^{36}S(n,γ) E=thermal 1984Ra09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	John Cameron, Jun Chen and Balraj Singh, Ninel Nica	NDS 113, 365 (2012)	15-Jan-2012

1984Ra09 (also 1985Ra15): measured Eγ, Iγ using a Ge(Li) detector with a NaI(Tl) annulus, and a pair spectrometer. Enriched 81.1% *2* target. In 1985Ra15, authors compare experimental cross sections for primary γ rays with those calculated from optical model.
1997Be42: measured Eγ, Iγ for four γ rays: 646.2, 1665.7, 2311.6 and 3657.3, deduced cross sections.
1995Be55: E(n)=25, 151, 176, 218 keV; measured σ for direct capture; deduced stellar reaction rate factor.

^{37}S Levels

E(level)[†]	J$^\pi$[#]
0	7/2$^-$
646.177 *14*	3/2$^-$
1397.51 *18*	(3/2$^+$,5/2$^+$)
1991.93 *5*	3/2$^-$
2022.88 *10*	(5/2$^-$,7/2$^-$)
2637.87 *4*	1/2$^-$
3261.91 *5*	3/2$^-$
3492.72 *8*	3/2$^-$
(4303.61[‡] *4*)	1/2$^+$[@]

[†] From least-squares fit to Eγ's. Normalized χ^2=1.19, but below the critical χ^2 value.
[‡] S(n)=4303.60 *6* (2011AuZZ,2003Au03).
[#] From Adopted Levels.
[@] s-wave capture in 0$^+$ g.s. of ^{36}S.

γ(^{37}S)

Iγ normalization: Multiply by factor of 0.435 to obtain intensities per 100 neutron captures (1984Ra09).

E$_\gamma$	I$_\gamma$[†‡]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
646.171 *14*	215 *23*	646.177	3/2$^-$	0	7/2$^-$	I$_\gamma$: 0.0304 *10* per 100 incident neutrons (1997Be42).
751.32 *18*	1.5 *3*	1397.51	(3/2$^+$,5/2$^+$)	646.177	3/2$^-$	
810.85 *7*	2.4 *3*	(4303.61)	1/2$^+$	3492.72	3/2$^-$	
1041.71 *4*	8.1 *10*	(4303.61)	1/2$^+$	3261.91	3/2$^-$	
1239.18 *11*	3.1 *5*	3261.91	3/2$^-$	2022.88	(5/2$^-$,7/2$^-$)	
1345.75 *5*	7.3 *8*	1991.93	3/2$^-$	646.177	3/2$^-$	
1376.99 *21*	1.2 *3*	2022.88	(5/2$^-$,7/2$^-$)	646.177	3/2$^-$	
1469.50 *22*	1.4 *3*	3492.72	3/2$^-$	2022.88	(5/2$^-$,7/2$^-$)	
1665.695 *22*	52 *7*	(4303.61)	1/2$^+$	2637.87	1/2$^-$	I$_\gamma$: 0.0067 *8* per 100 incident neutrons, σ=55 mb *7* (1997Be42).
1991.59 *4*	54 *7*	2637.87	1/2$^-$	646.177	3/2$^-$	
(1991.9 *5*)	≈2	1991.93	3/2$^-$	0	7/2$^-$	E$_\gamma$,I$_\gamma$: inferred from level scheme.
2022.9 *5*	≈3	2022.88	(5/2$^-$,7/2$^-$)	0	7/2$^-$	I$_\gamma$: corrected (by 1984Ra09) for a γ ray from n-capture in ^{34}S.
2311.65 *8*	9.4 *12*	(4303.61)	1/2$^+$	1991.93	3/2$^-$	I$_\gamma$: 0.0038 *6* per 100 incident neutrons, σ=31 mb *5* (1997Be42).
2615.68 *12*	6.0 *10*	3261.91	3/2$^-$	646.177	3/2$^-$	
3657.28 *7*	161 *18*	(4303.61)	1/2$^+$	646.177	3/2$^-$	I$_\gamma$: 0.0187 *8* per 100 incident neutrons, σ=153 mb *10* (1997Be42).

Continued on next page (footnotes at end of table)

^{36}S(n,γ) E=thermal 1984Ra09 (continued)

$\gamma(^{37}S)$ (continued)

† Cross section in mb.
‡ For intensity per 100 neutron captures, multiply by 0.435.

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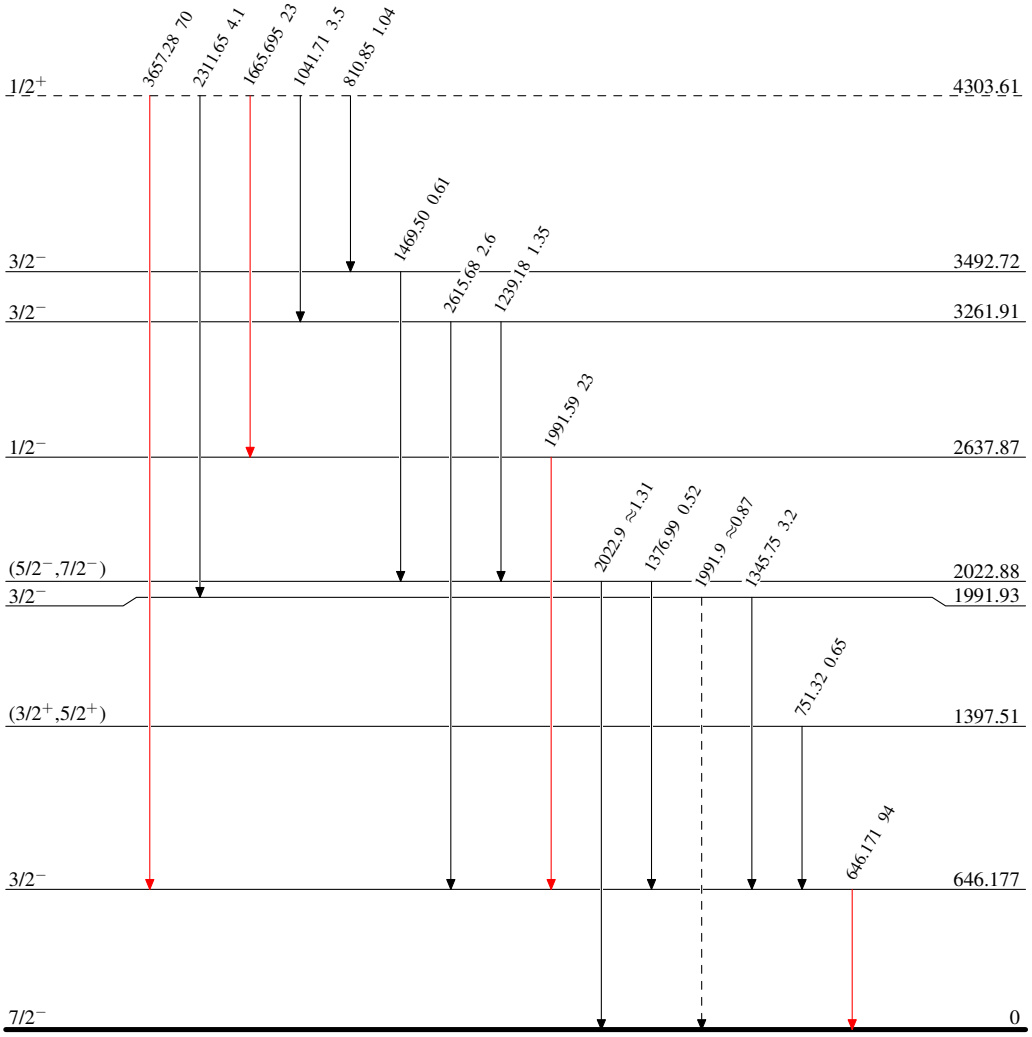
Level Scheme

Intensities: Per 100 neutron captures

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)



$^{37}_{16}S_{21}$