^{170}Er(^{136}Xe,Xγ) 2010Dr02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 111, 1807 (2010)	15-Jun-2010

Note that, In this study, ^{168}Er was populated by inelastic excitation of the residual ^{168}Er (1.5%) In the Er target As well As via two-neutron transfer from ^{170}Er to the projectile.

E(^{136}Xe)=830 MeV; Au-backed isotopically-enriched metallic ^{170}Er target; GAMMASPHERE detector array; ns-pulsed beam with 856 ns pulse separation or macroscopically chopped beam with beam-on/beam-off conditions ranging from the μs to the S regimes for out-of-beam data collection; measured Eγ, Iγ, γγ coin, γγγ coin, γ-γ-t; various timing conditions used to identify isomers and isolate specific structures using γ-γ-t correlations; deduced g_K-g_R. Multi-quasiparticle calculations. No very long lived isomer was identified.

Note that the authors report a partial level scheme only.

^{168}Er Levels

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	E(level)[†]	J$^{\pi}$[‡]	E(level)[†]	J$^{\pi}$[‡]
0.0[@]	0+		1193.05[a] 19	(5−)	2038.6[b] 4	(8−)
79.84[@] 16	2+		1311.51[a] 20	(6−)	2182.8[a] 4	(11−)
264.09[@] 17	4+		1396.8[@] 3	10+	2200.4[b] 4	(9−)
548.75[@] 20	6+		1448.95[a] 21	(7−)	2419.0[a] 4	(12−)
821.17[&] 16	2+		1605.93[a] 23	(8−)	2653.8[a] 4	(13−)
895.81[&] 18	3+		1773.24[b] 21	(6−)	2934.0[a] 5	(14−)
928.30[@] 24	8+		1780.04[a] 25	(9−)	3187.9[a] 5	(15−)
994.80[&] 18	4+		1896.3[b] 3	(7−)		
1094.05[a] 17	(4−)	110[#] ns 6	1975.8[a] 3	(10−)		

[†] From least-squares fit to Eγ (by compiler).
[‡] Authors′ suggested values.
[#] From γ-γ-t spectrum.
[@] Band(A): K$^{\pi}$=0+ g.s. band.
[&] Band(B): K$^{\pi}$=2+ γ-vibration band.
[a] Band(C): K$^{\pi}$=4− band. Configuration: primarily (ν 7/2[633])+(ν 1/2[521]) with 20% admixture of (π 7/2[523])+(π 1/2[411]); based on deduced g_K-g_R and other band properties, and supported by expectations from multi-quasiparticle calculations.
[b] Band(D): K$^{\pi}$=6− band. Probable configuration: (ν 7/2[633])+(ν 5/2[512]); consistent with relatively large alignment and magnitude of g_K-g_R.

γ(^{168}Er)

E_i(level)	J_i^{π}	Eγ[†]	E_f	J_f^{π}	E_i(level)	J_i^{π}	Eγ[†]	E_f	J_f^{π}
79.84	2+	79.8 2	0.0	0+	994.80	4+	446.0 2	548.75	6+
264.09	4+	184.3 2	79.84	2+			730.7 2	264.09	4+
548.75	6+	284.7 2	264.09	4+			914.9 2	79.84	2+
821.17	2+	557.1 2	264.09	4+	1094.05	(4−)	99.3 2	994.80	4+
		741.4 2	79.84	2+			198.2 2	895.81	3+
		821.2 2	0.0	0+			272.9 2	821.17	2+
895.81	3+	74.6 2	821.17	2+			830.0 2	264.09	4+
		631.7 2	264.09	4+			1014.1 2	79.84	2+
		816.0 2	79.84	2+	1193.05	(5−)	99.0 2	1094.05	(4−)
928.30	8+	379.6 2	548.75	6+			644.3 2	548.75	6+
994.80	4+	173.8 2	821.17	2+			928.9 2	264.09	4+

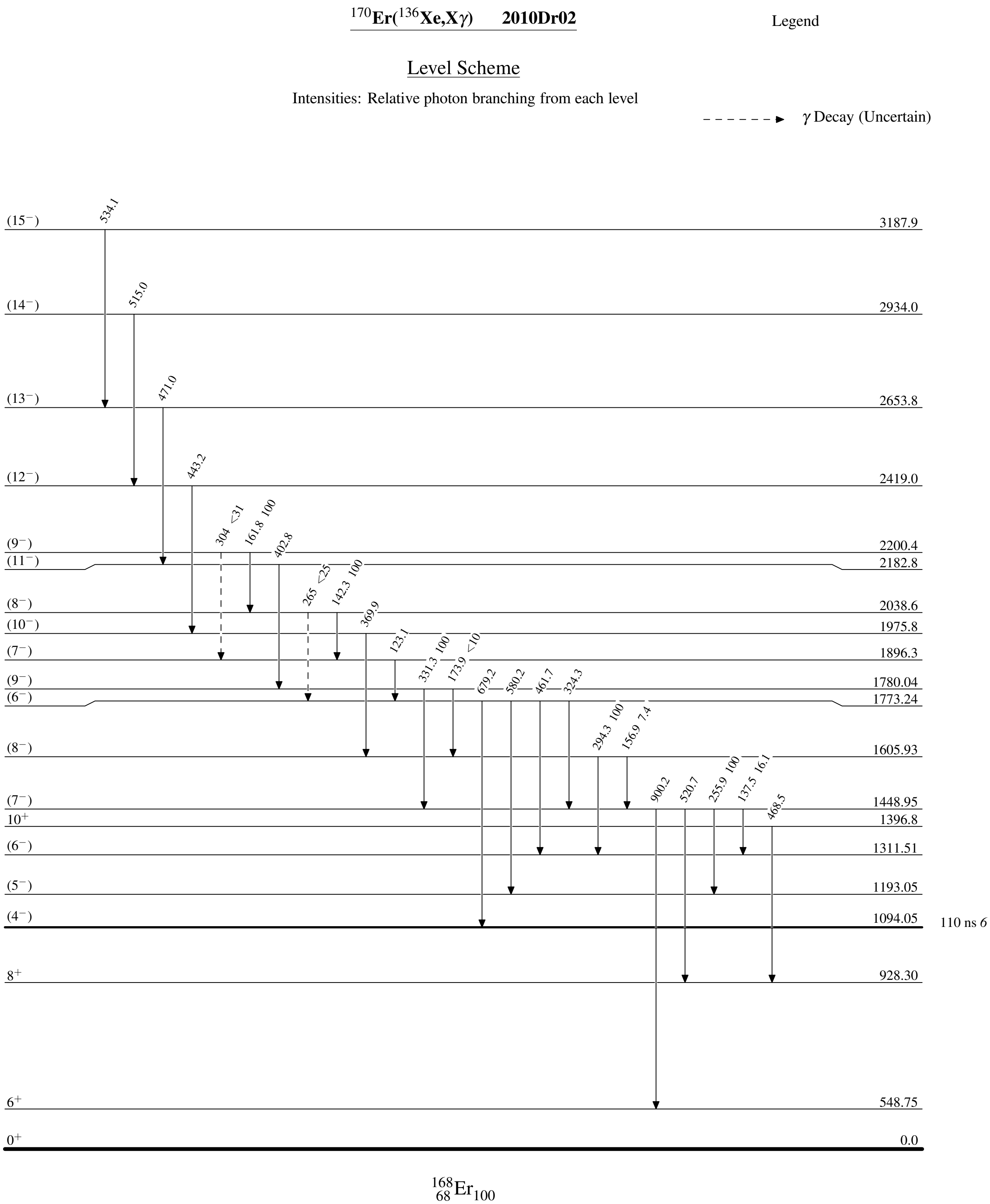
Continued on next page (footnotes at end of table)

^{170}Er(^{136}Xe,Xγ) 2010Dr02 (continued)

γ(^{168}Er) (continued)

E_i(level)	J^π_i	E_γ†	I_γ‡	E_f	J^π_f
1311.51	(6⁻)	118.4 *2*	28.7 *19*	1193.05	(5⁻)
		217.4 *2*	100	1094.05	(4⁻)
		762.8 *2*		548.75	6⁺
1396.8	10⁺	468.5 *2*		928.30	8⁺
1448.95	(7⁻)	137.5 *2*	16.1 *13*	1311.51	(6⁻)
		255.9 *2*	100	1193.05	(5⁻)
		520.7 *2*		928.30	8⁺
		900.2 *2*		548.75	6⁺
1605.93	(8⁻)	156.9 *2*	7.4 *9*	1448.95	(7⁻)
		294.3 *2*	100	1311.51	(6⁻)
1773.24	(6⁻)	324.3 *2*		1448.95	(7⁻)
		461.7 *2*		1311.51	(6⁻)
		580.2 *2*		1193.05	(5⁻)
		679.2 *2*		1094.05	(4⁻)
1780.04	(9⁻)	173.9 *2*	<10	1605.93	(8⁻)
		331.3 *2*	100	1448.95	(7⁻)
1896.3	(7⁻)	123.1 *2*		1773.24	(6⁻)
1975.8	(10⁻)	369.9 *2*		1605.93	(8⁻)
2038.6	(8⁻)	142.3 *2*	100	1896.3	(7⁻)
		(265#)	<25@	1773.24	(6⁻)
2182.8	(11⁻)	402.8 *2*		1780.04	(9⁻)
2200.4	(9⁻)	161.8 *2*	100	2038.6	(8⁻)
		(304#)	<31@	1896.3	(7⁻)
2419.0	(12⁻)	443.2 *2*		1975.8	(10⁻)
2653.8	(13⁻)	471.0 *2*		2182.8	(11⁻)
2934.0	(14⁻)	515.0 *2*		2419.0	(12⁻)
3187.9	(15⁻)	534.1 *2*		2653.8	(13⁻)

† Uncertainty unstated by authors in 2010Dr02 but reported to be 0.2 keV via an email to the evaluator from G. Dracoulis (May 2010). The agreement with values known from the literature is excellent.
‡ Relative branching from each level. from table III, except As noted.
# Rounded value from level energy difference; transition expected but unobserved.
@ Upper limit from table IV of 2010Dr02.

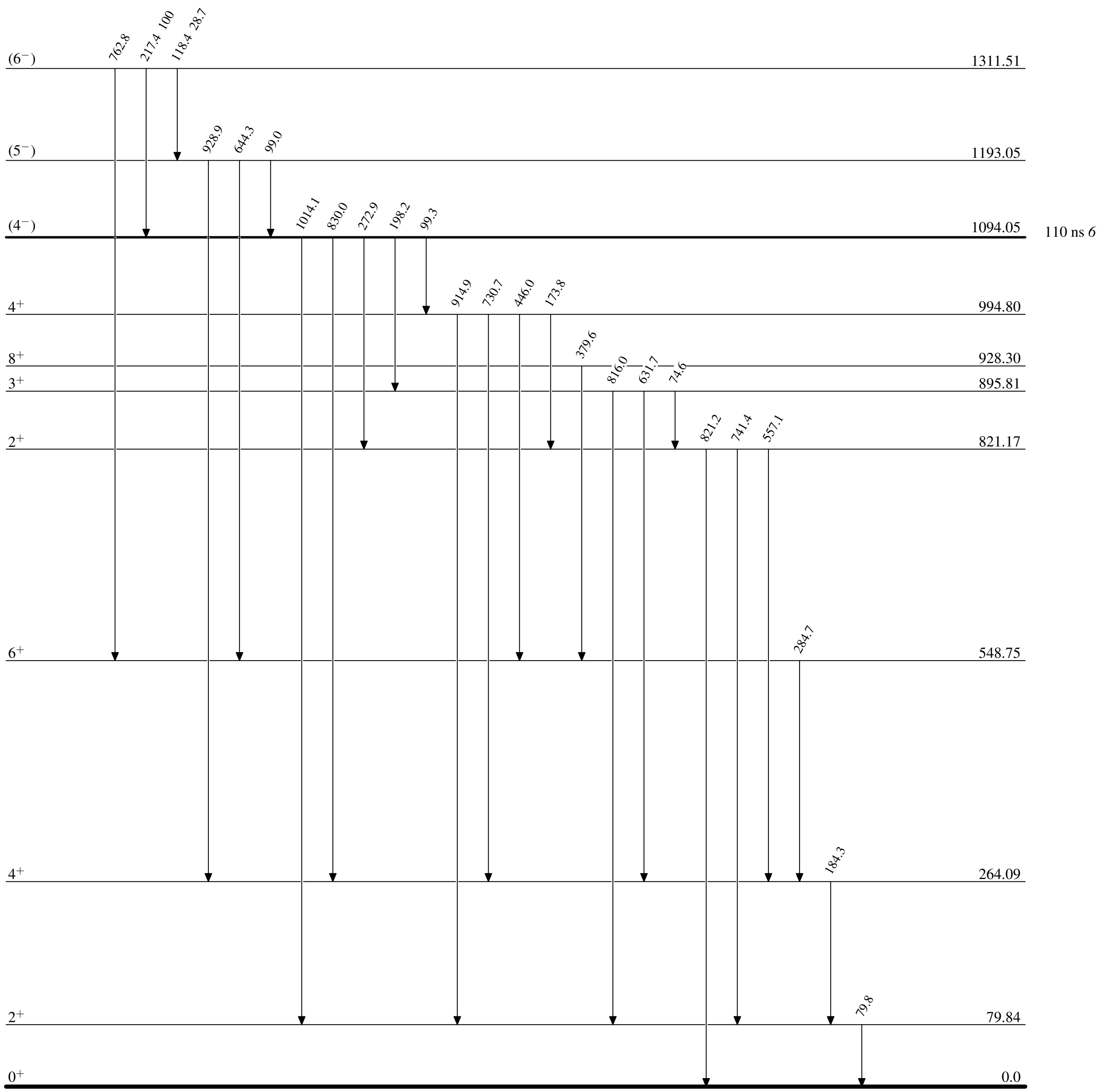


^{170}Er(^{136}Xe,Xγ) 2010Dr02
Level Scheme
Intensities: Relative photon branching from each level
Legend
γ Decay (Uncertain)
(15⁻) 3187.9
(14⁻) 2934.0
(13⁻) 2653.8
(12⁻) 2419.0
(9⁻) 2200.4
(11⁻) 2182.8
(8⁻) 2038.6
(10⁻) 1975.8
(7⁻) 1896.3
(9⁻) 1780.04
(6⁻) 1773.24
(8⁻) 1605.93
(7⁻) 1448.95
10⁺ 1396.8
(6⁻) 1311.51
(5⁻) 1193.05
(4⁻) 1094.05 110 ns 6
8⁺ 928.30
6⁺ 548.75
0⁺ 0.0
534.1
515.0
471.0
443.2
304 <31
161.8 100
402.8
265 <25
142.3 100
369.9
123.1
331.3 100
173.9 <10
679.2
580.2
461.7
324.3
294.3 100
156.9 7.4
900.2
520.7
255.9 100
137.5 16.1
468.5
$^{168}_{68}Er_{100}$

^{170}Er(^{136}Xe,Xγ) 2010Dr02

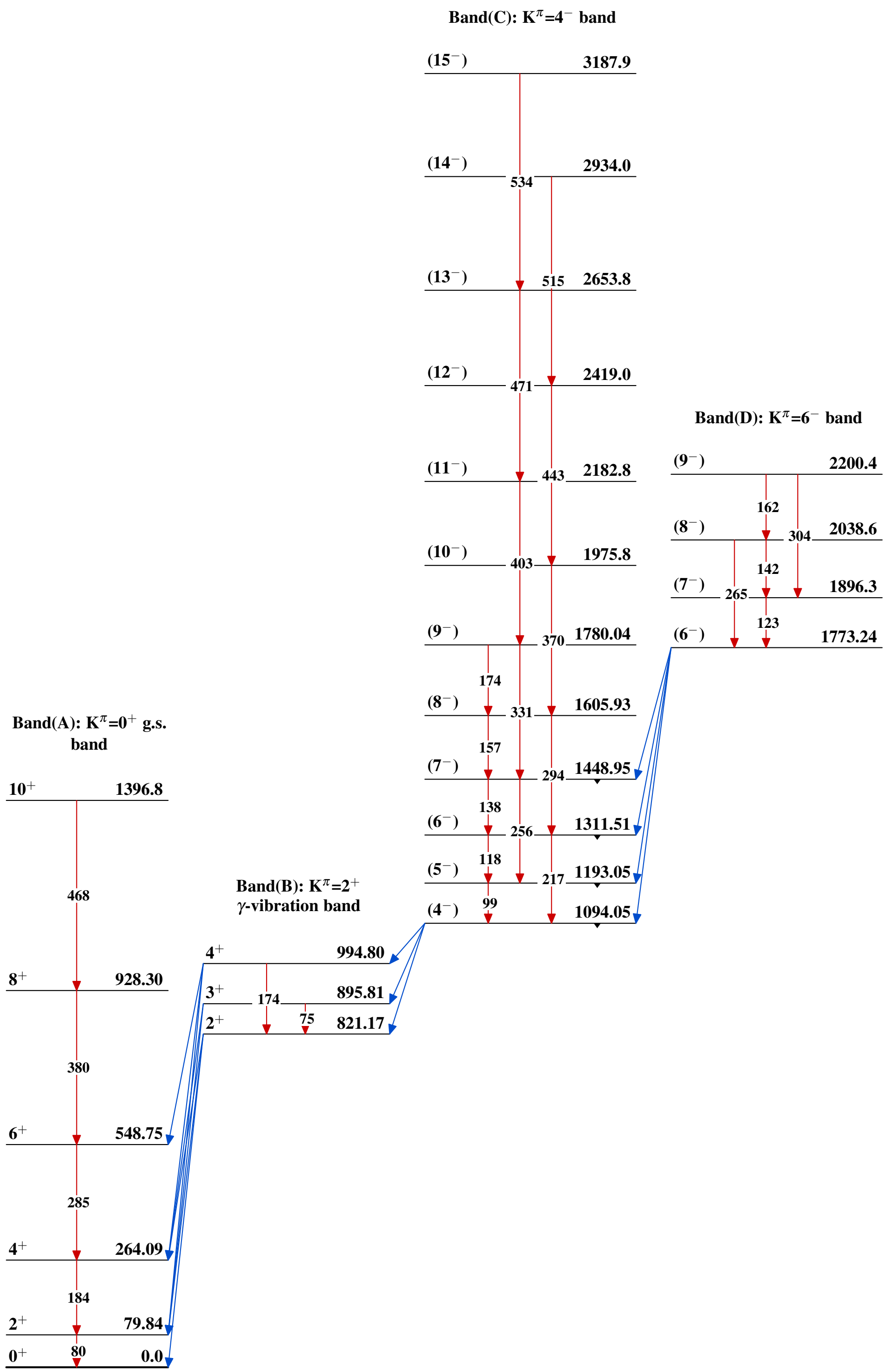
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{168}_{68}Er_{100}$

^{170}Er(^{136}Xe,Xγ) 2010Dr02



$^{168}_{68}Er_{100}$