

⁴⁰Ca(³⁶Ar,2αγ) 2003Fi07

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 113, 1735 (2012)	1-Mar-2012

E(³⁶Ar)=145 MeV. Measured E_γ, I_γ, γγ, γ(θ) using Gammasphere consisting of 70 or 100 HPGe detectors and incorporating Microball and neutron detectors for channel selection. Also includes data from the ⁵⁸Ni(¹²C,2nγ) reaction used to deconvolute doublet transitions.

Other reactions : 1999PaZY: ⁴⁰Ca(³²S,2n2pγ) E(³²S) = 134 MeV; extended level scheme but no details given.

⁶⁸Se Levels

E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]
0.0 [#]	0 ⁺	3303.4 ^{# 4}	6 ⁺	6603.5? ^{#a 15}	10 ⁺	12796.8 ^{& 10}	(20 ⁺)
853.4 ^{# 2}	2 ⁺	3705.5 ^{@ 4}	6 ⁺	7331.5 ^{@ 6}	12 ⁺	15184.9 ^{& 22}	(22 ⁺)
1593.7 ^{@ 5}	2 ⁺	4752.1 ^{@ 4}	8 ⁺	8823.4 ^{@ 7}	14 ⁺	18075 ^{& 4}	(24 ⁺)
1941.8 ^{# 3}	4 ⁺	4870.4 ^{#a 11}	8 ⁺	9871.1 8	16 ⁺	21201? ^{& 5}	(26 ⁺)
2544.9 ^{@ 4}	4 ⁺	5959.5 ^{@ 5}	10 ⁺	11039.7 ^{& 9}	18 ⁺		

[†] From least-squares fit to E_γ's by evaluator; ΔE=1 keV assumed for γ's where uncertainty is not stated.

[‡] Assignments from 2003Fi07 based on angular distributions and the assumption that bands are connected by a rotational cascade of E2 transitions.

Band(A): g.s. band (oblate).

@ Band(B): Side band (prolate).

& Band(C): Band based on 18⁺ level.

^a Seen only in ¹²C(⁵⁸Ni,2nγ) reaction.

γ(⁶⁸Se)

E _γ	I _γ [#]	E _i (level)	J _i ^π	E _f	J _f ^π	Mult. [‡]
740 1	<11	1593.7	2 ⁺	853.4 2 ⁺		
853.4 2		853.4	2 ⁺	0.0 0 ⁺		Q
951.1 5	<12	2544.9	4 ⁺	1593.7 2 ⁺		
1046.7 3	44 18	4752.1	8 ⁺	3705.5 6 ⁺		Q
1047.7 5	41 13	9871.1	16 ⁺	8823.4 14 ⁺		Q
1088.3 2	100 15	1941.8	4 ⁺	853.4 2 ⁺		Q
1160.7 3	46 10	3705.5	6 ⁺	2544.9 4 ⁺		Q
1168.6 3	46 10	11039.7	18 ⁺	9871.1 16 ⁺		Q
1207.4 3	96 14	5959.5	10 ⁺	4752.1 8 ⁺		Q
1361.5 3	71 12	3303.4	6 ⁺	1941.8 4 ⁺		Q
1372.0 3	68 9	7331.5	12 ⁺	5959.5 10 ⁺		Q
1448.5 3	59 10	4752.1	8 ⁺	3303.4 6 ⁺		Q
1491.9 3	74 13	8823.4	14 ⁺	7331.5 12 ⁺		Q
1567 [†]		4870.4	8 ⁺	3303.4 6 ⁺		
1594 1		1593.7	2 ⁺	0.0 0 ⁺		
1691.7 5	53 12	2544.9	4 ⁺	853.4 2 ⁺		
1733 ^{†@}		6603.5?	10 ⁺	4870.4 8 ⁺		
1757.1 5	17 8	12796.8	(20 ⁺)	11039.7 18 ⁺		
1764 1	34 10	3705.5	6 ⁺	1941.8 4 ⁺		
2388 2	26 16	15184.9	(22 ⁺)	12796.8 (20 ⁺)		
2890 3	20 11	18075	(24 ⁺)	15184.9 (22 ⁺)		
3126 ^{@ 4}	<10	21201?	(26 ⁺)	18075 (24 ⁺)		

Continued on next page (footnotes at end of table)

 ${}^{40}\text{Ca}({}^{36}\text{Ar}, 2\alpha\gamma)$ **2003Fi07** (continued) $\gamma({}^{68}\text{Se})$ (continued)

† Seen only in ${}^{12}\text{C}({}^{58}\text{Ni}, 2n\gamma)$ reaction.

‡ From $\gamma(\theta)$.

Relative values normalized to $I\gamma(1088\gamma)=100$.

@ Placement of transition in the level scheme is uncertain.

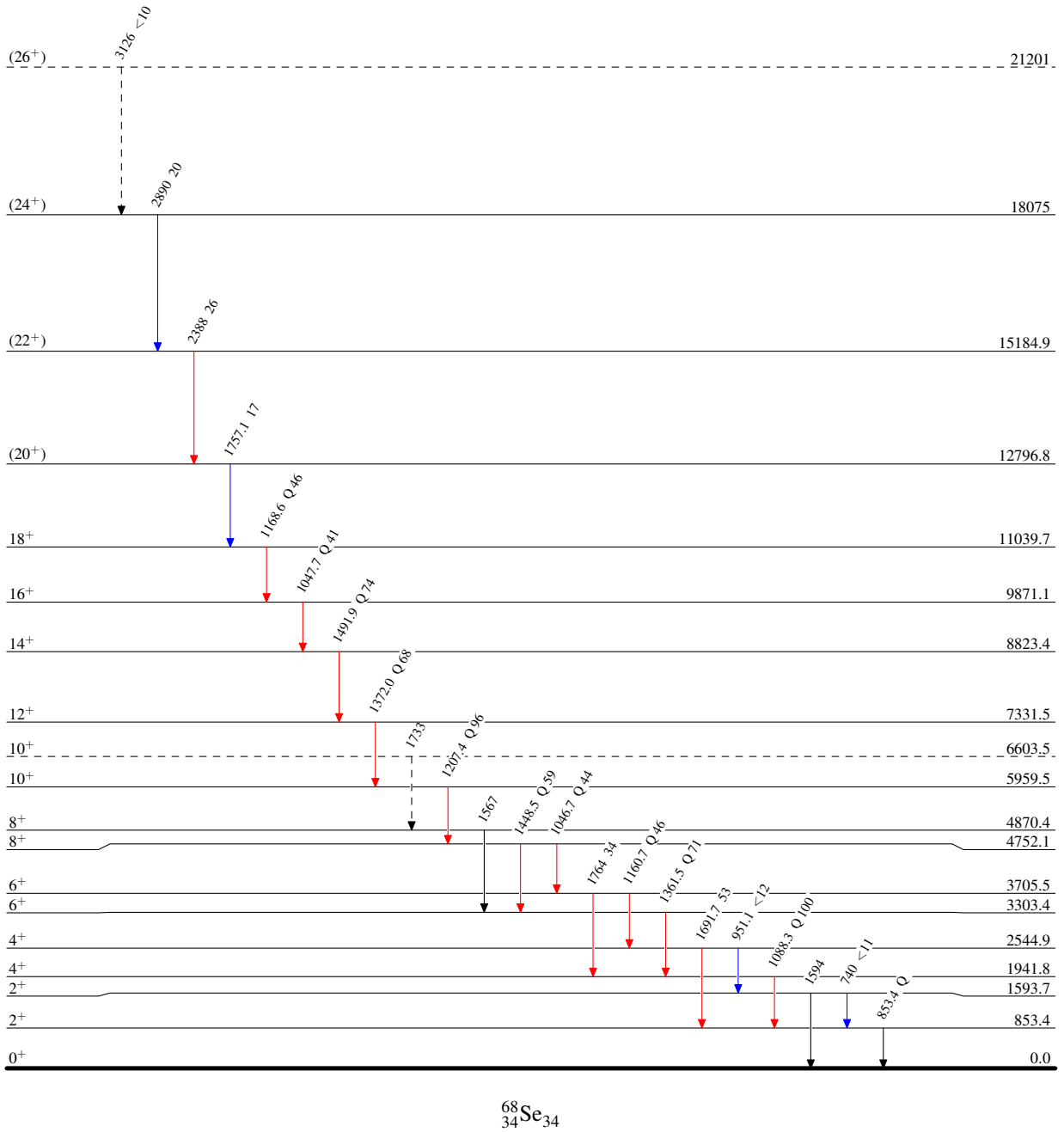
$^{40}\text{Ca}(^{36}\text{Ar}, 2\alpha\gamma)$ 2003Fi07

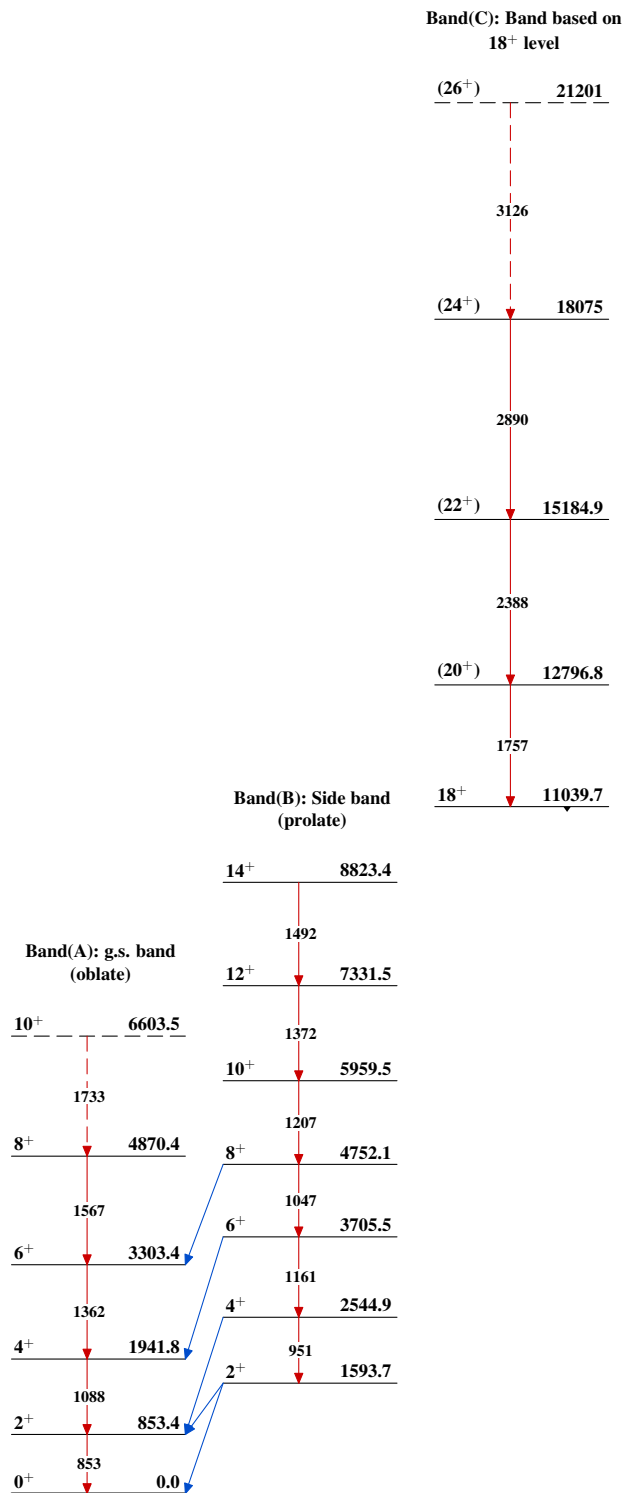
Legend

Level Scheme

Intensities: Type not specified

- ▶ $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - -▶ γ Decay (Uncertain)

 $^{68}_{34}\text{Se}_{34}$

${}^{40}\text{Ca}({}^{36}\text{Ar}, 2\alpha\gamma)$ 2003Fi07 ${}^{68}_{34}\text{Se}_{34}$