

$^{12}\text{C}(^{58}\text{Ni}, 2n\gamma)$ 2000Fi08

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

$E(^{58}\text{Ni})=185$ and 220 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ using Gammasphere array consisting of 101 70% Compton suppressed HPGe detectors. A = 68 nuclei selected using the Fragment Mass Analyzer (FMA), followed by an ionization chamber for Z identification.

Other: 1990Li25 (also 1988LiZL), $E(^{58}\text{Ni}) = 175$ MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ -, recoil γ -, recoil γ - γ -coin; 10 Compton suppressed Ge detectors, 10 NE213 neutron detectors and the Daresbury recoil separator. Observed 343, 853.9 3, and 1088 γ 's in ^{68}Se recoil-gated spectrum. Suggested 853.9 γ was the 2^+ to 0^+ transition in ^{68}Se based on its large intensity.

 ^{68}Se Levels

$E(\text{level})^\dagger$	$J^\pi^\ddagger$	$E(\text{level})^\dagger$	$J^\pi^\ddagger$	$E(\text{level})^\dagger$	$J^\pi^\ddagger$	$E(\text{level})^\dagger$	$J^\pi^\ddagger$
0 [#]	0 ⁺	2544 [@]	4 ⁺	4199	(7 ⁻) ^{&}	7332 [@]	12 ⁺
853.9 [#] 3	2 ⁺	3073		4753 [@]	8 ⁺	8824 [@]	14 ⁺
1594 [@]	2 ⁺	3304 [#]	6 ⁺	4871 [#]	8 ⁺		
1941 [#]	4 ⁺	3572	(5 ⁻) ^{&}	5959 [@]	10 ⁺		
2433		3708 [@]	6 ⁺	6604? [#]	(10 ⁺)		

[†] From least-squares fit to $E\gamma$'s, by evaluator.

[‡] Authors suggested values based on band structure and $\gamma(\theta)$ (not explicitly given), except where noted.

[#] Band(A): g.s. band (oblate). Oblate deformation suggested by small moment of inertia, lack of observed backband, and properties of bands in neighboring odd-A nuclei.

[@] Band(B): Side band (prolate). Prolate deformation suggested by large moment of inertia and observed backband.

[&] Suggested from systematics of neighboring even-even nuclei (1998Sk02).

 $\gamma(^{68}\text{Se})$

$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π
602 [#]	2544	4 ⁺	1941	4 ⁺	1373	7332	12 ⁺	5959	10 ⁺
627	4199	(7 ⁻)	3572	(5 ⁻)	1449	4753	8 ⁺	3304	6 ⁺
640	3073		2433		1492	8824	14 ⁺	7332	12 ⁺
740	1594	2 ⁺	853.9	2 ⁺	1567	4871	8 ⁺	3304	6 ⁺
853.9 [‡] 3	853.9	2 ⁺	0	0 ⁺	1594	1594	2 ⁺	0	0 ⁺
951	2544	4 ⁺	1594	2 ⁺	1630	3572	(5 ⁻)	1941	4 ⁺
1045	4753	8 ⁺	3708	6 ⁺	1691	2544	4 ⁺	853.9	2 ⁺
1088	1941	4 ⁺	853.9	2 ⁺	1733 [#]	6604?	(10 ⁺)	4871	8 ⁺
1163	3708	6 ⁺	2544	4 ⁺	1768 [#]	3708	6 ⁺	1941	4 ⁺
1206	5959	10 ⁺	4753	8 ⁺	2220	3073		853.9	2 ⁺
1362	3304	6 ⁺	1941	4 ⁺	2433	2433		0	0 ⁺

[†] Rounded to the nearest 1 keV due to large Doppler shift from high recoil velocity.

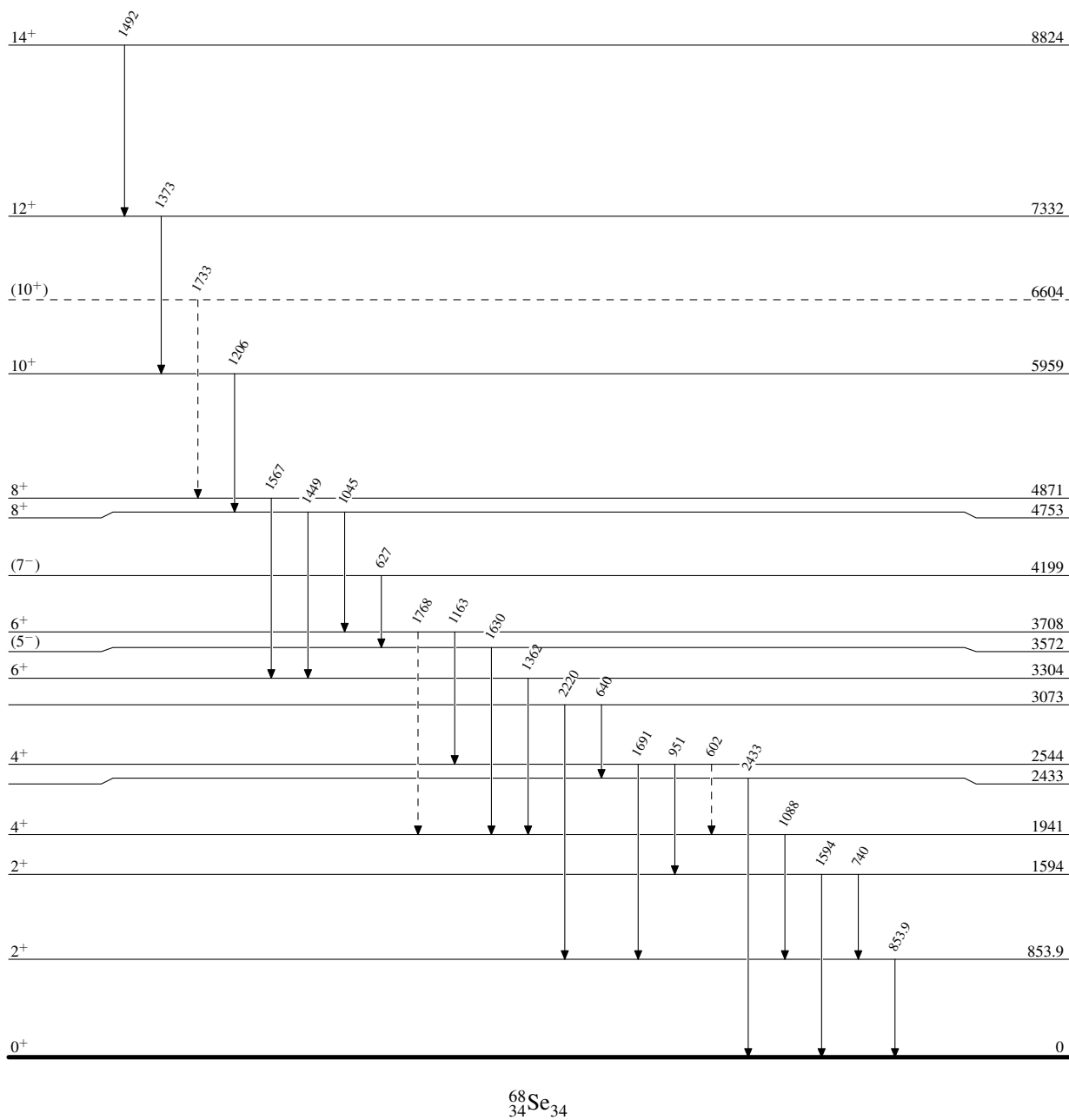
[‡] From 1990Li25.

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

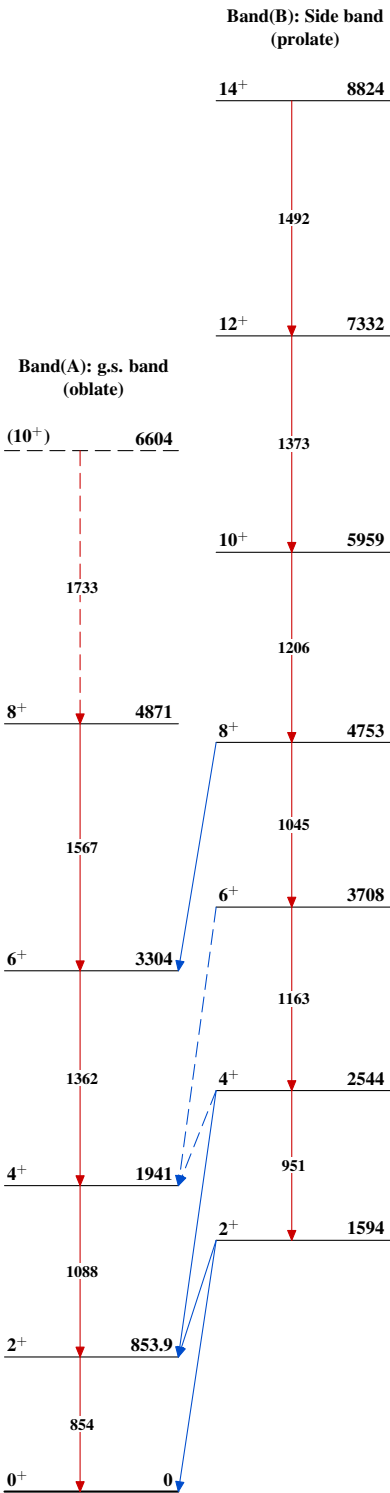
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Legend

Level Scheme

 - - - - - γ Decay (Uncertain)


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