0	(19/2⁻)	[E2]	
461.5 *3*	44# *6*	4329.5	43/2⁺	3868.1	41/2⁺	M1(+E2)	Mult.: A_2=0.16 *6*. The value overlaps with that for the 461.9γ. α(K)exp=0.051 *7* and α(L)exp=0.007 *2* (2000Da09).
461.9 *3*	57# *10*	1295.6	19/2⁺	833.6	15/2⁺	(E2)	Mult.: A_2=0.16 *6*. The value overlaps with that for the 461.5γ.
468.5 *3*	34# *7*	2570.0	29/2⁺	2101.6	25/2⁺	[E2]	
471.2 *3*	107 *9*	1146.8	19/2⁺	675.53	15/2⁺	E2	Mult.: A_2=0.27 *5*.
472 *1*	7# *3*	2570.1	29/2⁺	2098.2	25/2⁺	[E2]	
474.4 *3*	81 *15*	2628.6	(29/2⁻)	2154.2	25/2⁻	[E2]	
479.5 *3*	35 *4*	1522.95	17/2⁺	1043.6	19/2⁻	E1	Mult.: A_2=−0.34 *48*.
490.9 *3*	17 *5*	2116.7	27/2⁻	1625.8	23/2⁻	[E2]	
491 *1*	15# *3*	737.3	(11/2⁻)	245.8	9/2⁻	[M1+E2]	
492.9 *3*	58 *7*	2530.0	31/2⁺	2037.1	27/2⁺	E2	Mult.: A_2=0.31 *9*.
497.3 *3*	270 *30*	1302.3	21/2⁻	805.02	17/2⁻	E2	Mult.: A_2=0.35 *10*.
498.8 *3*	51# *11*	1553.5	21/2⁺	1054.7	17/2⁺	E2	Mult.: A_2=0.41 *13*.
502 *1*	10# *2*	2826.4	31/2⁺	2324.2	27/2⁺	[E2]	
505.8 *3*	52# *9*	2380.5	29/2⁻	1874.7	25/2⁻	[E2]	
507.3 *3*	116 *4*	1408.9	21/2⁺	901.5	17/2⁺	(E2)	Mult.: A_2=0.11 *7*. The value overlaps with that for the 507.7γ.
507.7 *3*	25# *4*	899.36	(11/2⁻)	391.68	13/2⁻	M1(+E2)	Mult.: A_2=0.11 *7*. The value overlaps with that for the 507.3γ. α(K)exp=0.020 *10* (2000Da09).
515.2 *3*	49# *20*	2896.3	(31/2⁻)	2381.1	27/2⁻	[E2]	
515.7 *3*	50# *9*	2840.0	31/2⁺	2324.2	27/2⁺	[E2]	
519.6 *3*	14# *6*	1874.7	25/2⁻	1354.9	21/2⁻	[E2]	
520.7 *3*	141 *9*	1973.1	29/2⁻	1452.4	25/2⁻	E2	Mult.: A_2=0.28 *4*.
ˣ528							
532.5 *3*	45# *11*	1828.2	23/2⁺	1295.6	19/2⁺	[E2]	
533.6 *3*	100# *20*	1577.2	23/2⁻	1043.6	19/2⁻	(E2)	Mult.: A_2=0.34 *7*. The value overlaps with that for the 534γ.
534 *1*	10# *3*	2399.0	(27/2⁻)	1864.9	(23/2⁻)	(E2)	Mult.: A_2=0.34 *7*. The value overlaps with that for the 533.6γ.
539.0 *3*	98# *4*	1685.8	23/2⁺	1146.8	19/2⁺	(E2)	Mult.: A_2=0.46 *5*. The value overlaps with that for the 539.1γ.
539.1 *3*	55# *10*	2810.3	33/2⁺	2271.2	29/2⁺	(E2)	Mult.: A_2=0.46 *5*. The value overlaps with that for the 539.0γ.

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^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)

γ(^{177}Ta) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
549.3 *3*	33[#] *7*	2666.0	31/2$^-$	2116.7	27/2$^-$	(E2)	Mult.: A_2=0.10 *8*. The value overlaps with that for the 549.9γ.
549.9 *3*	140[#] *17*	1354.9	21/2$^-$	805.02	17/2$^-$	E2	Mult.: A_2=0.10 *8*. The value overlaps with that for the 549.3γ. α(K)exp=0.018 *11* (2000Da09).
550.7 *3*	43[#] *9*	2470.9	(29/2$^-$)	1920.1	25/2$^-$	[E2]	
552 *1*	5[#] *2*	2826.4	31/2$^+$	2274.2	27/2$^+$	[E2]	
552.5 *3*	51[#] *10*	3181.1	(33/2$^-$)	2628.6	(29/2$^-$)	[E2]	
554 *1*	3[#] *1*	3511.1	39/2$^+$	2956.9	35/2$^+$	[E2]	
555.3 *3*	182 *30*	2826.4	31/2$^+$	2271.2	29/2$^+$	M1(+E2)	Mult.: A_2=−0.20 *13*. α(K)exp=0.036 *11* (2000Da09).
559.7 *3*	27[#] *5*	3129.5	33/2$^+$	2570.0	29/2$^+$	E2	Mult.: A_2=0.16 *11*.
562.2 *3*	39[#] *8*	2755.0	(31/2$^-$)	2192.6	27/2$^-$	[E2]	
562.6 *3*	36[#] *8*	2116.0	(25/2$^+$)	1553.5	21/2$^+$	[E2]	
565 *1*	14[#] *5*	1920.1	25/2$^-$	1354.9	21/2$^-$	[E2]	
566.1 *3*	102[#] *9*	1975.1	25/2$^+$	1408.9	21/2$^+$	[E2]	
566.8 *3*	71[#] *8*	1869.1	25/2$^-$	1302.3	21/2$^-$	[E2]	
566.8 *3*	34[#] *15*	2192.6	27/2$^-$	1625.8	23/2$^-$	[E2]	
572.9 *3*	15[#] *6*	2671.2	(29/2$^+$)	2098.2	25/2$^+$	[E2]	
575.5 *3*	34[#] *8*	3046.4	(33/2$^-$)	2470.9	(29/2$^-$)	[E2]	
579.6 *3*	55[#] *8*	3109.6	35/2$^+$	2530.0	31/2$^+$	E2	Mult.: A_2=0.21 *11*.
584.5 *3*	12[#] *3*	3480.8	(35/2$^-$)	2896.3	(31/2$^-$)	[E2]	
588.3 *3*	62[#] *4*	2274.2	27/2$^+$	1685.8	23/2$^+$	[E2]	
589.2 *3*	25[#] *5*	2417.5	(27/2$^+$)	1828.2	23/2$^+$	[E2]	
590.6 *3*	24[#] *8*	3345.6	(35/2$^-$)	2755.0	(31/2$^-$)	[E2]	
590.8 *3*	39[#] *7*	2971.2	(33/2$^-$)	2380.5	29/2$^-$	[E2]	
592.6 *3*	77[#] *7*	2565.8	(33/2$^-$)	1973.1	29/2$^-$	[E2]	
594.3 *3*	44[#] *6*	2171.5	27/2$^-$	1577.2	23/2$^-$	[E2]	
595 *1*	3[#] *1*	2570.0	29/2$^+$	1975.1	25/2$^+$	[E2]	
596.2 *3*	14[#] *7*	2470.9	(29/2$^-$)	1874.7	25/2$^-$	[E2]	
598.0[&] *3*		3779.1	(37/2$^-$)	3181.1	(33/2$^-$)		
598.2 *3*	29[#] *7*	3438.2	35/2$^+$	2840.0	31/2$^+$	[E2]	
602 *1*	6[#] *3*	3000.6	(31/2$^-$)	2399.0	(27/2$^-$)	[E2]	
607.0 *3*	71[#] *9*	2582.3	29/2$^+$	1975.1	25/2$^+$	[E2]	
607.0 *3*	8[#] *3*	3653.6	(37/2$^-$)	3046.4	(33/2$^-$)	[E2]	
610.7 *3*	20[#] *5*	899.36	(11/2$^-$)	288.55	11/2$^+$	[E1]	
611.7 *3*	30[#] *9*	2727.4	(29/2$^+$)	2116.0	(25/2$^+$)	[E2]	
615.8 *3*	30[#] *7*	3426.1	(37/2$^+$)	2810.3	33/2$^+$	[E2]	
618.2 *3*	43[#] *6*	2487.4	29/2$^-$	1869.1	25/2$^-$	[E2]	
619.3 *3*	44[#] *9*	2893.7	31/2$^+$	2274.2	27/2$^+$	[E2]	
621.4 *3*	18[#] *3*	1522.95	17/2$^+$	901.5	17/2$^+$		
622.9 *3*	8[#] *3*	3968.5	(39/2$^-$)	3345.6	(35/2$^-$)	[E2]	
627.0 *3*	14[#] *5*	1029.2	(15/2$^-$)	402.4	13/2$^-$	[M1+E2]	
627.8 *3*	13[#] *3*	3210.1	33/2$^+$	2582.3	29/2$^+$	[E2]	
628.3 *3*	14[#] *3*	3294.5	(35/2$^-$)	2666.0	31/2$^-$	[E2]	
630.8 *3*	11[#] *4*	3048.5	(31/2$^+$)	2417.5	(27/2$^+$)	[E2]	

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^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)

γ(^{177}Ta) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.@	Comments
634.3 3	14# 5	2671.2	(29/2+)	2037.1	27/2+		
634.7 3	20 8	3764.4	37/2+	3129.5	33/2+	(E2)	Mult.: A_2=0.60 20.
635.0 3	10# 4	4093.3	(39/2−)	3458.3	(35/2−)	[E2]	E_γ: Eγ=(693.6) keV is reported by 1995Ar18.
635.8 3	34# 6	2807.3	(31/2−)	2171.5	27/2−	[E2]	
637.4 3	18# 3	3531.1	(35/2+)	2893.7	31/2+	[E2]	
645.9 3	10# 4	3373.3	(33/2+)	2727.4	(29/2+)	[E2]	
647.3 3	23# 10	1949.4	23/2−	1302.3	21/2−		
647.9 3	87# 9	3135.4	(33/2−)	2487.4	29/2−	[E2]	I_γ: The intensity includes a possible contamination. Using the branching ratios from 1995Ar18, one may expect Iγ≈23 for the 647.9γ.
648.2 3	27# 7	3757.8	(39/2+)	3109.6	35/2+	[E2]	
649.8 3	9# 2	3859.9	(37/2+)	3210.1	33/2+	[E2]	
651.0 3	17# 5	3458.3	(35/2−)	2807.3	(31/2−)	[E2]	
657.4 3	44# 4	3223.2	(37/2−)	2565.8	(33/2−)	[E2]	
659& 1		3707.5?	(35/2+)	3048.5	(31/2+)		
661 1		3661.6	(35/2−)	3000.6	(31/2−)		
662.0 3	10# 3	3633.2	(37/2−)	2971.2	(33/2−)	[E2]	
664.7 3	13# 3	4195.8	(39/2+)	3531.1	(35/2+)	[E2]	
667.7 3	14# 4	3803.1	(37/2−)	3135.4	(33/2−)	[E2]	E_γ: Eγ=677 keV is reported by 1995Ar18.
671.2 3	12# 3	3958.5	(41/2−)	3287.1	(37/2)−	[E2]	
677.1 3	30# 8	4103.2	(41/2+)	3426.1	(37/2+)	[E2]	
678.6 3	6# 2	3868.1	41/2+	3189.4	37/2+	(E2)	Mult.: A_2=0.17 9. The value overlaps with that for the 679.3γ.
679.3 3	51# 8	899.36	(11/2−)	220.04	11/2−	M1+E2	Mult.: A_2=0.17 9. The value overlaps with that for the 678.6γ. α(K)exp<0.006 (2000Da09).
681.5 3	5# 2	4541.4	(41/2+)	3859.9	(37/2+)	[E2]	
686& 1		4059.3?	(37/2+)	3373.3	(33/2+)		E_γ: Others: a tentative Eγ=690 keV is reported by 1993Ri09.
693.2 3	11# 3	3987.7	(39/2−)	3294.5	(35/2−)	[E2]	
700.9 3	6# 2	4316.8	(43/2−)	3615.9	(39/2−)	[E2]	
701.6 3	13# 2	4459.4	(43/2+)	3757.8	(39/2+)	[E2]	
701.8‡ 3		4504.9	(41/2−)	3803.1	(37/2−)		
705& 1		4900.9?	(43/2+)	4195.8	(39/2+)		
716.8 3	24# 5	3940.0	(41/2−)	3223.2	(37/2−)	[E2]	
718.0 3	65# 4	1522.95	17/2+	805.02	17/2−	E1	Mult.: α(K)exp<0.002 (2000Da09), α(K)(M1)=0.021, α(K)(E2)=0.009 and α(K)(E1)=0.003. E_γ,I_γ: Others: Eγ=718.8, Iγ=13 1 is reported by 1995Ar18.
718.3& 3		4425.8?	(39/2+)	3707.5?	(35/2+)		E_γ: Others: a tentative Eγ=717.6 keV is reported by 1993Ri09.
719.3 3	4# 1	4352.5	(41/2−)	3633.2	(37/2−)	[E2]	
722& 1		4825.3	(45/2+)	4103.2	(41/2+)		
722.4 3	38# 5	1766.1	21/2−	1043.6	19/2−	M1(+E2)	Mult.: A_2=−0.29 25.
729.6 3	3# 1	5271.0	(45/2+)	4541.4	(41/2+)	[E2]	
733.0 3	5# 2	4691.7	(45/2−)	3958.5	(41/2−)	[E2]	
736& 1		5195.5	(47/2+)	4459.4	(43/2+)		
737 1	7# 5	3589.7	(37/2−)	2852.6	33/2−	[E2]	

Continued on next page (footnotes at end of table)

^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)

γ(^{177}Ta) (continued)

E_γ [†]	I_γ [†]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [@]	Comments
737.7 3	8[#] 2	4248.7	(43/2+)	3511.1	39/2+	[E2]	
740.0 3	2[#] 1	4727.7	(43/2−)	3987.7	(39/2−)	[E2]	
746.7 3	13[#] 3	1406.0	(19/2−)	659.3	17/2−	[M1+E2]	
766[&] 1		5083.1	(47/2−)	4316.8	(43/2−)		
768.7 3	4[#] 1	899.36	(11/2−)	131.05	9/2+	[E1]	
775.2 3	9[#] 3	4715.2	(45/2−)	3940.0	(41/2−)	[E2]	
779.0 3	4[#] 1	4647.3	(45/2+)	3868.1	41/2+	[E2]	
789.3 3	190 6	2826.4	31/2+	2037.1	27/2+	E2	Mult.: A_2=0.42 13. α(K)exp=0.006 1 (2000Da09).
797.8 3	52 4	1602.7	19/2−	805.02	17/2−	M1(+E2)	Mult.: A_2=−0.29 33. α(K)exp=0.013 3 (2000Da09).
809.8 3	4[#] 1	5058.4	(47/2+)	4248.7	(43/2+)	[E2]	
818.3 3	6[#] 1	4329.5	43/2+	3511.1	39/2+	[E2]	
826.0 3	35 4	899.36	(11/2−)	73.37	9/2−	M1(+E2)	Mult.: A_2=−0.15 16.
832.7 3		5547.9	(49/2−)	4715.2	(45/2−)		E_γ: From 1995Ar18.
838.8 3	7[#] 1	1059.0	(13/2−)	220.04	11/2−		
[x]844							
847.5 3	31[#] 7	1522.95	17/2+	675.53	15/2+		
853.2 3	16[#] 4	1864.9	(23/2−)	1011.7	21/2−	[M1+E2]	
888.9 3		6436.8	(53/2−)	5547.9	(49/2−)		E_γ: From 1995Ar18. Others: Eγ=896.7 keV is reported by 1993Ri09.
889.0 3	47[#] 7	1475.8	(17/2)	586.95	15/2−		
889.8 3	13[#] 4	1522.95	17/2+	633.0	13/2+	[E2]	
[x]895							
935.9 3	183[#] 22	1522.95	17/2+	586.95	15/2−	E1	Mult.: A_2=−0.24 25. α(K)exp<0.002 (2000Da09), α(K)(M1)=0.01, α(K)(E2)=0.005 and α(K)(E1)=0.002. E_γ,I_γ: Others: Eγ=937.0, Iγ=20 2 is reported by 1995Ar18.
947 1	8[#] 3	2399.0	(27/2−)	1452.4	25/2−	[M1+E2]	
960.8 3	14[#] 3	1766.1	21/2−	805.02	17/2−	[E2]	
1016 1	4[#] 1	1602.7	19/2−	586.95	15/2−	[E2]	
1028 1	6[#] 2	3000.6	(31/2−)	1973.1	29/2−	[M1+E2]	
1052.2 3	21[#] 6	1522.95	17/2+	470.60	13/2+	[E2]	
1084.0 3	24[#] 7	1475.8	(17/2)	391.68	13/2−		
1096[&] 1		3661.6	(35/2−)	2565.8	(33/2−)		

[†] From 2000Da09, unless otherwise stated. The ΔE_γ uncertainties were assigned by the evaluator, unless otherwise stated. Iγ were determined from singles and coincidence spectra, unless otherwise stated.

[‡] From 1995Ar18.

[#] Relative intensity determined from prompt coincidence spectra.

[@] From 2000Da09, unless otherwise stated. The assignment is based on the measured angular distributions, conversion electron coefficients, the apparent band structures with both cascade (ΔJ=1) and crossover (ΔJ=2) transitions, and the complex γ-ray decay pattern.

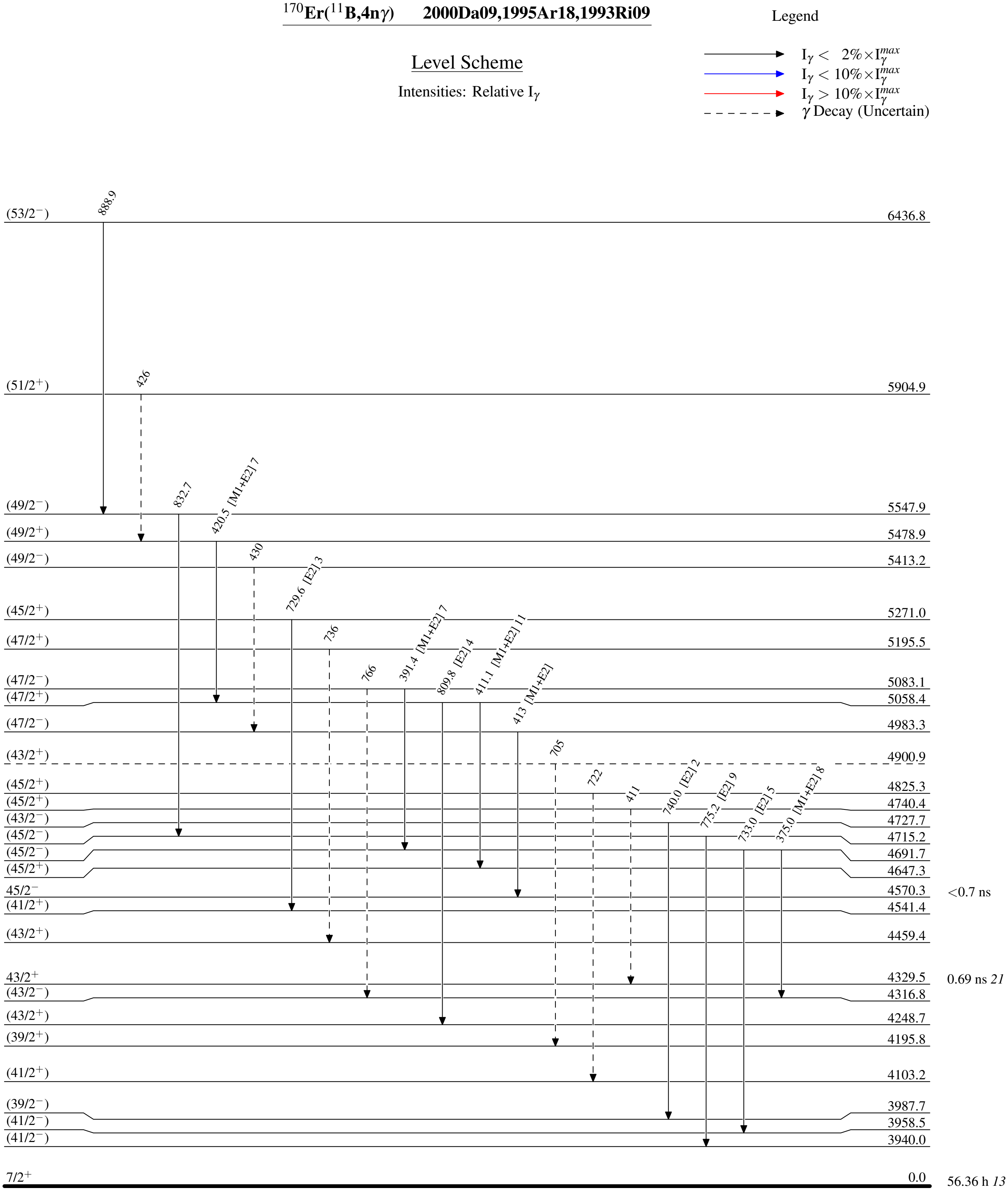
[&] Placement of transition in the level scheme is uncertain.

[x] γ ray not placed in level scheme.

^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09

Level Scheme

Intensities: Relative I_γ

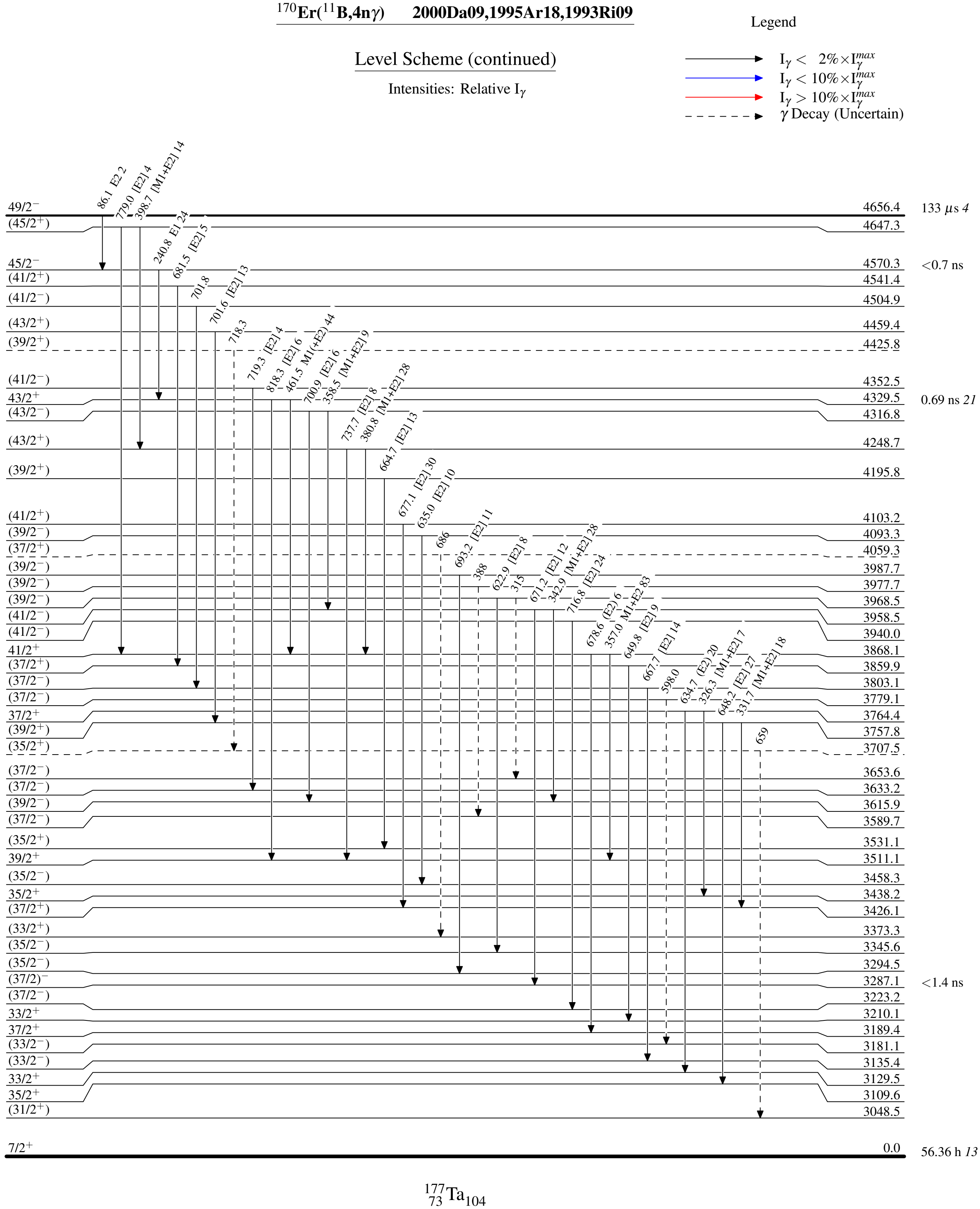


$^{177}_{73}Ta_{104}$

$^{170}Er(^{11}B,4n\gamma)$ 2000Da09,1995Ar18,1993Ri09

Level Scheme (continued)

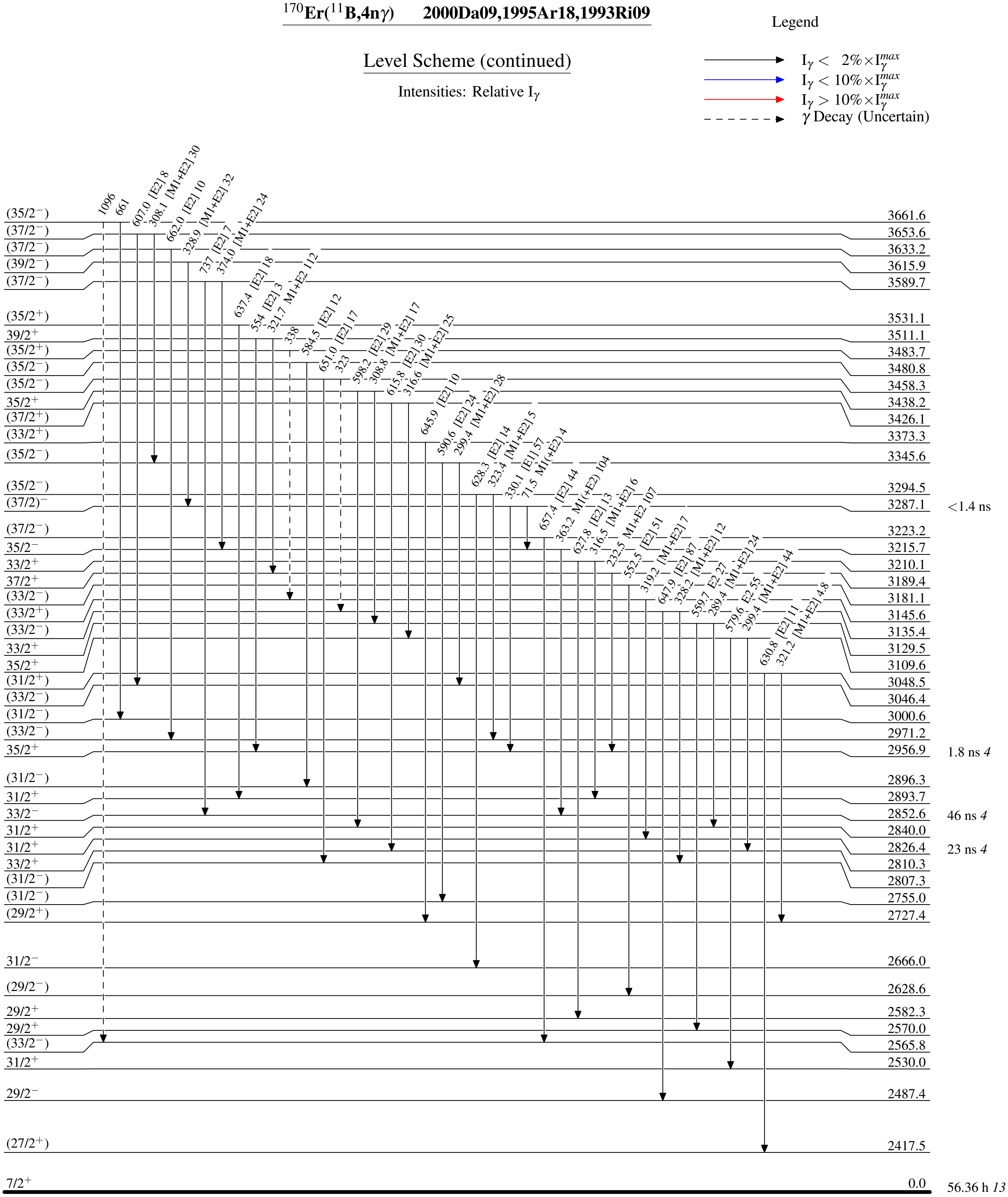
Intensities: Relative I_γ



^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09

Level Scheme (continued)

Intensities: Relative I_γ

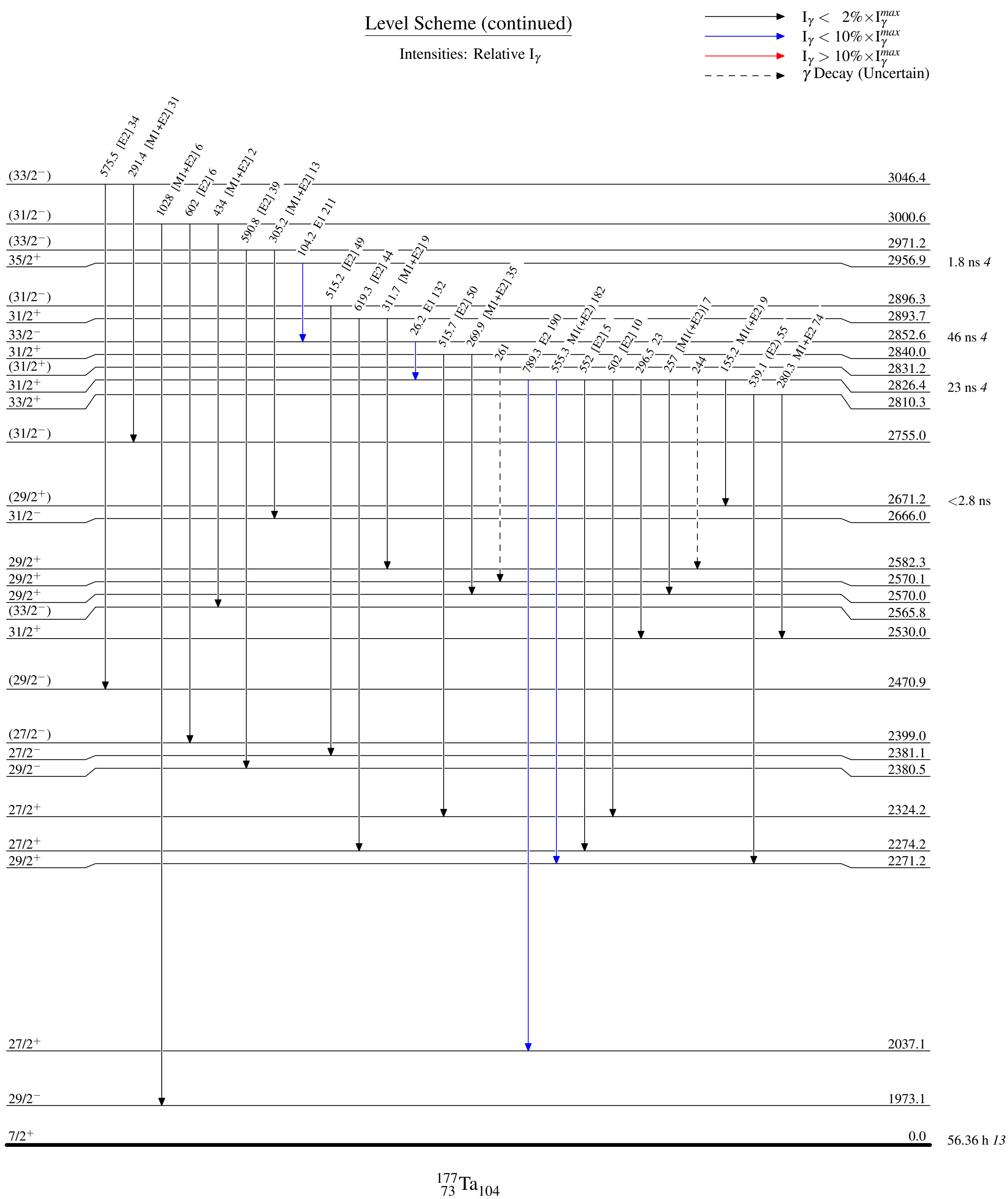


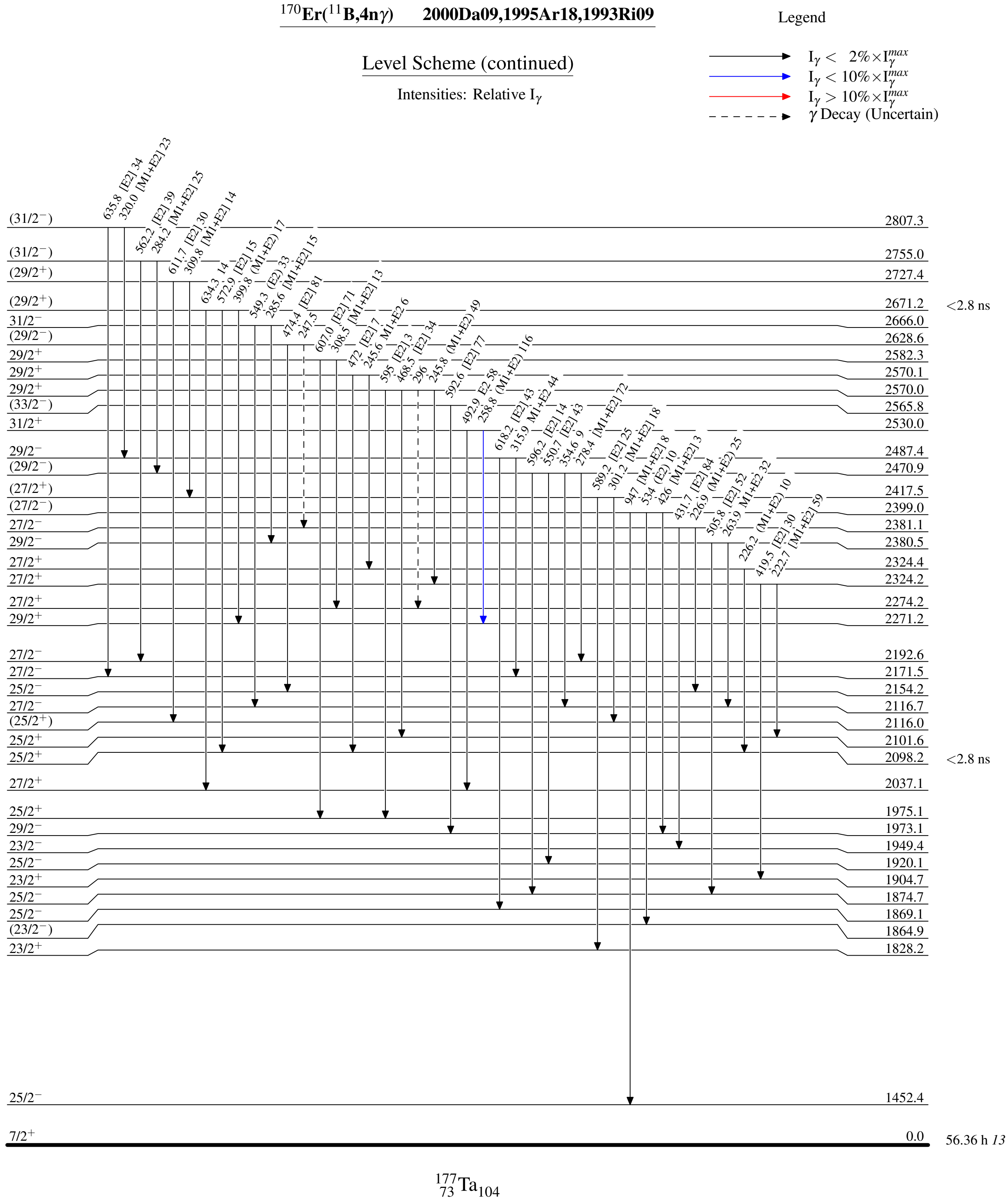
$^{177}_{73}Ta_{104}$

$^{170}Er(^{11}B,4n\gamma)$ 2000Da09,1995Ar18,1993Ri09

Level Scheme (continued)

Intensities: Relative I_γ

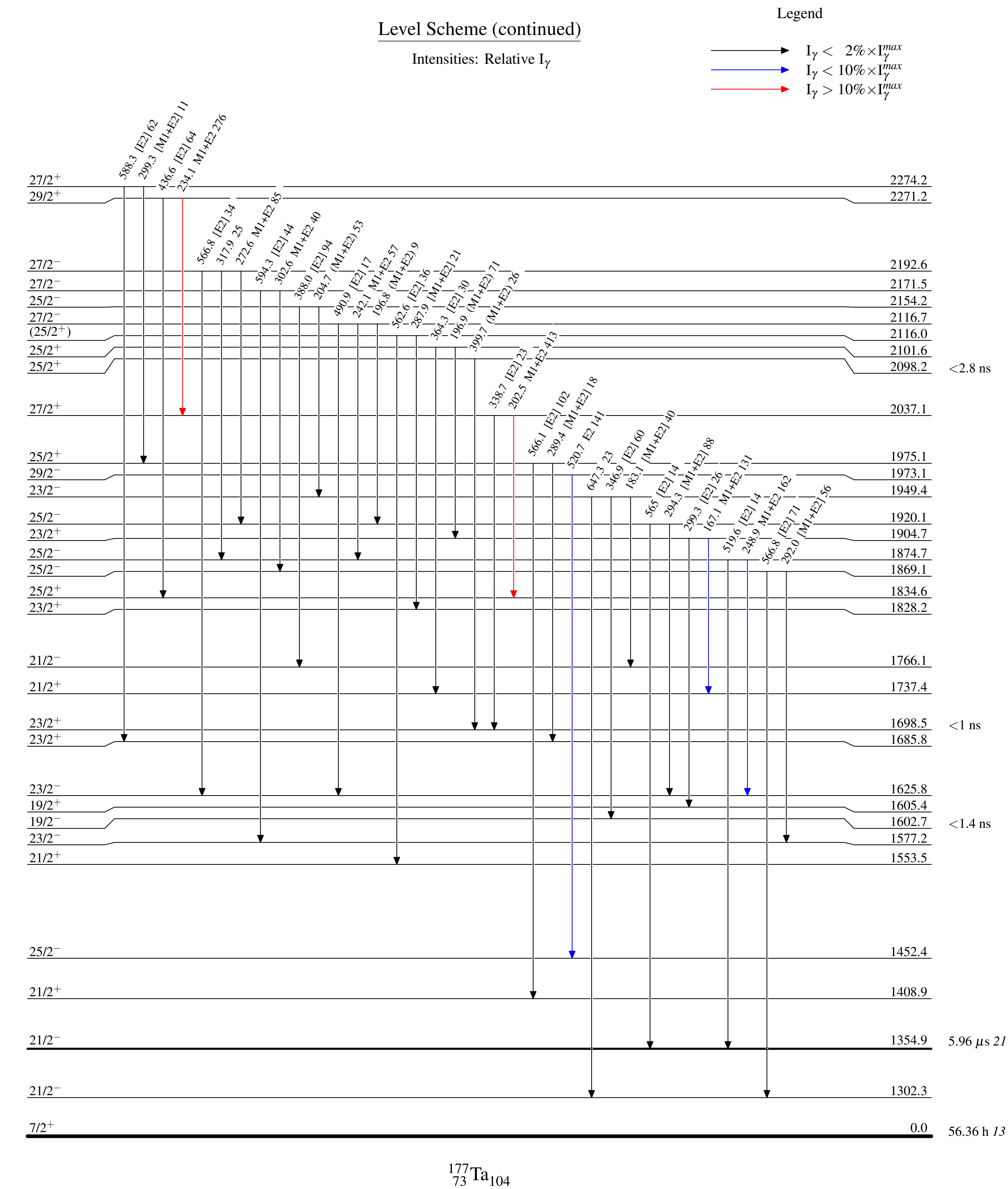



^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09
Level Scheme (continued)
Intensities: Relative Iγ
Legend
Iγ < 2%×Iγ^max
Iγ < 10%×Iγ^max
Iγ > 10%×Iγ^max
γ Decay (Uncertain)
(31/2−) 2807.3
(31/2−) 2755.0
(29/2+) 2727.4
(29/2+) 2671.2 <2.8 ns
31/2− 2666.0
(29/2−) 2628.6
29/2+ 2582.3
29/2+ 2570.1
29/2+ 2570.0
(33/2−) 2565.8
31/2+ 2530.0
29/2− 2487.4
(29/2−) 2470.9
(27/2+) 2417.5
(27/2−) 2399.0
27/2− 2381.1
29/2− 2380.5
27/2+ 2324.4
27/2+ 2324.2
27/2+ 2274.2
29/2+ 2271.2
27/2− 2192.6
27/2− 2171.5
25/2− 2154.2
27/2− 2116.7
(25/2+) 2116.0
25/2+ 2101.6
25/2+ 2098.2 <2.8 ns
27/2+ 2037.1
25/2+ 1975.1
29/2− 1973.1
23/2− 1949.4
25/2− 1920.1
23/2+ 1904.7
25/2− 1874.7
25/2− 1869.1
(23/2−) 1864.9
23/2+ 1828.2
25/2− 1452.4
7/2+ 0.0 56.36 h 13
635.8 [E2] 34
320.0 [M1+E2] 23
562.2 [E2] 39
284.2 [M1+E2] 25
611.7 [E2] 30
309.8 [M1+E2] 14
634.3 14
572.9 [E2] 15
399.8 (M1+E2) 17
549.3 (E2) 33
285.6 [M1+E2] 15
474.4 [E2] 81
247.5
607.0 [E2] 71
308.5 [M1+E2] 13
472 [E2] 7
245.6 M1+E2 6
595 [E2] 3
468.5 [E2] 34
296
245.8 (M1+E2) 49
592.6 [E2] 77
492.9 E2 58
258.8 (M1+E2) 116
618.2 [E2] 43
315.9 M1+E2 44
596.2 [E2] 14
550.7 [E2] 43
354.6 9
278.4 [M1+E2] 72
589.2 [E2] 25
301.2 [M1+E2] 18
947 [M1+E2] 8
534 (E2) 10
426 [M1+E2] 3
431.7 [E2] 84
226.9 (M1+E2) 25
505.8 [E2] 52
263.9 M1+E2 32
226.2 (M1+E2) 10
419.5 [E2] 30
222.7 [M1+E2] 59
$^{177}_{73}$Ta$_{104}$

$^{170}Er(^{11}B,4n\gamma)$ 2000Da09,1995Ar18,1993Ri09

Level Scheme (continued)

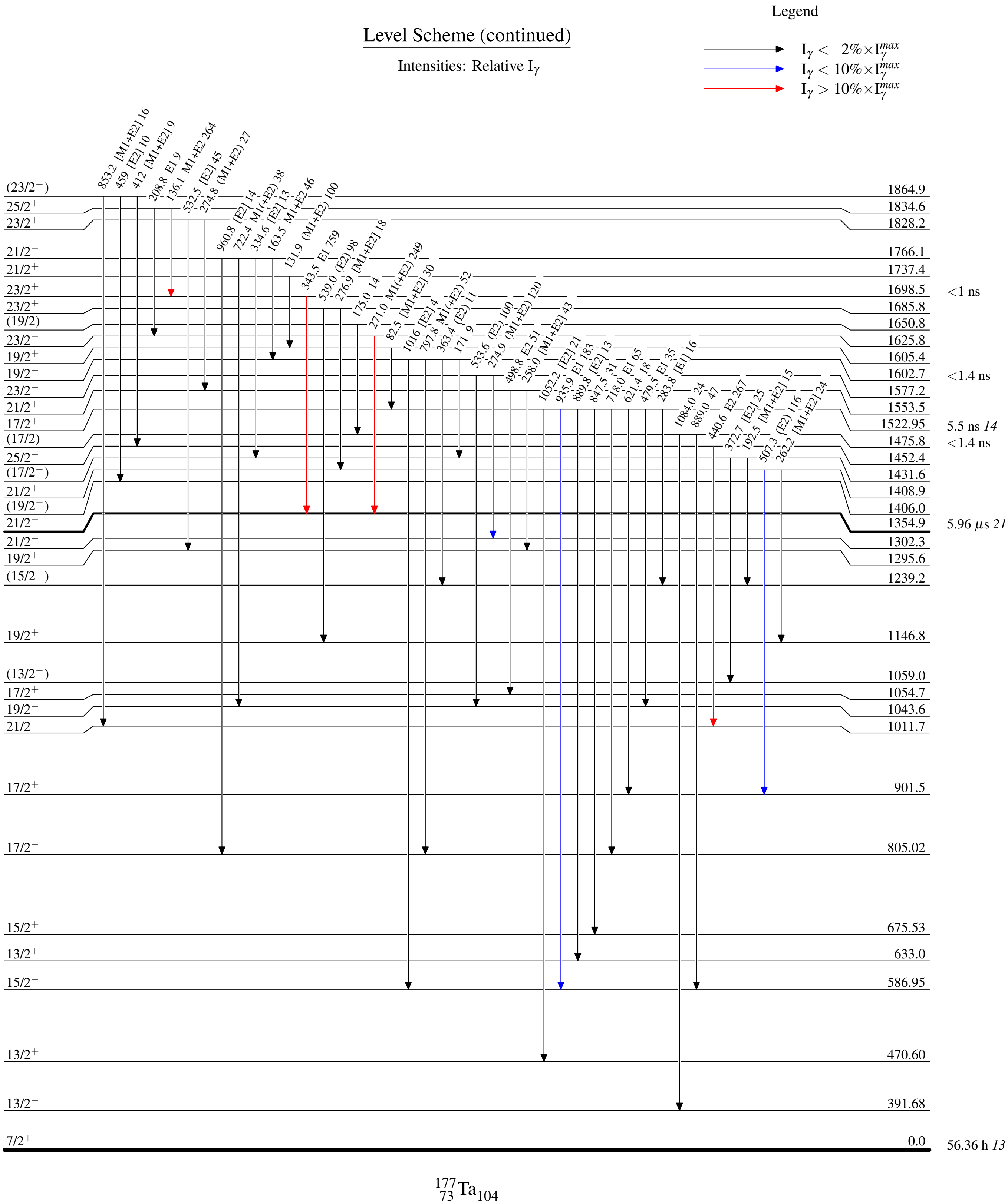
Intensities: Relative I_γ



$^{170}Er(^{11}B,4n\gamma)$ 2000Da09,1995Ar18,1993Ri09

Level Scheme (continued)

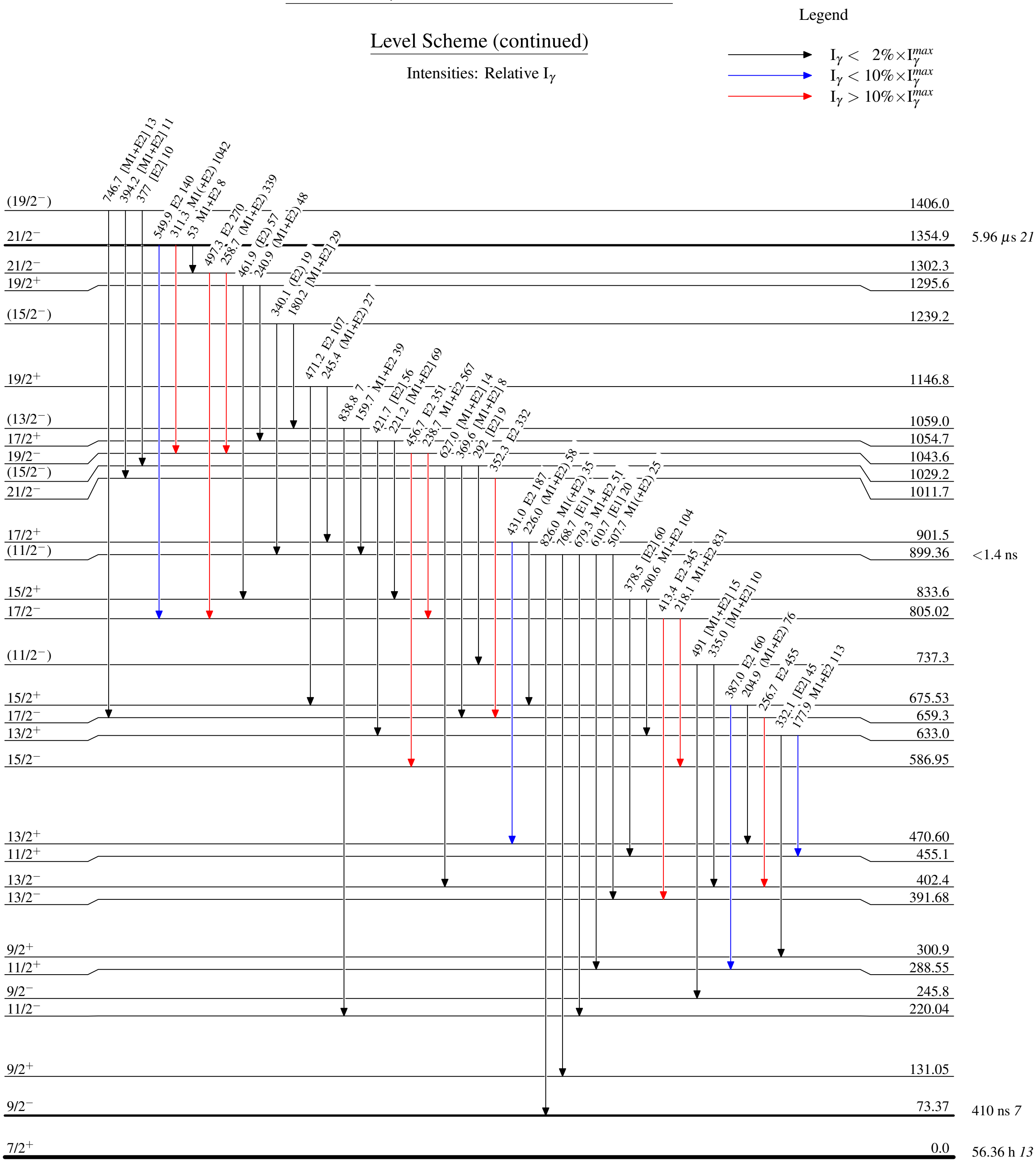
Intensities: Relative I_γ



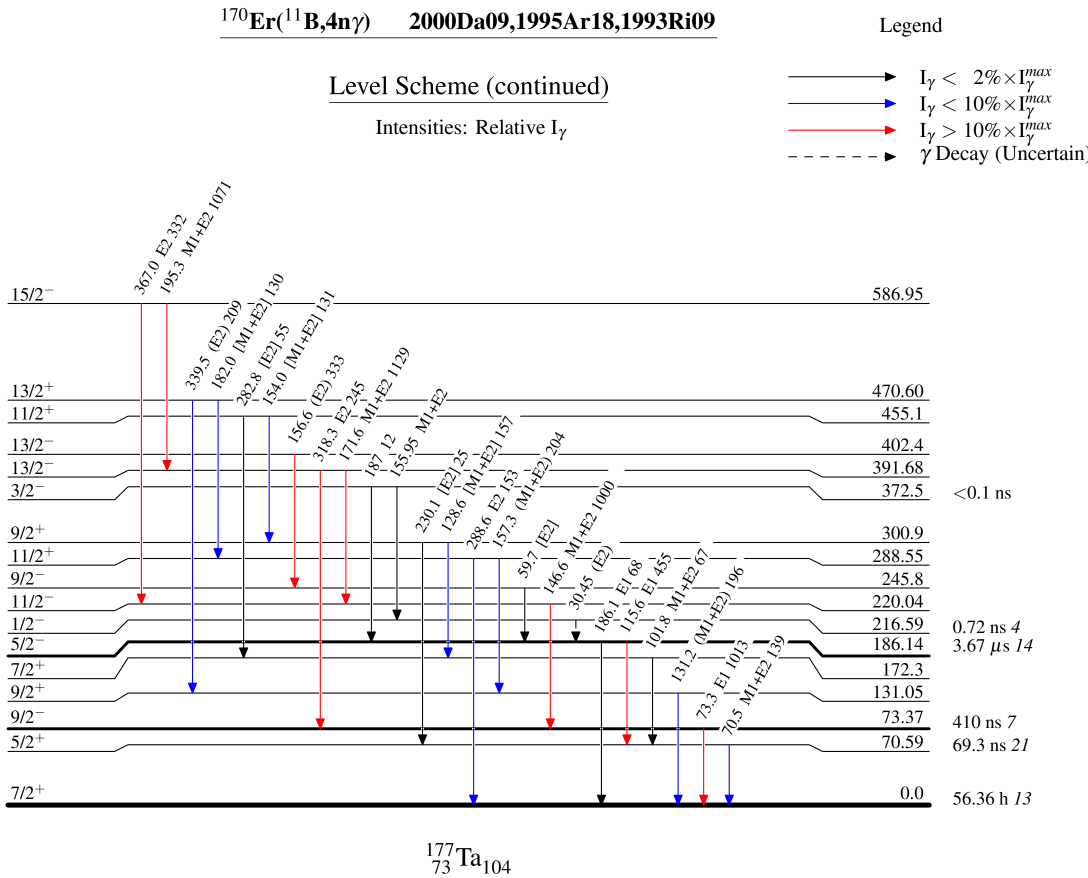
$^{170}Er(^{11}B,4n\gamma)$ 2000Da09,1995Ar18,1993Ri09

Level Scheme (continued)

Intensities: Relative I_γ

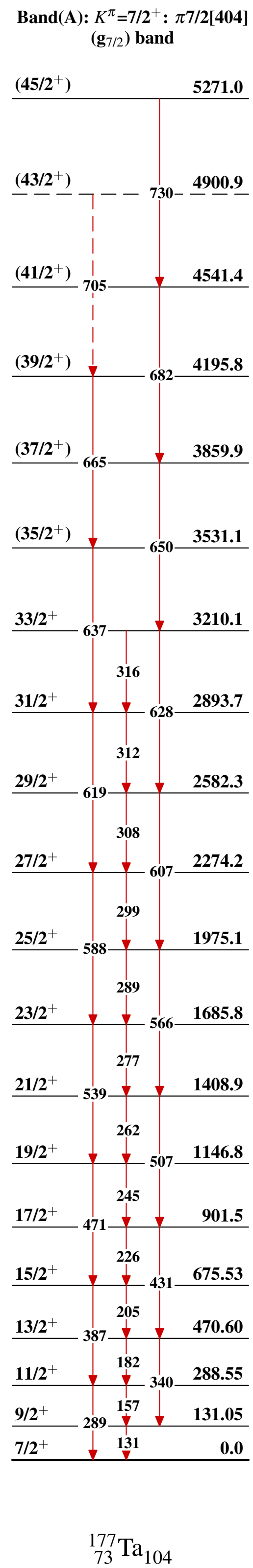


$^{177}_{73}Ta_{104}$

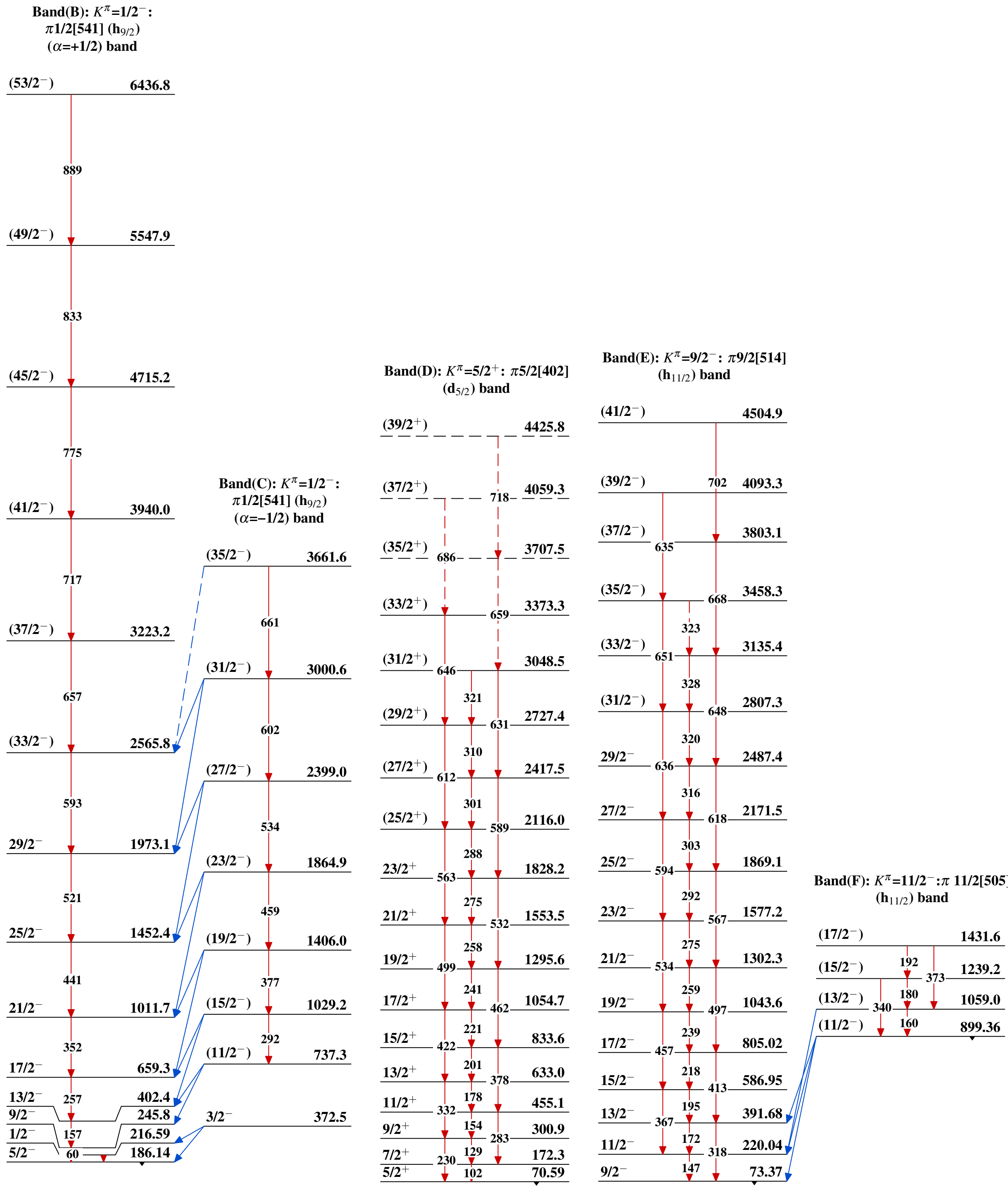


$^{170}Er(^{11}B,4n\gamma)$ 2000Da09,1995Ar18,1993Ri09
Legend
Level Scheme (continued)
Intensities: Relative I_γ
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)
15/2− 586.95
13/2+ 470.60
11/2+ 455.1
13/2− 402.4
13/2− 391.68
3/2− 372.5 <0.1 ns
9/2+ 300.9
11/2+ 288.55
9/2− 245.8
11/2− 220.04
1/2− 216.59 0.72 ns 4
5/2− 186.14 3.67 μs 14
7/2+ 172.3
9/2+ 131.05
9/2− 73.37 410 ns 7
5/2+ 70.59 69.3 ns 21
7/2+ 0.0 56.36 h 13
367.0 E2 332
195.3 M1+E2 1071
339.5 (E2) 209
182.0 [M1+E2] 130
282.8 [E2] 55
154.0 [M1+E2] 131
156.6 (E2) 333
318.3 E2 245
171.6 M1+E2 1129
187 12
155.95 M1+E2
230.1 [E2] 25
128.6 [M1+E2] 157
288.6 E2 153
157.3 (M1+E2) 204
59.7 [E2]
146.6 M1+E2 1000
30.45 (E2)
186.1 E1 68
115.6 E1 455
101.8 M1+E2 67
131.2 (M1+E2) 196
73.3 E1 1013
70.5 M1+E2 139
$^{177}_{73}Ta_{104}$

^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09

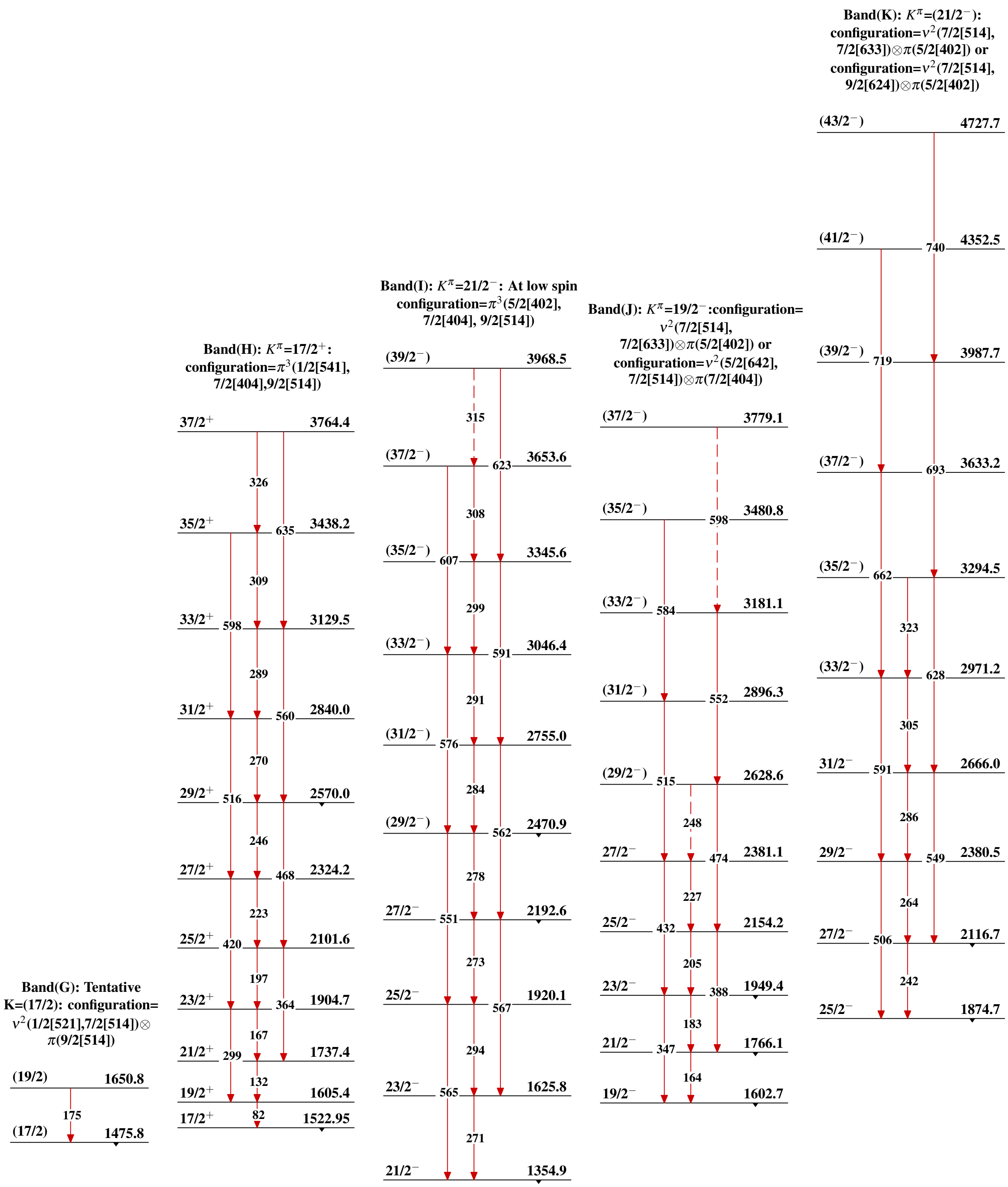


^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)



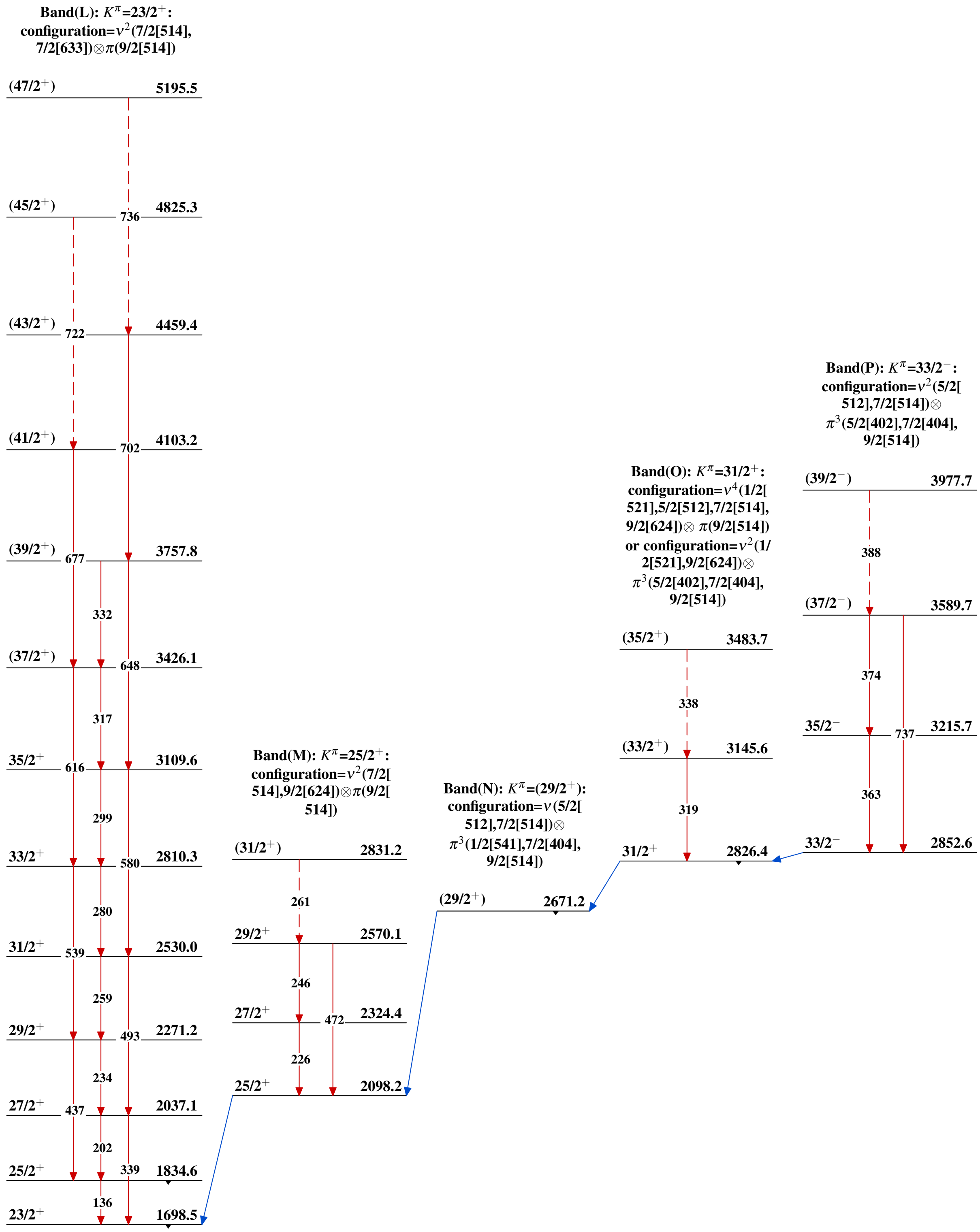
$^{177}_{73}Ta_{104}$

$^{170}Er(^{11}B,4n\gamma)$ 2000Da09,1995Ar18,1993Ri09 (continued)



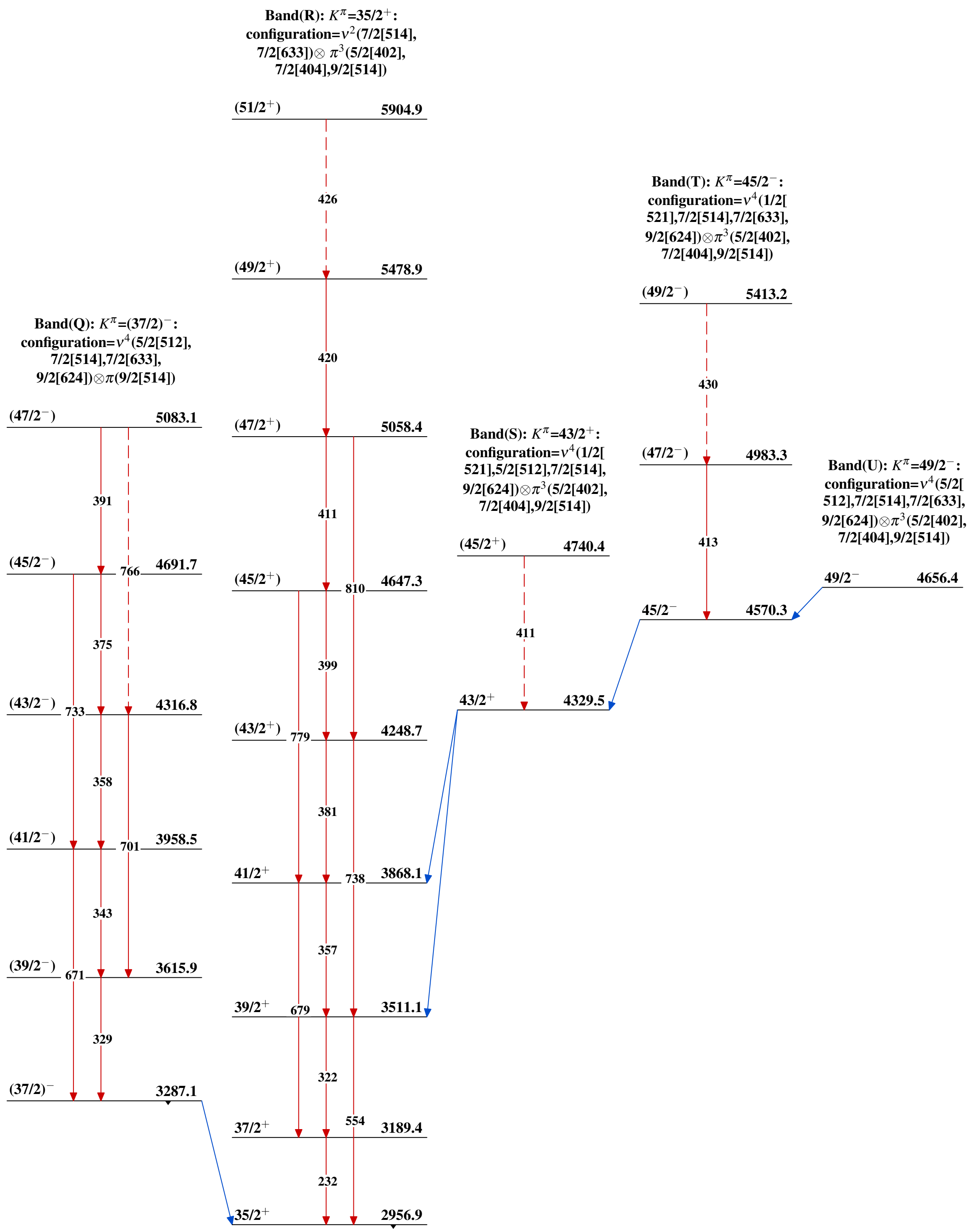
$^{177}_{73}Ta_{104}$

$^{170}Er(^{11}B,4n\gamma)$ 2000Da09,1995Ar18,1993Ri09 (continued)



$^{177}_{73}Ta_{104}$

^{170}Er(^{11}B,4nγ) 2000Da09,1995Ar18,1993Ri09 (continued)



$^{177}_{73}Ta_{104}$