^{40}Ca(^{40}Ca,2$\alpha\gamma$) 2003Fi07

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. Abriola(a), A. A. Sonzogni	NDS 111,1 (2010)	1-May-2009

E=160 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$, lifetimes using the Gammasphere array comprised of either 70 or 100 Compton-suppressed large volume Ge detectors in conjuction with the Microball and 20 neutron scintillator detectors. Also, 2001Fi13.

Other works: 1998De14, 1997De50. The 606 keV γ-ray observed in these works was later on assigned to the (5$^-$) to (3$^-$) transition.

^{72}Kr Levels

E(level)[†]	J$^\pi$	T$_{1/2}$[‡]	Comments
0.0[@]	0$^+$		
710.10[@] *20*	2$^+$		
1321.9[@] *3*	4$^+$		
2113.5[@] *3*	6$^+$		
3109.0[@] *4*	8$^+$		
3798.3[&] *9*			
4293.9[@] *4*	10$^+$		
4757.3[&] *9*			
5648.9[@] *5*	12$^+$		
6049.3[&] *12*			
7158.1[@] *6*	14$^+$		
7164.7[&] *14*			
8527.5 *9*	(16$^+$)		
8596.8[&] *17*			E(level): In the adopted values, following the later work of 2007An12 in (HI,xnγ), the order of the 1444-1432 cascade is reversed.
8746.1[#] *8*	16$^+$		
8820.0[@] *9*	16$^+$		
9767.9[#] *9*	18$^+$		
10041.1[&] *19*			
10558.6[@] *10*	18$^+$		
11234.6[#] *12*	20$^+$		
11536.9[&] *21*			
12388.6[@] *14*	(20$^+$)		
13136.0[&] *23*			
13180.7[#] *15*	22$^+$	42 fs *22*	Q(transition)=1.15 *15* deduced from lifetime data.
14303.7[@] *17*	(22$^+$)	9.7 fs *35*	
14915[&] *3*			
15640.7[#] *22*	(24$^+$)		
16337.7[@] *19*	(24$^+$)		
16976[&] *4*			
18474.7[@] *23*	(26$^+$)		
18704?[#] *4*	(26$^+$)		

[†] From least-squares fit to Eγ's (by compilers).
[‡] From DSAM.

Continued on next page (footnotes at end of table)

^{40}Ca(^{40}Ca,2$\alpha\gamma$) 2003Fi07 (continued)

^{72}Kr Levels (continued)

[#] Band(A): Band based on 16^+. See Adopted Levels for a more up-to-date interpretation of the band structures.
[@] Band(B): g.s. band. See Adopted Levels for a more up-to-date interpretation of the band structures.
[&] Band(C): Side band. See Adopted Levels for a more up-to-date interpretation of the band structures.

$\gamma(^{72}Kr)$

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]
611.8 *2*		1321.9	4^+	710.10	2^+	Q
710.1 *2*	≈200	710.10	2^+	0.0	0^+	Q
791.6 *2*		2113.5	6^+	1321.9	4^+	Q
959.1 *8*	<20	4757.3		3798.3		
995.5 *2*	100	3109.0	8^+	2113.5	6^+	Q
1021.9 *6*	18 *2*	9767.9	18^+	8746.1	16^+	Q
1115.4 *8*	32 *12*	7164.7		6049.3		
1184.9 *2*	76 *12*	4293.9	10^+	3109.0	8^+	Q
1240 *1*	10 *2*	9767.9	18^+	8527.5	(16^+)	
1292.0 *8*	41 *12*	6049.3		4757.3		
1354.9 *3*	61 *11*	5648.9	12^+	4293.9	10^+	Q
1369.2 *8*	10 *2*	8527.5	(16^+)	7158.1	14^+	
1432.1 *9*	27 *9*	8596.8		7164.7		
1444.3 *9*	25 *8*	10041.1		8596.8		
1466.7 *8*	20 *3*	11234.6	20^+	9767.9	18^+	Q
1495.8 *9*	22 *6*	11536.9		10041.1		
1509.2 *3*	65 *12*	7158.1	14^+	5648.9	12^+	Q
1588.2 *6*	29 *5*	8746.1	16^+	7158.1	14^+	Q
1599 *1*	18 *6*	13136.0		11536.9		
1648 *1*	<20	4757.3		3109.0	8^+	
1661.9 *6*	22 *3*	8820.0	16^+	7158.1	14^+	Q
1685 *1*	<20	3798.3		2113.5	6^+	
1738.6 *6*	15 *2*	10558.6	18^+	8820.0	16^+	Q
1779 *1*	<10	14915		13136.0		
1830 *1*	19 *3*	12388.6	(20^+)	10558.6	18^+	
1915 *1*	13 *2*	14303.7	(22^+)	12388.6	(20^+)	
1946 *1*	17 *3*	13180.7	22^+	11234.6	20^+	Q
2034 *1*	11 *2*	16337.7	(24^+)	14303.7	(22^+)	
2061 *3*	<5	16976		14915		
2137[‡] *2*	5 *1*	18474.7	(26^+)	16337.7	(24^+)	
2460 *2*	16 *2*	15640.7	(24^+)	13180.7	22^+	
2834[‡] *3*	<5	18474.7	(26^+)	15640.7	(24^+)	
3063[‡] *3*	5 *1*	18704?	(26^+)	15640.7	(24^+)	

[†] Measured $\gamma(\theta)$ consistent with stretched quadrupole transition.
[‡] Placement of transition in the level scheme is uncertain.

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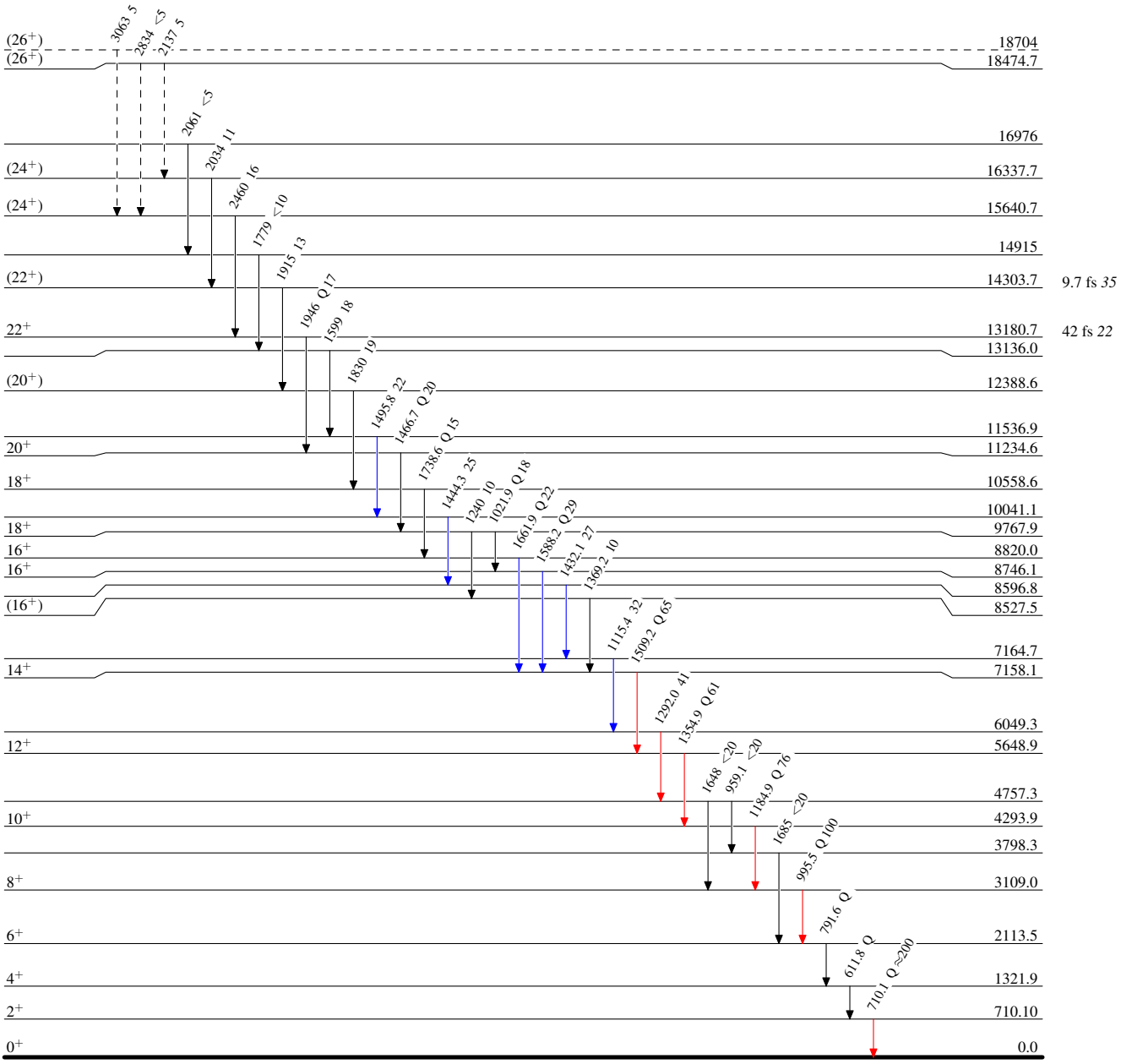
Level Scheme

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)



$^{72}_{36}Kr_{36}$

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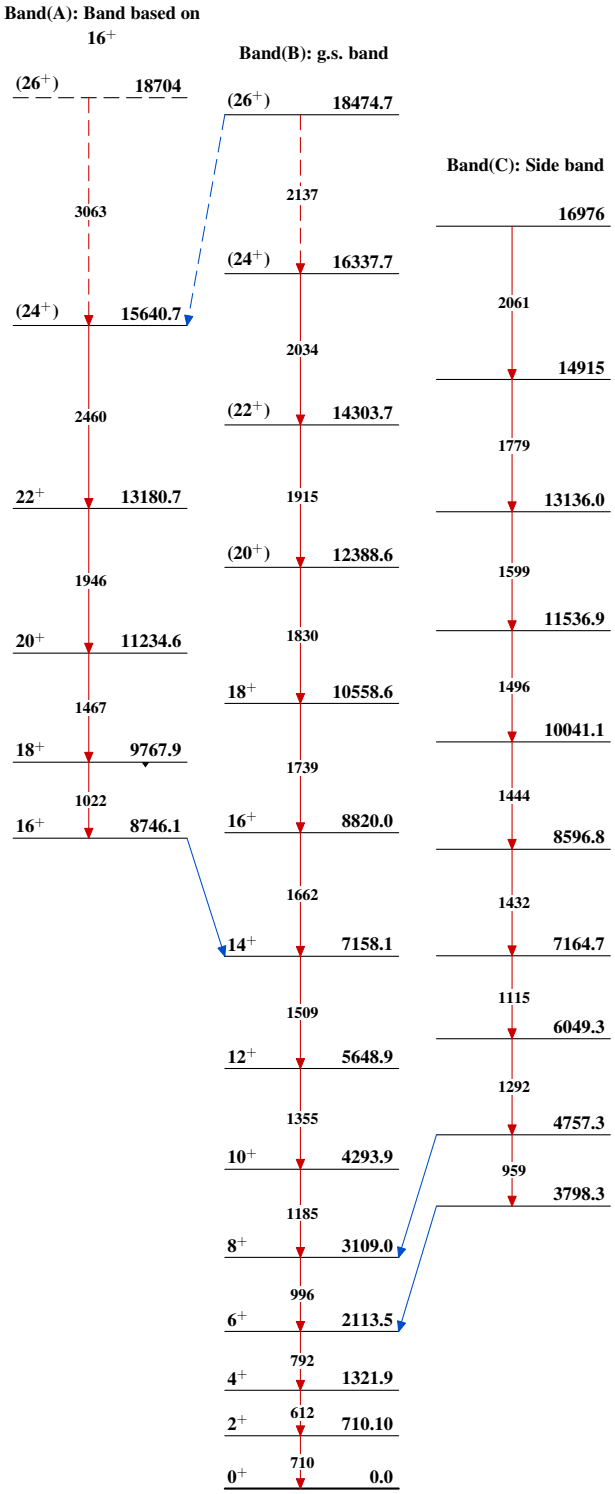

$^{72}_{36}Kr_{36}$