^{64}Zn(^{35}Cl,4p3nγ) 1995Gh02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113, 2187 (2012)	15-Sep-2012

E=140 MeV; ≈99% ^{64}Zn target (Pb-backed); 5 Compton-suppressed HPGe detector array with 14-element BGO multiplicity filter, typical FWHM=2 keV at 1 MeV; measured Iγ, Eγ (40<Eγ<2700), γγ coin, γγ(t), DCO ratios (99°, 153°); 40 ns γγ coin timing resolution; shell-model calculations.

The level scheme of 1995Gh02 differs significantly from that in Adopted Levels, Gammas (see discussion of differences there); the principal feature is the absence of a second level near 2000 keV (the (11$^-$) isomer from Adopted Levels).

^{92}Tc Levels

E(level)	Jπ†	Comments
0‡	8+	
685.7‡	9+	
1354.7‡	10+	
2001.1‡	(12+)	
2546.1#	12(−)	
2663.9‡	(13+)	
2939.5	(12+)	Jπ: a second 12+ state in this vicinity is predicted from shell-model calculations, and 1995Gh02 suggest that this level may be that state. However, Jπ=(13−) in Adopted Levels, obviating the need for the Q 622γ feeding this level to have mult=M2.
3067.0#	13(−)	
3300.0‡	(14+)	
3561.4#	14(−)	
3586.7‡	(15+)	
4045.5#	15(−)	
4613.0		
4714.3#	16(−)	
4784.1#	17(−)	
5645.2‡	(17+)	
6031.4		
6271.9?		
6722.5#	19(−)	
7830.4#	21(−)	

† Authors′ suggested values, based on deduced γ multipolarity data and γγ coin. See Adopted Levels for evaluator′s adopted values.
‡ Band(A): yrast π=+ states.
# Band(B): yrast π=− states.

γ(^{92}Tc)

Eγ†	Iγ	Ei(level)	Jiπ	Ef	Jfπ	Mult.‡	Comments
69.9	<1.0@	4784.1	17(−)	4714.3	16(−)	D	
127.6		3067.0	13(−)	2939.5	(12+)		Iγ: contaminated line.
x194						D	
286.7	9.5 *6*	3586.7	(15+)	3300.0	(14+)	D	
393.4	17.6 *12*	2939.5	(12+)	2546.1	12(−)	D	

Continued on next page (footnotes at end of table)

^{64}Zn(^{35}Cl,4p3nγ) 1995Gh02 (continued)

$\gamma(^{92}Tc)$ (continued)

E_γ[†]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
484.1	<20.0[@]	4045.5	$15^{(-)}$	3561.4	$14^{(-)}$	D	
494.6	16.4 *13*	3561.4	$14^{(-)}$	3067.0	$13^{(-)}$	D	
520.9	7.7 *14*	3067.0	$13^{(-)}$	2546.1	$12^{(-)}$	D	
544.8	39.3 *5*	2546.1	$12^{(-)}$	2001.1	(12^+)		
621.9	<8.0[@]	3561.4	$14^{(-)}$	2939.5	(12^+)	Q	1995Gh02 assign mult=M2 to this G.
626.7[&]	<2[@]	6271.9?		5645.2	(17^+)		
636.1	9.4 *8*	3300.0	(14^+)	2663.9	(13^+)	D	
646.4	85.0 *5*	2001.1	(12^+)	1354.7	10^+	Q	1995Gh02 do not consider this γ to be a doublet; however, see comment on E(2002 levels) in Adopted Levels.
662.8	22.6 *12*	2663.9	(13^+)	2001.1	(12^+)		
668.9		1354.7	10^+	685.7	9^+		E_γ: for doublet; γ is self-coincident. Mult.: DCO ratio for doublet is consistent with mult=D.
668.9		4714.3	$16^{(-)}$	4045.5	$15^{(-)}$		E_γ: for doublet; γ is self-coincident. Mult.: DCO ratio for doublet is consistent with mult=D.
685.7	16.7 *20*	685.7	9^+	0	8^+		
738.4	<10.0[@]	4784.1	$17^{(-)}$	4045.5	$15^{(-)}$	Q	
1015.2	1.6	3561.4	$14^{(-)}$	2546.1	$12^{(-)}$	Q	ΔI_γ=2.8 (1995Gh02) presumed to be a misprint.
1051.6	3.0 *13*	4613.0		3561.4	$14^{(-)}$		
1066.1	27.7 *11*	3067.0	$13^{(-)}$	2001.1	(12^+)	D	
1107.9[#]	9.7[#] *8*	7830.4	$21^{(-)}$	6722.5	$19^{(-)}$	Q	
1354.7	100.0 *5*	1354.7	10^+	0	8^+		
1938.4	2.8	6722.5	$19^{(-)}$	4784.1	$17^{(-)}$	Q	ΔI_γ=6.3 (1995Gh02) presumed to be a misprint.
1985.9	4.0	6031.4		4045.5	$15^{(-)}$		ΔI_γ=5.0 (1995Gh02) presumed to be a misprint.
2058.5	10 *4*	5645.2	(17^+)	3586.7	(15^+)	Q	

[†] From 1995Gh02; uncertainty unstated by authors.

[‡] From 1995Gh02, based on measured (but unreported) DCO ratios. Authors assume that stretched Q transitions are E2, and that D transitions are M1 (except for the 1066γ, which they assign as E1). D assignments here do not preclude Q admixtures.

[#] Iγ is significantly greater than that for the 1938-keV cascade γ (Iγ=2.8) placed immediately below it. Eγ is consistent with that for an adopted ΔJ=2 γ deexciting the 4046 level, but it is too strong for that placement alone (Iγ<4.4 expected based on adopted branching), and 1995Gh02 do not report the 11^- isomeric level which it is expected to feed.

[@] Deduced from coincidence spectrum.

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

[x] γ ray not placed in level scheme.

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Level Scheme

Intensities: Relative I_γ

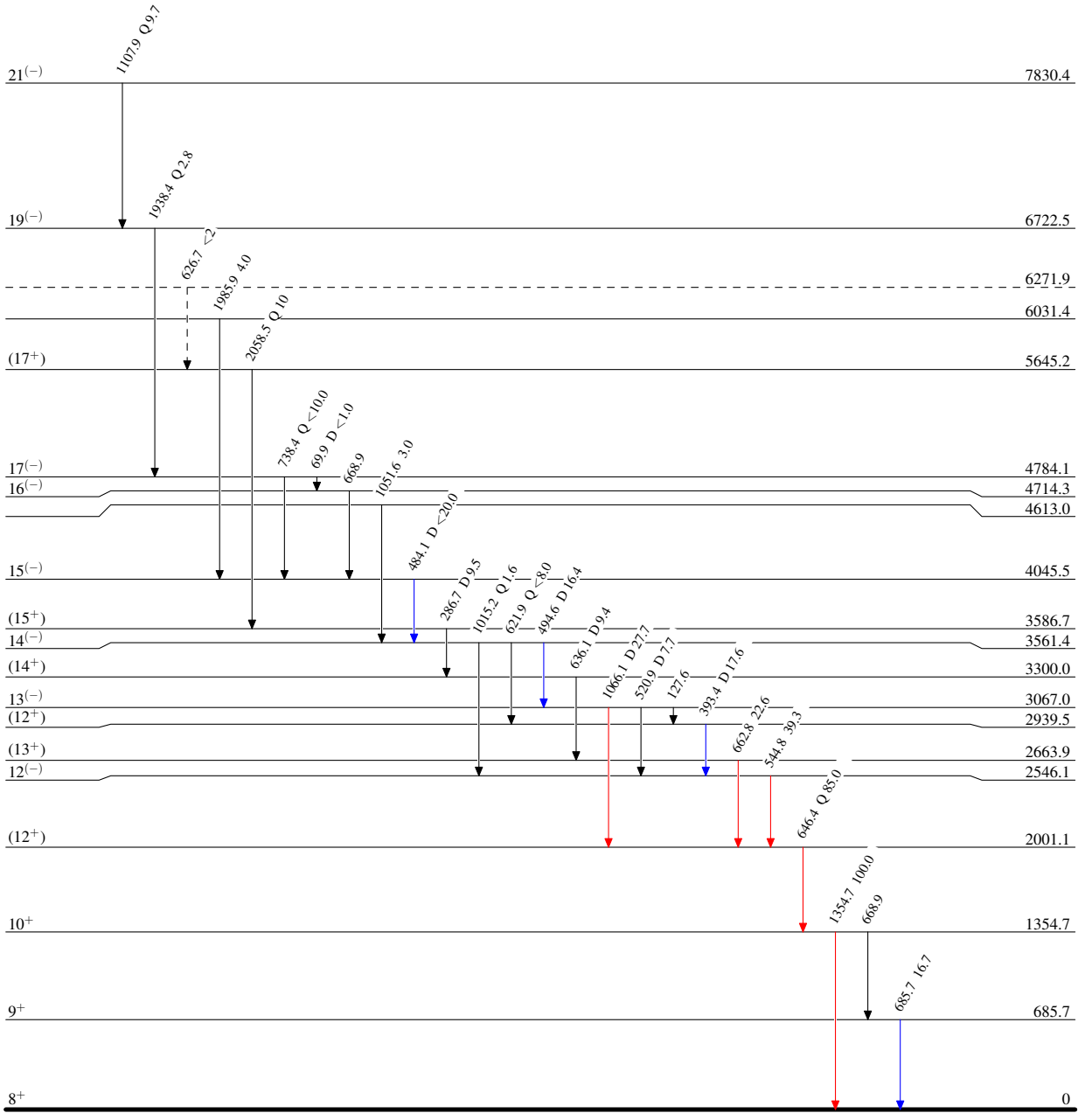
Legend

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

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

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

γ Decay (Uncertain)



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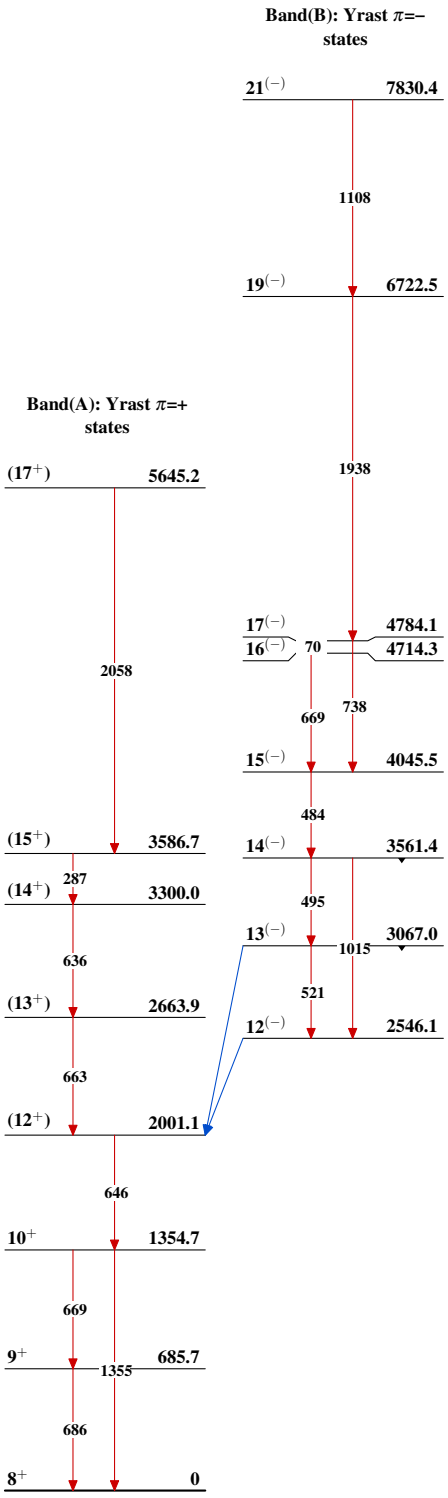

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