

¹¹⁵In($\alpha,3n\gamma$) 1982Va07

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 111, 717 (2010)	1-Dec-2009

E(α)=36,48 MeV (1982Va07).

Also ¹¹⁷Sn(p,2n γ).

Measured: γ , $\gamma\gamma$, $\gamma(\theta,t)$, ce (1982Va07) γ , $\gamma\gamma$, $\gamma(\theta,t)$ (1985BeZH).

Enriched target,Ge(Li), Si(Li) detectors, mini orange spectrometer.

γ from 1985BeZH not seen by 1982Va07 or 1982Du11 have been kept as unplaced.

¹¹⁶Sb Levels

E(level) [†]	J π [‡]	T _{1/2}	Comments
383	8 ⁻		Additional information 1.
681.79 8	6 ⁻		
809.21 6	7 ⁻		
1135.51 8	9 ⁻		
			T _{1/2} : 7.1 ns measured for 752.6 γ by 1985BeZH and assigned to 3731 level. The 752.6 γ has been reassigned to the 1135 level.
1159.00 7	7 ⁺	12.6 [#] ns	
1289.26 8	(6,7,8) ⁻		
1351.51 6	7 ⁻	1.0 [#] ns	
1451.24 @ 7	8 ⁻		
1666.33 @ 8	9 ⁻		
1782.12 & 7	11 ⁺	4.0 ns I	
1983.53 @ 9	10 ⁻		
2335.86 @ 10	11 ⁻		
2718.39 @ 11	12 ⁻		
2966.23 & 12	13 ⁺		
3004.93 14			
3128.48 @ 12	13 ⁻		
3207.06 & 15	14 ⁺	1.3 [#] ns	
3433.50 & 15	15 ⁺		
3572.28 @ 13	14 ⁻		
4031.00 18			

[†] No g.s. transitions observed. Energies are relative to (8⁻ isomer)=383.

[‡] Based on γ multiplicities.

[#] From 1985BeZH.

@ Band(A): negative parity band.

& Band(B): positive parity band.

$\gamma(^{116}\text{Sb})$

E γ	I γ [†]	E _i (level)	J π _i	E _f	J π _f	Mult. [#]	Comments
^x 53.5							
99.7 I	34 [‡] 4	1451.24	8 ⁻	1351.51	7 ⁻	M1,E2	$\alpha(\text{exp})=0.55$ 10
^x 121.8							
192.5 I	13.5 II	1351.51	7 ⁻	1159.00	7 ⁺	E1	$\alpha(\text{K})\text{exp}=0.027$ 3 B(E1)(W.u.)=7.0 $\times 10^{-6}$ Mult.: from 1991Ga16 in ($\alpha,n\gamma$). M1,E2 assigned by 1982Va07 who report $\alpha(\text{K})\text{exp}=0.067$ 34.

Continued on next page (footnotes at end of table)

$^{115}\text{In}(\alpha,3n\gamma)$ 1982Va07 (continued) $\gamma(^{116}\text{Sb})$ (continued)

E_γ	I_γ^\dagger	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. #	Comments
215.1 <i>I</i>	58 <i>3</i>	1666.33	9 ⁻	1451.24	8 ⁻	M1+E2	$\alpha(\text{K})\text{exp}=0.098$ <i>15</i>
226.5 <i>I</i>	8.7 <i>7</i>	3433.50	15 ⁺	3207.06	14 ⁺	M1,E2	$\alpha(\text{K})\text{exp}=0.063$ <i>23</i>
240.9 <i>I</i>	32.5 <i>11</i>	3207.06	14 ⁺	2966.23	13 ⁺	M1,E2	Mult.: authors claim $\Delta J=0,1$. $\alpha(\text{K})\text{exp}=0.067$ <i>8</i>
298.8 <i>I</i>	24.3 <i>8</i>	681.79	6 ⁻	383	8 ⁻	E2	Mult.: authors claim $\Delta J=0,1$. $\alpha(\text{K})\text{exp}=0.036$ <i>6</i>
317.3 <i>I</i>	53.3 <i>15</i>	1983.53	10 ⁻	1666.33	9 ⁻	M1,E2	Mult.: $\Delta J=2$ from the authors. $\alpha(\text{K})\text{exp}=0.029$ <i>7</i>
^x 341.1							
349.8 <i>I</i>	20.5 <i>7</i>	1159.00	7 ⁺	809.21	7 ⁻	E1	$\alpha(\text{K})\text{exp}=0.0051$ <i>10</i> $B(\text{E}1)(\text{W.u.})=2.23\times 10^{-7}$ Mult.: from 1991Ga16 in $(\alpha,n\gamma)$. M1,E2 assigned by 1982Va07 who report $\alpha(\text{K})\text{exp}=0.013$ <i>5</i> .
352.3 <i>I</i>	44.3 [‡] <i>14</i>	2335.86	11 ⁻	1983.53	10 ⁻	M1,E2	$\alpha(\text{K})\text{exp}=0.019$ <i>3</i>
382.5 <i>I</i>	18.0 <i>7</i>	2718.39	12 ⁻	2335.86	11 ⁻	M1,E2	$\alpha(\text{K})\text{exp}=0.020$ <i>6</i>
^x 389.1							
410.1 <i>I</i>	13.1 [‡] <i>12</i>	3128.48	13 ⁻	2718.39	12 ⁻		
^x 423.7							
426.2 <i>I</i>	61 [‡] <i>3</i>	809.21	7 ⁻	383	8 ⁻	M1,E2	$\alpha(\text{K})\text{exp}=0.011$ <i>2</i>
^x 435.3							
443.8 <i>I</i>	8.2 <i>5</i>	3572.28	14 ⁻	3128.48	13 ⁻		
467.2 <i>I</i>	31.5 <i>12</i>	3433.50	15 ⁺	2966.23	13 ⁺	E2	$\alpha(\text{K})\text{exp}=0.010$ <i>1</i>
480.1 <i>I</i>	9.5 <i>6</i>	1289.26	(6,7,8) ⁻	809.21	7 ⁻	M1,E2	$\alpha(\text{K})\text{exp}=0.008$ <i>3</i>
^x 507.0							
532.2 <i>I</i>	4.7 <i>6</i>	1983.53	10 ⁻	1451.24	8 ⁻	E2	$\alpha(\text{K})\text{exp}=0.007$ <i>3</i>
542.3 <i>I</i>	12 [‡] <i>2</i>	1351.51	7 ⁻	809.21	7 ⁻		
597.5 <i>I</i>		4031.00		3433.50	15 ⁺		E_γ : from 1985BeZH.
^x 635.5 <i>I</i>							
642.0 <i>I</i>	5.8 <i>6</i>	1451.24	8 ⁻	809.21	7 ⁻	M1,E2	$\alpha(\text{K})\text{exp}=0.003$ <i>1</i>
646.7 <i>I</i>	17.1 <i>7</i>	1782.12	11 ⁺	1135.51	9 ⁻	M2	$\alpha(\text{K})\text{exp}=0.014$ <i>3</i> $B(\text{M}2)(\text{W.u.})=0.421$ <i>21</i>
669.5 <i>I</i>	6 [‡] <i>1</i>	2335.86	11 ⁻	1666.33	9 ⁻		
669.7 <i>I</i>	12 [‡] <i>1</i>	1351.51	7 ⁻	681.79	6 ⁻		
734.9 <i>I</i>	6 [‡] <i>1</i>	2718.39	12 ⁻	1983.53	10 ⁻	E2	$\alpha(\text{K})\text{exp}=0.0041$ <i>9</i>
752.6 <i>I</i>	46 <i>2</i>	1135.51	9 ⁻	383	8 ⁻	M1,E2	$\alpha(\text{K})\text{exp}=0.0025$ <i>5</i> E_γ : $T_{1/2}=7.1$ ns was given by 1985BeZH but the transition was assigned to a 3731 level?
776.0 <i>I</i>	28 <i>1</i>	1159.00	7 ⁺	383	8 ⁻	E1	$\alpha(\text{K})\text{exp}=0.0093$ <i>23</i> $B(\text{E}1)(\text{W.u.})=2.79\times 10^{-8}$ Mult.: from $\gamma(\theta)$ and linear polarization in ($^7\text{Li},4n\gamma$) (1982Du11) and $\alpha(\text{K})\text{exp}$ 1991Ga16 in $(\alpha,n\gamma)$. 1982Va07 assign M1,E2 for 776 γ , based on $\alpha(\text{K})\text{exp}=0.00022$ <i>4</i> .
792.6 <i>I</i>	6.9 <i>7</i>	3128.48	13 ⁻	2335.86	11 ⁻	E2	$\alpha(\text{K})\text{exp}=0.0027$ <i>4</i>
^x 828.7							
853.9 <i>I</i>	3.4 <i>12</i>	3572.28	14 ⁻	2718.39	12 ⁻		
906.2 <i>I</i>	3.4 <i>7</i>	1289.26	(6,7,8) ⁻	383	8 ⁻		
968.5 <i>I</i>	39.1 <i>14</i>	1351.51	7 ⁻	383	8 ⁻	M1,E2	$\alpha(\text{K})\text{exp}=0.0012$ <i>5</i>
^x 1014.5							
1021.4 <i>I</i>		3004.93		1983.53	10 ⁻		E_γ : from 1985BeZH.
^x 1122.0							
1184.1 <i>I</i>	72 <i>2</i>	2966.23	13 ⁺	1782.12	11 ⁺	E2	$\alpha(\text{K})\text{exp}=0.0009$ <i>2</i>
1283.4 <i>I</i>	3.7 <i>8</i>	1666.33	9 ⁻	383	8 ⁻		
1399.0 <i>I</i>	100	1782.12	11 ⁺	383	8 ⁻	E3	$\alpha(\text{K})\text{exp}=0.0013$ <i>2</i>

Continued on next page (footnotes at end of table)

 $^{115}\text{In}(\alpha,3n\gamma)$ **1982Va07 (continued)**

 $\gamma(^{116}\text{Sb})$ (continued)

<u>E_γ</u>	<u>$E_i(\text{level})$</u>	<u>Comments</u>
		B(E3)(W.u.)=30.9 8 Mult.: stretched $\Delta J=3$ from the authors.

† From [1982Va07](#).

‡ From $\gamma\gamma$.

From adopted γ 's and based on $\alpha(\text{K})\text{exp}$ and $\gamma(\theta)$ in this dataset ([1982Va07](#)), as well as on $\alpha(\text{K})\text{exp}$ in $(\alpha,n\gamma)$.

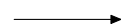


^x γ ray not placed in level scheme.

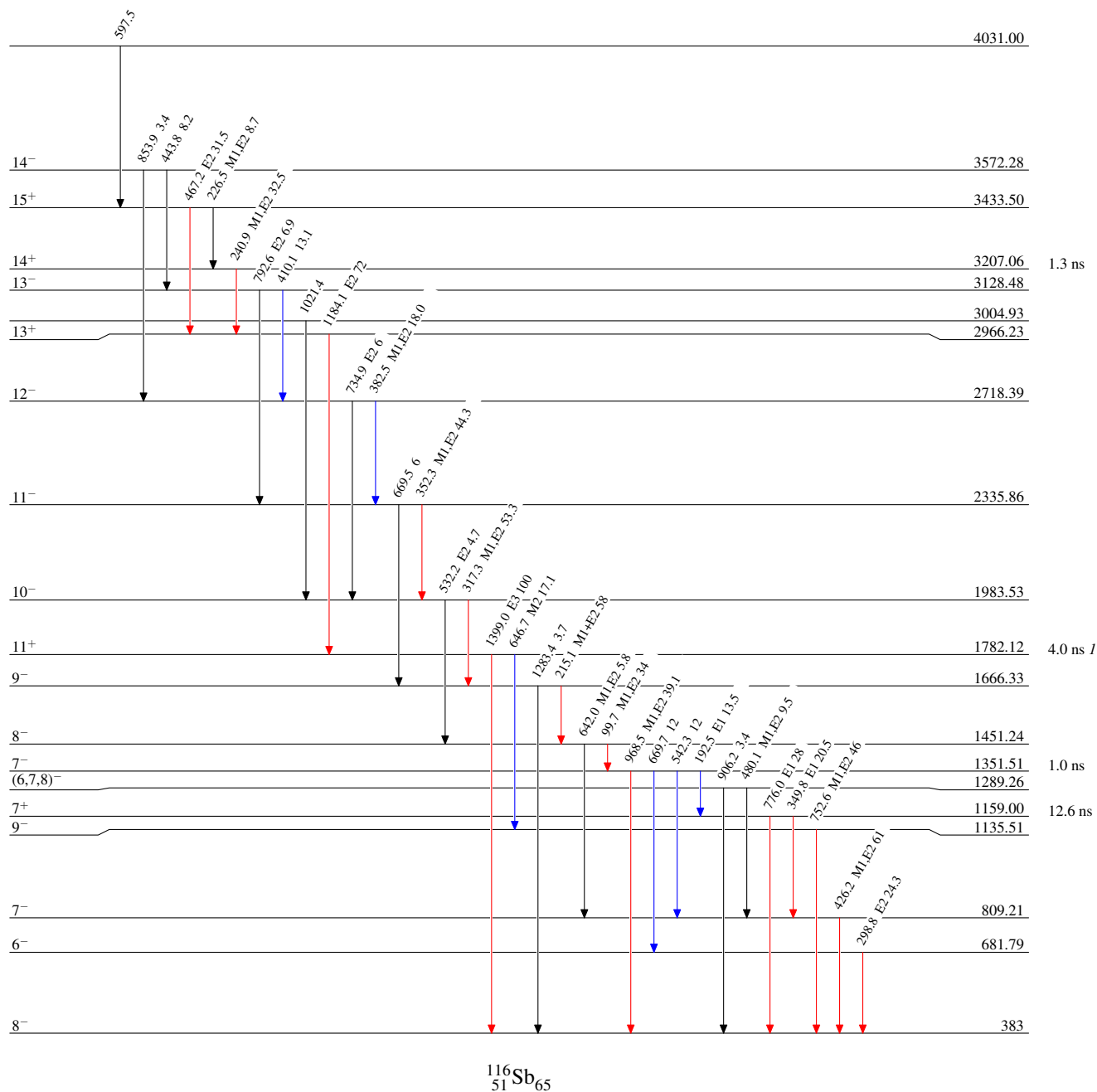
$^{115}\text{In}(\alpha,3n\gamma)$ 1982Va07

Level Scheme

Intensities: Relative I_γ

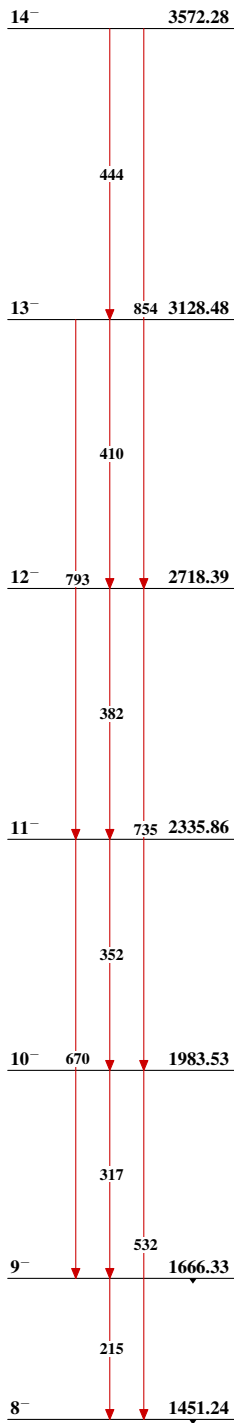
Legend

-  $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
 $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
 $I_\gamma > 10\% \times I_\gamma^{\text{max}}$

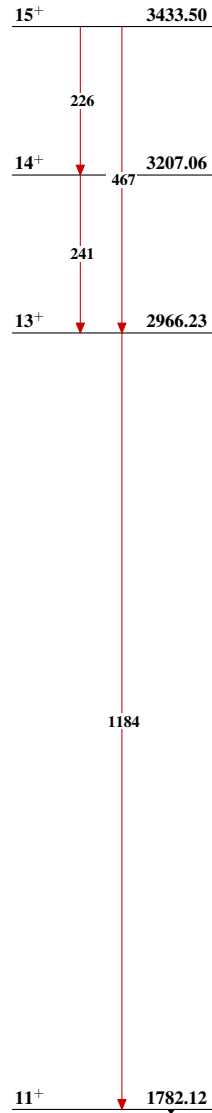


$^{115}\text{In}(\alpha,3n\gamma)$ 1982Va07

Band(A): Negative parity band



Band(B): Positive parity band

 $^{116}_{51}\text{Sb}_{65}$