

⁶⁴Zn(³⁵Cl,3pn γ) 2004Ga08,1994Gh06

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, G. Mukherjee, A. A. Sonzogni		NDS 111, 2555 (2010)	30-Jun-2009

2004Ga08: ⁶⁴Zn(³⁵Cl,3pn γ), E=135 MeV. Measured E γ , I γ , $\gamma\gamma$, lifetimes by recoil-distance Doppler shift (RDDS) method using the GASP 4 π Ge detector array and six neutron detectors placed in forward direction.

1994Gh06: ⁶⁴Zn(³⁵Cl,3pn γ), E=140 MeV; GDA array with 5 Compton-suppressed HPGe and 14 BGO multiplicity filter; measured E γ , I γ , $\gamma\gamma$ -coin.

⁹⁵Ru Levels

Level scheme is drawn according to 2004Ga08.

E(level) [‡]	J π [†]	T _{1/2}	E(level) [‡]	J π [†]	T _{1/2}
0.0 ^a	5/2 ⁺		4744.8 ^b 5	27/2 ⁻	2.91 [#] ps 28
942.04 24	7/2 ⁽⁺⁾		5616.9 ^b 5	(29/2 ⁻)	1.59 [#] ps 21
1352.27 ^a 24	9/2 ⁺		5774.8 ^b 5	31/2 ⁻	2.63 [@] ps 28
2029.6 ^a 3	13/2 ⁺		6644.1 ^c 7	(31/2 ⁺ ,33/2 ⁺)	≤4.2 [@] ps
2247.1 3	11/2 ⁺	240 [#] ps 21	6777.9 7	(31/2 ⁺ ,33/2 ⁺)	≤6.9 [@] ps
2284.1 ^a 4	17/2 ⁺		6825.0 ^c 7	(33/2 ⁺ ,35/2 ⁺)	≤4.9 [@] ps
2450.4 ^{&} 4	(11/2 ⁻)		7064.2 6	(33/2 ⁻ ,35/2 ⁻)	≤1.4 [@] ps
2493.2 ^b 3	13/2 ⁻	0.60 [@] ns 4	7527.7 6	(33/2 ⁻ ,35/2 ⁻)	≤7.6 [@] ps
2538.2 ^a 4	21/2 ⁺		7530.0 ^c 7	(35/2 ⁺ ,37/2 ⁺)	≤4.9 [@] ps
2575.3 4			7682.0 6	(35/2 ⁻)	≤2.8 [@] ps
2774.4 ^b 3	15/2 ⁻	6.93 [#] ps 6	7762.6 7		
2999.6 ^{&} 4			8104.0 ^c 8	(37/2 ⁺ ,39/2 ⁺)	≤5.5 [@] ps
3363.1 4	(19/2 ⁺)		8137.5 7		
3478.0 ^b 4	17/2 ⁻	5.5 [#] ps 6	8308.8 6	(35/2 ⁻)	≤1.4 [@] ps
3702.3 ^b 4	(19/2 ⁻)	<2.1 [@] ps	8702.9 8	(39/2 ⁺ ,41/2 ⁺)	≤6.2 [@] ps
3830.5 ^a 5	25/2 ⁽⁺⁾	<1.5 [@] ps	8735.6 7		
3985.9 ^b 4	(21/2 ⁻)	8.9 [#] ps 10	8849.6 ^c 9	(39/2 ⁺ ,41/2 ⁺)	≤5.5 [@] ps
4193.0 ^b 4	(23/2 ⁻)	5.68 [#] ps 28	9341.8 ^c 9	(41/2 ⁺ ,43/2 ⁺)	≤6.9 [@] ps
4503.1 ^a 6	(29/2 ⁺)	11.0 [@] ps 7	12161.1 ^c 10	(43/2 ⁺ ,45/2 ⁺)	≤3.5 [@] ps
4506.1 ^b 5	25/2 ⁻	3.19 [#] ps 21			

[†] From Adopted Levels.

[‡] From least-squares fit to E γ 's.

[#] Determined by differential decay curve method (DDCM) in 2004Ga08.

[@] Determined by recoil-distance Doppler shift (RDDS) method in 2004Ga08.

[&] From 1994Gh06. Also observed in 1985Ch28 but not observed in 2004Ga08.

^a Band(A): γ sequence based on 5/2⁺, g.s..

^b Band(B): γ sequence based on 13/2⁻.

^c Band(C): γ sequence based on (31/2⁺).

$^{64}\text{Zn}(^{35}\text{Cl},\text{3pn}\gamma)$ **2004Ga08,1994Gh06 (continued)**

$\gamma(^{95}\text{Ru})$					
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\ddagger	E_f	J_f^π
942.04	7/2 ⁽⁺⁾	942.2 3	100	0.0	5/2 ⁺
1352.27	9/2 ⁺	410.2 3	3.8 9	942.04	7/2 ⁽⁺⁾
		1352.1 3	100.0 3	0.0	5/2 ⁺
2029.6	13/2 ⁺	677.3 3	100	1352.27	9/2 ⁺
2247.1	11/2 ⁺	894.8# 3	86 4	1352.27	9/2 ⁺
		1305.2 3	14 5	942.04	7/2 ⁽⁺⁾
2284.1	17/2 ⁺	254.7 3	100	2029.6	13/2 ⁺
2450.4	(11/2 ⁻)	1098.1 3	100	1352.27	9/2 ⁺
2493.2	13/2 ⁻	246.4 3	44 3	2247.1	11/2 ⁺
		463.9 3	11 3	2029.6	13/2 ⁺
		1140.8 3	42 3	1352.27	9/2 ⁺
2538.2	21/2 ⁺	254.7	100	2284.1	17/2 ⁺
2575.3		291.3 3	100	2284.1	17/2 ⁺
2774.4	15/2 ⁻	281.3 3	95 2	2493.2	13/2 ⁻
		744.2 3	5 2	2029.6	13/2 ⁺
2999.6		715.4 3	100	2284.1	17/2 ⁺
3363.1	(19/2 ⁺)	363.5 3	56.0 24	2999.6	
		787.9 3	21 10	2575.3	
		824.6 3	27.0 42	2538.2	21/2 ⁺
3478.0	17/2 ⁻	703.3 3	59 3	2774.4	15/2 ⁻
		985.0 3	41 3	2493.2	13/2 ⁻
3702.3	(19/2 ⁻)	224.2 3	20 2	3478.0	17/2 ⁻
		927.6 3	74 2	2774.4	15/2 ⁻
		1127.1 3	6 2	2575.3	
3830.5	25/2 ⁽⁺⁾	1292.3 3	100	2538.2	21/2 ⁺
3985.9	(21/2 ⁻)	283.4 3	65 2	3702.3	(19/2 ⁻)
		508.1 3	25 2	3478.0	17/2 ⁻
		622.6 3	10 2	3363.1	(19/2 ⁺)
4193.0	(23/2 ⁻)	206.9 3	74 3	3985.9	(21/2 ⁻)
		490 1	13 3	3702.3	(19/2 ⁻)
		1655.1 3	13 3	2538.2	21/2 ⁺
4503.1	(29/2 ⁺)	672.6 3	100	3830.5	25/2 ⁽⁺⁾
4506.1	25/2 ⁻	312.9 3	100	4193.0	(23/2 ⁻)
4744.8	27/2 ⁻	238.6 3	89 7	4506.1	25/2 ⁻
		551.9 3	11 7	4193.0	(23/2 ⁻)
5616.9	(29/2 ⁻)	871.9 3	68 6	4744.8	27/2 ⁻
		1110.9 3	32 6	4506.1	25/2 ⁻
5774.8	31/2 ⁻	157.7 3	10 3	5616.9	(29/2 ⁻)
		1030.1 3	90 13	4744.8	27/2 ⁻
6644.1	(31/2 ⁺ ,33/2 ⁺)	2140.9 3	100	4503.1	(29/2 ⁺)
6777.9	(31/2 ⁺ ,33/2 ⁺)	2274.7 3	100	4503.1	(29/2 ⁺)
6825.0	(33/2 ⁺ ,35/2 ⁺)	181.0 3	100	6644.1	(31/2 ⁺ ,33/2 ⁺)
7064.2	(33/2 ⁻ ,35/2 ⁻)	1289.4 3	100	5774.8	31/2 ⁻
7527.7	(33/2 ⁻ ,35/2 ⁻)	1752.9 3	100	5774.8	31/2 ⁻
7530.0	(35/2 ⁺ ,37/2 ⁺)	704.9 3	42 6	6825.0	(33/2 ⁺ ,35/2 ⁺)
		885.9 3	58 6	6644.1	(31/2 ⁺ ,33/2 ⁺)
7682.0	(35/2 ⁻)	1907.2 3	100	5774.8	31/2 ⁻
7762.6		234.9 3	100	7527.7	(33/2 ⁻ ,35/2 ⁻)
8104.0	(37/2 ⁺ ,39/2 ⁺)	573.9 3	93 5	7530.0	(35/2 ⁺ ,37/2 ⁺)
		1280 1	7 5	6825.0	(33/2 ⁺ ,35/2 ⁺)
8137.5		1073.3 3	100	7064.2	(33/2 ⁻ ,35/2 ⁻)
8308.8	(35/2 ⁻)	2534.0 3	100	5774.8	31/2 ⁻
8702.9	(39/2 ⁺ ,41/2 ⁺)	598.8 3	100	8104.0	(37/2 ⁺ ,39/2 ⁺)
8735.6		1053.6 3	100	7682.0	(35/2 ⁻)
8849.6	(39/2 ⁺ ,41/2 ⁺)	745 1	55 6	8104.0	(37/2 ⁺ ,39/2 ⁺)

Continued on next page (footnotes at end of table)

$^{64}\text{Zn}(^{35}\text{Cl},3\text{pn}\gamma)$ 2004Ga08,1994Gh06 (continued) $\gamma(^{95}\text{Ru})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\ddagger	E_f	J_f^π
8849.6	(39/2 ⁺ ,41/2 ⁺)	1320 <i>I</i>	45 <i>6</i>	7530.0	(35/2 ⁺ ,37/2 ⁺)
9341.8	(41/2 ⁺ ,43/2 ⁺)	492.2 <i>3</i>	71 <i>4</i>	8849.6	(39/2 ⁺ ,41/2 ⁺)
		1238 <i>I</i>	29 <i>4</i>	8104.0	(37/2 ⁺ ,39/2 ⁺)
12161.1	(43/2 ⁺ ,45/2 ⁺)	2819 <i>I</i>	32 <i>4</i>	9341.8	(41/2 ⁺ ,43/2 ⁺)
		3312 <i>I</i>	18 <i>4</i>	8849.6	(39/2 ⁺ ,41/2 ⁺)
		3458 <i>I</i>	50 <i>4</i>	8702.9	(39/2 ⁺ ,41/2 ⁺)

[†] From 1994Gh06 with $\Delta E_\gamma = 0.3$ keV assumed, except as noted.

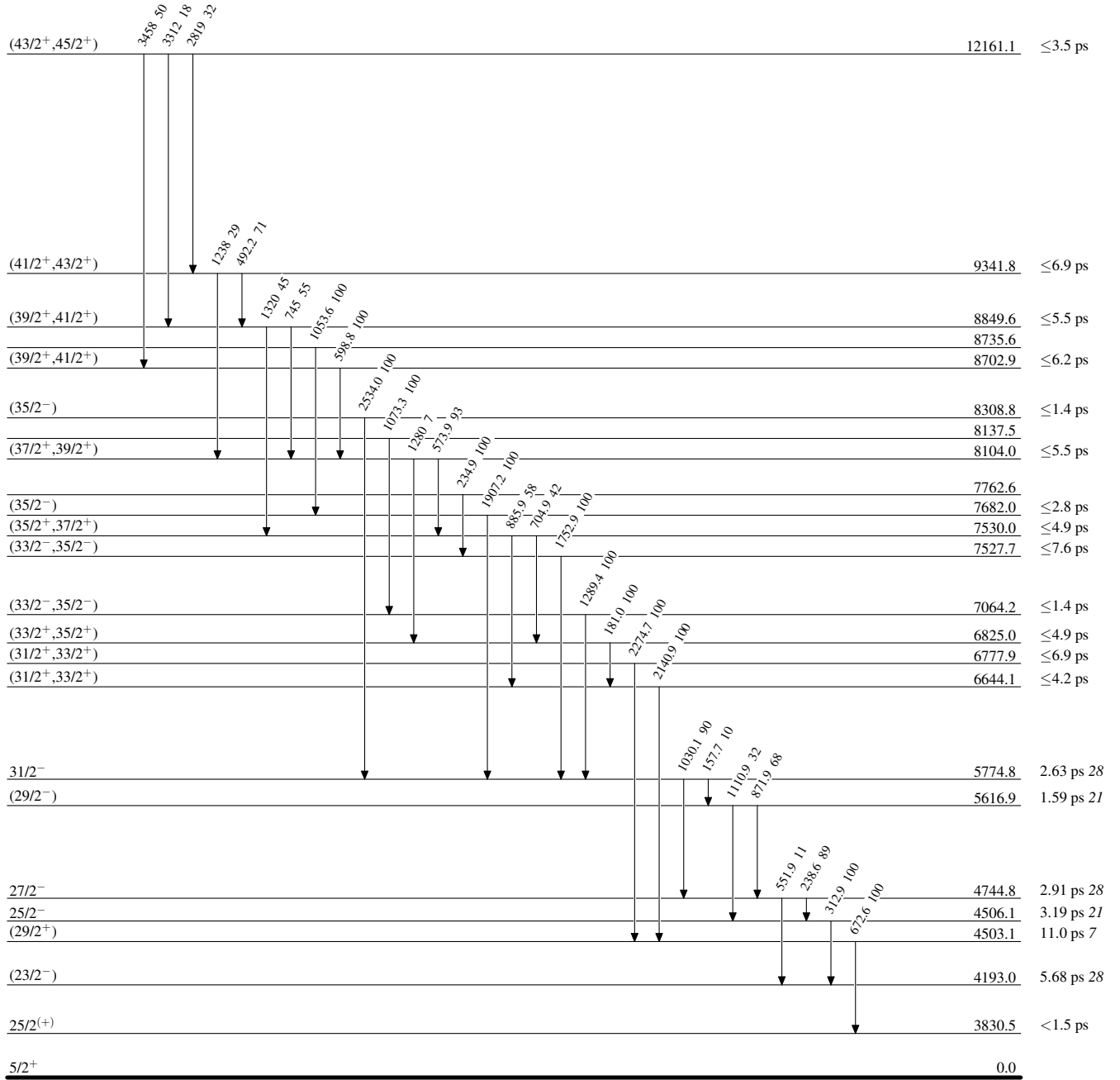
[‡] % branching from 2004Ga08.

[#] Not observed in 1994Gh06.

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Level Scheme

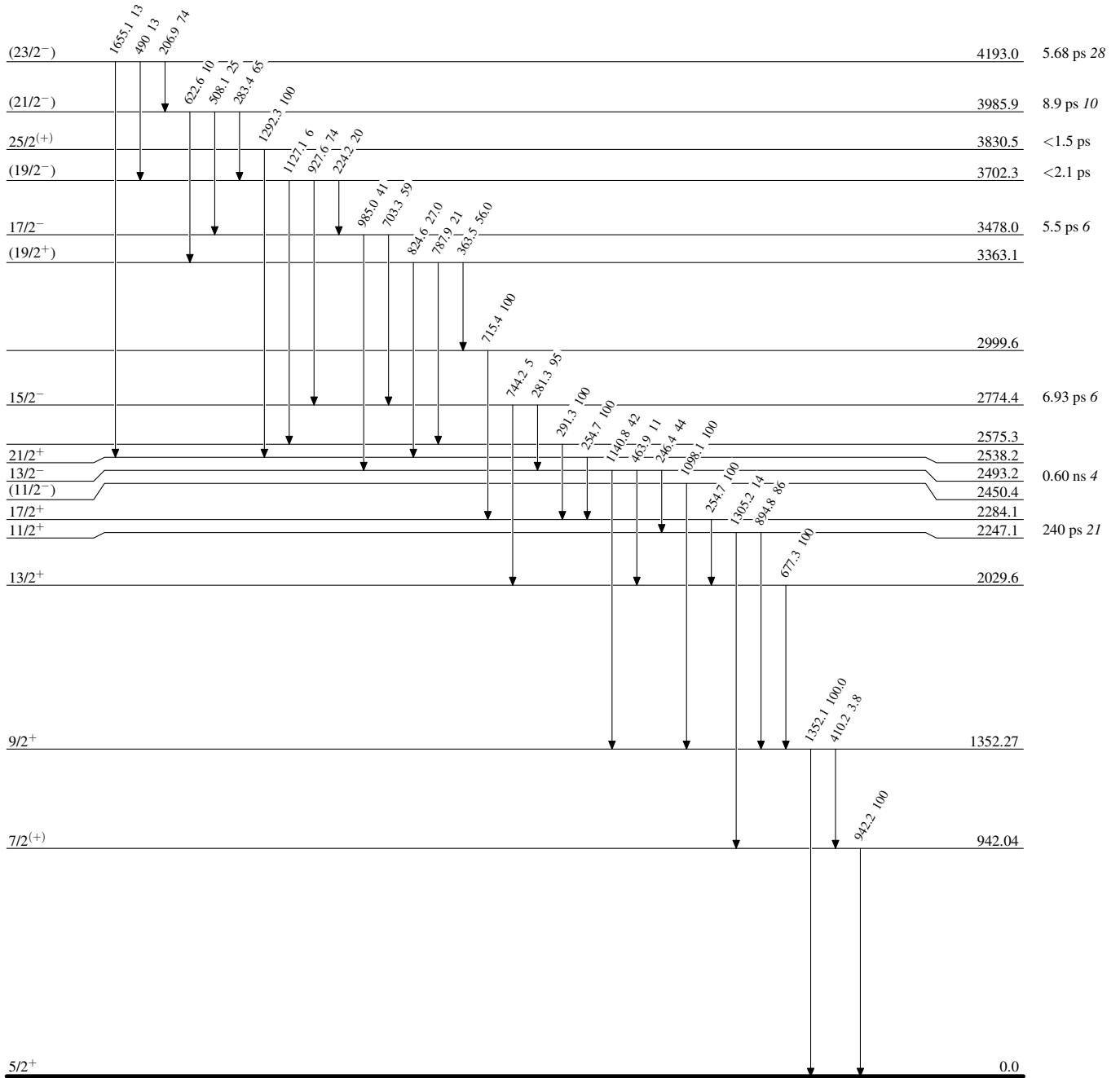
Intensities: % photon branching from each level



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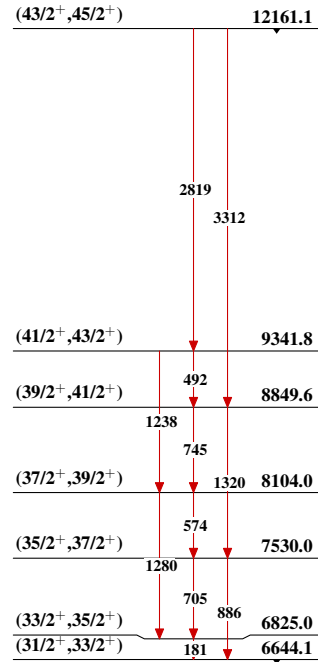
Level Scheme (continued)

Intensities: % photon branching from each level



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Band(C): γ sequence based on (31/2⁺)



Band(B): γ sequence based on 13/2⁻

