

(HI,xn γ) 2007An12

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

$^{40}\text{Ca}(^{40}\text{Ca},2\alpha\gamma)$, E=165 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, $\gamma(\theta)$, lifetimes using the Gammasphere array comprised of 99 Compton-suppressed HPGe detectors in conjunction with 95-element CsI(Tl) Microball.

 ^{72}Kr Levels

E(level) [†]	J $^{\pi}$	E(level) [†]	J $^{\pi}$	E(level) [†]	J $^{\pi}$	E(level) [†]	J $^{\pi}$
0 [@]	0 ⁺	6053 ^{&} 2		10565 [#] 3	18 ⁺	16350 [#] 3	(24 ⁺)
710 [@] 1	2 ⁺	7161 [@] 3	14 ⁺	11238 [‡] 3	20 ⁺	16988 ^{&} 4	
1322 [@] 2	4 ⁺	7169 ^{&} 3		11548 ^{&} 3		18493 [#] 3	(26 ⁺)
2114 [@] 2	6 ⁺	8529 3	16 ⁺	12396 [#] 3	(20 ⁺)	18715 [‡] 4	(26 ⁺)
3109 [@] 2	8 ⁺	8616 ^{&} 3		13148 ^{&} 4		19503 ^{&} 4	
3800 ^{&} 2		8748 [‡] 3	16 ⁺	13187 [‡] 3	22 ⁺	20933 [#] 4	(28 ⁺)
4295 [@] 2	10 ⁺	8825 [#] 3	16 ⁺	14313 [#] 3	(22 ⁺)	22432 [‡] 4	(28 ⁺)
4761 ^{&} 2		9770 [‡] 3	18 ⁺	14926 ^{&} 4		22571 ^{&} 4	
5651 [@] 2	12 ⁺	10051 ^{&} 3		15656 [‡] 3	24 ⁺	23639 [#] 4	(30 ⁺)

[†] From $E\gamma$'s, assuming $\Delta(E\gamma)=1$ keV for each γ ray.

[‡] Band(A): Band based on 16⁺. Q(transition)=2.00 +36-28 (2007An12) from lifetime measurements using DSAM for all in-band transitions up to 26⁺ (figure 2 in 2007An12). Systematic uncertainty due to stopping powers is additional 10%.

[#] Band(B): Band based on 16⁺. Q(transition)=2.76 +28-22 (2007An12) from lifetime measurements using DSAM for all in-band transitions (figure 2 in 2007An12). Systematic uncertainty due to stopping powers is additional 10%.

[@] Band(C): g.s. band.

[&] Band(D): Side band. Q(transition)=2.40 +26-23 (2007An12) from lifetime measurements using DSAM for all in-band transitions (figure 2 in 2007An12). Systematic uncertainty due to stopping powers is additional 10%. From comparison with calculations which suggest that not all bands have positive-parity, the side band may be a negative-parity band starting with 7⁻ for 3800-keV level and extending to 29⁻ for 22571 level.

 $\gamma(^{72}\text{Kr})$

E_{γ} [†]	$E_i(\text{level})$	J_i^{π}	E_f	J_f^{π}	E_{γ} [†]	$E_i(\text{level})$	J_i^{π}	E_f	J_f^{π}
612	1322	4 ⁺	710	2 ⁺	1586	8748	16 ⁺	7161	14 ⁺
710	710	2 ⁺	0	0 ⁺	1600	13148		11548	
792	2114	6 ⁺	1322	4 ⁺	1653	4761		3109	8 ⁺
960	4761		3800		1665	8825	16 ⁺	7161	14 ⁺
996	3109	8 ⁺	2114	6 ⁺	1685	3800		2114	6 ⁺
1021	9770	18 ⁺	8748	16 ⁺	1741	10565	18 ⁺	8825	16 ⁺
1116	7169		6053		1778	14926		13148	
1186	4295	10 ⁺	3109	8 ⁺	1816	10565	18 ⁺	8748	16 ⁺
1241	9770	18 ⁺	8529	16 ⁺	1832	12396	(20 ⁺)	10565	18 ⁺
1292	6053		4761		1917	14313	(22 ⁺)	12396	(20 ⁺)
1356	5651	12 ⁺	4295	10 ⁺	1949	13187	22 ⁺	11238	20 ⁺
1368	8529	16 ⁺	7161	14 ⁺	2038	16350	(24 ⁺)	14313	(22 ⁺)
1435	10051		8616		2062	16988		14926	
1447	8616		7169		2143	18493	(26 ⁺)	16350	(24 ⁺)
1467	11238	20 ⁺	9770	18 ⁺	2440	20933	(28 ⁺)	18493	(26 ⁺)
1497	11548		10051		2468	15656	24 ⁺	13187	22 ⁺
1510	7161	14 ⁺	5651	12 ⁺	2515	19503		16988	

Continued on next page (footnotes at end of table)

(HL,xn γ) 2007An12 (continued)

 $\gamma({}^{72}\text{Kr})$ (continued)

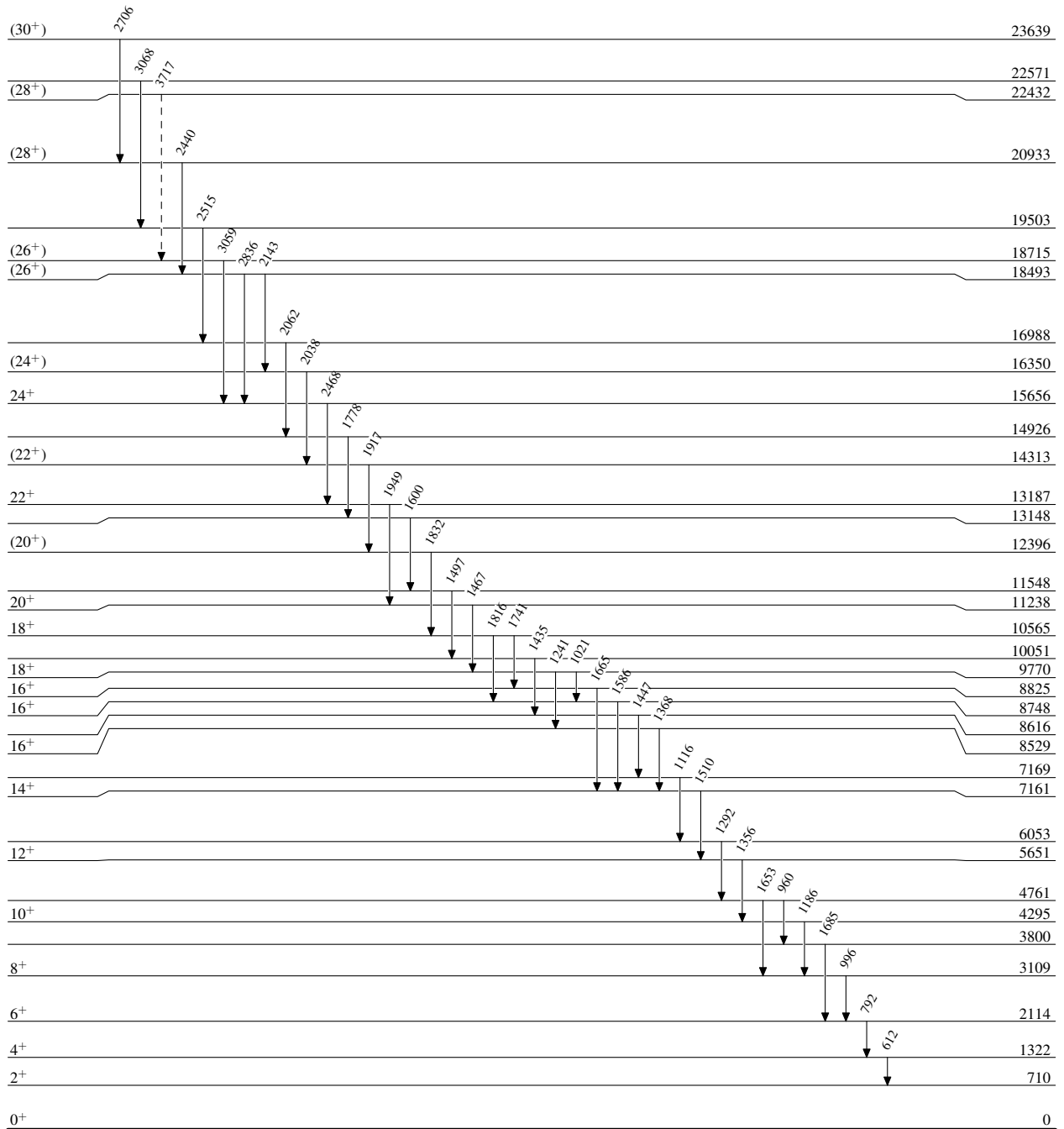
<u>E_γ^\dagger</u>	<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>
2706	23639	(30 ⁺)	20933	(28 ⁺)
2836	18493	(26 ⁺)	15656	24 ⁺
3059	18715	(26 ⁺)	15656	24 ⁺
3068	22571		19503	
3717 [‡]	22432	(28 ⁺)	18715	(26 ⁺)

[†] Some of the gamma ray energies are up to 5 keV different from those in [2003Fi07](#).

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

(HI,xn γ) 2007An12

Legend

Level Scheme-----> γ Decay (Uncertain) $^{72}_{36}\text{Kr}_{36}$

