²⁹Si(n,γ) E=thermal **1992Ra19,1990Is02**

	Histor	у	
Туре	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia, A. Chakraborty	NDS 197,1 (2024)	31-May-2024

Others: 1970Be48, 1970Sp02, 1974Sp04.

1992Ra19: Target: 5.73% enriched ²⁹Si; E_n =Thermal; Measured E γ , I γ with Compton suppressed HPGe mode or pair spectrometer mode.

1990Is02: Target: High-purity quartz (SiO₂) rod; E_n=Thermal; Measured E_Y (>2235 keV), I_Y with pair spectrometer.

2007ChZX: provides an evaluation of experimental data (n,γ) , E=thermal from Budapest reactor, natural silicon target; Ge(Li) detector, measured E γ , I γ ; (taken from the EGAF section of the Cd that is part of this publication). Supersedes 2003ChZS. The reported γ -ray energies and intensities of 2007ChZX are statistically consistent with those of 1992Ra19 and 1990Is02 (discrepant data noted), however, less precise datum are not included in weighted average.

³⁰Si Levels

E(level) [†]	$J^{\pi \ddagger}$	Comments
0	0^{+}	
2235.311 23	2+	
3498.51 <i>4</i>	2+	
3769.49 4	1+	
3787.71 5	0^{+}	
4810.34 11	2+	
4830.84 4	3+	
5231.56 7	3+	
5372.2 6	0^{+}	
5487.56 6	3-	
5614.04 12	2^{+}	
6641.20 6	2-	
6744.06 <i>3</i>	1-	
6914.78 <i>19</i>	2^{+}	
7507.86 4	(2 ⁻)	
7667.2 4	$(1,2)^+$	
8104.9 <i>3</i>	$(2^+, 3^+)$	
8154.83 25	(1,2)	
8163.18 4	1-	J^{π} : from 1974Sp04, (pol n, γ),(n, γ).
8898.08 10	1-	
8936.5 <i>3</i>		E(level): 8938 keV in the Adopted Levels.
8953.29 12	(1,2)	
9103.73 4	$(1,2)^{-}$	
9308.07 6		
9597.17 9		
9619.75 6	(1^{-})	
9792.34 6	1-	
10202.09 8	(1^{-})	
10275.8 3	(0+ 1+)	
10609.20 2	(0',1')	E(level): from neutron separation energy (2021Wa16). Other: 10609.5 7 (19/0Sp02). 3865 γ , 3101 γ , and 2446 γ to 1 ⁻ , 2 ⁻ , 1 ⁻ states, respectively. J^{π} =(1 ⁺ ,2 ⁺) in 1990Is02.

[†] From a least squares fit to the γ -ray energies.

[‡] From the Adopted Levels, except where noted.

			²⁹ Si(n, γ) l	E=thermal	1992Ra	19,1990Is02	(continued)
					γ (³⁰ Si)		
${\rm E_{\gamma}}^{\dagger}$	Ι _γ & <i>b</i>	E _i (level)	\mathbf{J}_i^{π}	E_f	\mathbf{J}_{f}^{π}	σ (mb) ^{<i>a</i>}	Comments
271.0 ^C	< 0.04	3769.49	1+	3498.51	2+	< 0.05	
289.2 ^c	< 0.04	3787.71	0^{+}	3498.51	2+	< 0.05	
^x 295.7 4	0.03 1					0.04 1	
x326.0 4	0.08 2	10/00 00				0.10 2	
333.3 3 x255.90.9	0.11 3	10609.20	$(0^+, 1^+)$	10275.8		0.13 3	
~333.80 8 400 0 4	0.29 3	5221 56	2+	1820 81	2+	0.34 3	
400.9 4	0.032	10609.20	$(0^+ 1^+)$	10202.09	(1^{-})	0.002	
421.0.5	0.06.2	5231 56	3+	4810 34	2^+	0.07 2	
^x 646.8 3	0.10 2	5251.50	5	1010.51	-	0.12 2	
x692.5 5	0.08 2					0.10 2	
816.87 5	1.09 5	10609.20	$(0^+, 1^+)$	9792.34	1-	1.30 6	
989.45 5	1.06 5	10609.20	$(0^+, 1^+)$	9619.75	(1 ⁻)	1.26 6	
998.9 <i>3</i>	0.25 3	9103.73	$(1,2)^{-}$	8104.9	$(2^+, 3^+)$	0.30 3	
1012.05 9	0.82 4	10609.20	$(0^+, 1^+)$	9597.17	o.+	0.98 5	
1022.6	< 0.03	4810.34	2+	3787.71	0^+	< 0.04	
1027.10	< 0.03	6641.20	2	2760.40	2	< 0.04	
1040.9°	< 0.03	4810.34	2+ 3+	3760.49	1 ⁺	< 0.04	
1153 61 13	0.03	6641 20	2- 2-	5487 56	3-	< 0.04	
(1248.0)	0.13 6	8163.18	1-	6914.78	2+	0.15 7	
1263.18 [@] 6	5.51 17	3498.51	2+	2235.311	2+	6.56 20	I_{γ} : others: 9.5 20 per 100 neutron captures (2007CbZX)
1301.12 5	1.52 5	10609.20	$(0^+, 1^+)$	9308.07		1.81 6	()
1311.80 14	0.40 3	4810.34	2+	3498.51	2^{+}	0.48 4	
1332.48 16	0.29 3	4830.84	3+	3498.51	2+	0.34 4	
1390.3 5	0.06 2	8898.08	1-	7507.86	(2 ⁻)	0.07 2	
1409.6 ^c	< 0.03	6641.20	2-	5231.56	3+	< 0.04	
1462.0 ^c	< 0.03	5231.56	3+	3769.49	1+	< 0.04	
~1409.2 4	0.14 5	10(00.00	(0+ 1+)	0100 50	(1.0)-	0.17 5	
1505.46 4	3.79 12	10609.20	$(0^+,1^+)$	9103.73	(1,2)	4.51 14	
1534.12 [@] 4	5.52 17	3769.49	1+	2235.311	2+	6.57 20	
1552.36 ^{^w} 4	3.61 11	3787.71	0^{+}	2235.311	2+	4.30 13	I_{γ} : 6.3 <i>14</i> per 100 neutron captures (2007ChZX).
1602.8 [@] 9	0.08 3	5372.2	0+	3769.49	1+	0.10 3	I_{γ} : 8.9 <i>19</i> per 100 neutron captures (2007ChZX).
1655.89 12	0.70 4	10609.20	$(0^+, 1^+)$	8953.29	(1,2)	0.83 5	
1672.7 3	0.27 3	10609.20	$(0^+, 1^+)$	8936.5		0.32 3	
1711.3 3	4.2.8	10609.20	$(0^+, 1^+)$	8898.08	1-	51	
1/33.0 1	1.11.5	5231.56	3'	3498.51	2+	1.32.6	
1810.42 22 1830 6 <i>A</i>	0.45 5	6641.20	2-	4830.84	3* 2+	$0.54 \ 4$ 0.27 4	
1844 40 16	$0.23 \ 3$ 0 52 4	5614.04	$\frac{2}{2^{+}}$	3769 49	1 ⁺	$0.27 \neq$ 0.62 5	
1893.6.5	0.16.3	7507.86	(2^{-})	5614.04	2+	0.19 4	
1933.9 5	0.18 3	6744.06	1-	4810.34	$\bar{2}^{+}$	0.22 4	
1989.02 7	1.06 5	5487.56	3-	3498.51	2^{+}	1.26 6	
2020.33 23	1.27 5	7507.86	(2^{-})	5487.56	3-	1.51 6	
2154.3 6	0.12 3	8898.08	1-	6744.06	1-	0.14 3	
2235.23 [@] 3	45.6 13	2235.311	2+	0	0^{+}	54.3 16	
2256.7 4	0.21 3	8898.08	1-	6641.20	2-	0.25 4	
2276.22 8	1.24 6	7507.86	(2-)	5231.56	3+	1.48 7	
2359.57 4	3.52 11	9103.73	$(1,2)^{-}$	6744.06	1-	4.19 <i>13</i>	
2445.94 ^{^w 3}	7.9 <i>3</i>	10609.20	$(0^+, 1^+)$	8163.18	1-	9.4 <i>3</i>	

Continued on next page (footnotes at end of table)

$\frac{{}^{29}\text{Si}(n,\gamma) \text{ E=thermal } 1992\text{Ra19,1990Is02 (continued)}}{\underline{\gamma}^{(30}\text{Si}) (continued)}$ $\frac{E_{\gamma}^{\dagger}}{54.5 \ 3} \qquad \frac{I_{\gamma}^{\&b}}{0.25 \ 3} \qquad \frac{E_i(\text{level})}{10609.20} \qquad \frac{J_i^{\pi}}{(0^+,1^+)} \qquad \frac{E_f}{8154.83} \qquad \frac{J_f^{\pi}}{(1,2)} \qquad \frac{\sigma \ (\text{mb})^a}{0.30 \ 3} \qquad \underbrace{\text{Comments}}$ $\frac{60.33}{10609.20} \qquad \underbrace{10609.20}_{(0^+,1^+)} \qquad \underbrace{104.9}_{2235.311} \qquad \underbrace{2^+}_{2235.311} \qquad \underbrace{2^+}_{21} \qquad \underbrace{235.31}_{3.5 \ 10} \qquad \underbrace{105.4}_{21} \qquad \underbrace{105.4}_{21$

2454.5 3	0.25 3	10609.20	$(0^+, 1^+)$	8154.83	(1,2)	0.30 3	
2504.3 ^c	< 0.03	10609.20	$(0^+, 1^+)$	8104.9	$(2^+, 3^+)$	< 0.04	
2574.8 5	0.13 3	4810.34	2^{+}	2235.311	2+	0.15 4	
2595.39 4	2.81 8	4830.84	3+	2235.311	2+	3.35 10	
(2667.0 6)	0.05 2	8154.83	(1,2)	5487.56	3-	0.06 2	
2667.0 6	0.13 3	9308.07		6641.20	2-	0.16 4	
2676.87 [@] 6	2.18 9	7507.86	(2 ⁻)	4830.84	3+	2.59 11	I_{γ} : 5.5 <i>13</i> per 100 neutron captures (2007ChZX).
^x 2747.6 5	0.11 3					0.13 3	
2871.6 3	0.34 4	6641.20	2-	3769.49	1^{+}	0.40 5	
2941.9 5	0.18 3	10609.20	$(0^+, 1^+)$	7667.2	$(1,2)^+$	0.22 3	
2956.25 12	1.09 6	6744.06	1-	3787.71	0+	1.30 7	
2996.2 9	0.12 3	5231.56	3+	2235.311	2+	0.14 3	
3101 19 [@] 3	2378	10609-20	$(0^+ 1^+)$	7507 86	(2^{-})	28.2.9	
3136.6.7	0133	5372.2	0^+	2235 311	2^+	0.15.4	
3142.5 ^C	<0.06	6641.20	2-	3498 51	$\frac{2}{2^{+}}$	<0.07	
3145.1 ^C	<0.05	6914 78	$\frac{2}{2^{+}}$	3769.49	1+	<0.07	
3252.00.9	1 10 5	5487 56	3-	2235 311	2+	1 31 6	
3283.8.3	0.36.4	8898.08	1-	5614.04	$\frac{2}{2^{+}}$	0.43 5	
3294.9.9	0.05 2	8104.9	$(2^+ 3^+)$	4810 34	$\frac{2}{2^{+}}$	0.45.5	
3378 68 25	0.38 4	5614.04	2^+	2235 311	$\frac{2}{2^{+}}$	0.45 5	
3415 7 7	0.13.3	6914 78	$\frac{2}{2^{+}}$	3498 51	$\frac{2}{2^{+}}$	0.15.5	
2409 22 @ 5	5 42 17	3409 51	2+	0	2 0+	6 45 20	
2602.90	-0.08	0208.07	Z	5614.04	$^{0}_{2^{+}}$	<0.45 20	
3604 2 3	1 10 6	10600.20	$(0^{+} 1^{+})$	5014.04 6014.78	$\frac{2}{2^{+}}$	1 31 7	
3738 20 18	1.10.0	7507.86	(0, 1) (2^{-})	3760 /0	2 1+	1.317	
3738.2018	1.71 0	7507.80	(2)	5709.49	1	2.04 10	
3/69.22 5	4.70 14	3769.49	1 ' 0+	0	0^{+}	5.59 17	
(3/8/.6)		3/8/./1	01	0	0		
3864.89 ^w 3	29.8 9	10609.20	$(0^+, 1^+)$	6744.06	1-	35.5 11	I_{γ} : 42 6 per 100 neutron captures (2007ChZX).
3967.78 [@] 9	3.95 13	10609.20	$(0^+, 1^+)$	6641.20	2-	4.70 15	I_{γ} : 6.3 <i>17</i> per 100 neutron captures (2007ChZX).
4009.09 [‡] 21	0.93 4	7507.86	(2^{-})	3498 51	2+	1.11 5	
4087.6.5	0.70 .	/50/.00		5170.51			
+007.0 5	0.34 3	8898.08	1-	4810.34	2+	0.40 4	
4168.4 ^c	0.34 <i>3</i> <0.05	8898.08 7667.2	1^{-} (1,2) ⁺	4810.34 3498.51	2^+ 2^+	0.40 <i>4</i> <0.06	
4168.4 ^c 4375.18 <i>15</i>	0.34 <i>3</i> <0.05 1.22 <i>5</i>	8898.08 7667.2 8163.18	$(1,2)^+$ $(1,2)^+$	4810.34 3498.51 3787.71	2+ 2+ 0+	0.40 <i>4</i> <0.06 1.45 <i>6</i>	
4168.4 ^c 4375.18 <i>15</i> 4393.43 <i>23</i>	0.34 <i>3</i> <0.05 1.22 <i>5</i> 0.71 <i>4</i>	8898.08 7667.2 8163.18 8163.18	1^{-} (1,2) ⁺ 1^{-} 1^{-}	4810.34 3498.51 3787.71 3769.49	2^+ 2^+ 0^+ 1^+	0.40 <i>4</i> <0.06 1.45 <i>6</i> 0.84 <i>5</i>	
$\begin{array}{c} 4168.4^{C} \\ 4375.18 \ 15 \\ 4393.43 \ 23 \\ 4405.56^{\textcircled{0}} \ 8 \end{array}$	0.34 <i>3</i> <0.05 1.22 <i>5</i> 0.71 <i>4</i> 2.91 <i>9</i>	8898.08 7667.2 8163.18 8163.18 6641.20	1^{-} (1,2) ⁺ 1^{-} 1^{-} 2^{-}	4810.34 3498.51 3787.71 3769.49 2235.311	2+ 2+ 0+ 1+ 2+	0.40 4 <0.06 1.45 6 0.84 5 3.46 11	I _γ : 7.4 20 per 100 neutron captures (2007ChZX).
$\begin{array}{c} 4007.0 \ 3\\ 4168.4^{C}\\ 4375.18 \ 15\\ 4393.43 \ 23\\ 4405.56^{\textcircled{0}} \ 8\\ 4508.64 \ 17 \end{array}$	$\begin{array}{c} 0.34 \ 3 \\ < 0.05 \\ 1.22 \ 5 \\ 0.71 \ 4 \\ 2.91 \ 9 \\ 0.66 \ 4 \end{array}$	8898.08 7667.2 8163.18 8163.18 6641.20 6744.06	1^{-} (1,2) ⁺ 1^{-} 2^{-} 1^{-}	4810.34 3498.51 3787.71 3769.49 2235.311	2 ⁺ 2 ⁺ 0 ⁺ 1 ⁺ 2 ⁺ 2 ⁺	0.40 4 <0.06 1.45 6 0.84 5 3.46 11 0.79 5	I _γ : 7.4 20 per 100 neutron captures (2007ChZX).
$\begin{array}{c} 4007.0 \ 3\\ 4168.4^{C}\\ 4375.18 \ 15\\ 4393.43 \ 23\\ 4405.56^{\textcircled{0}} \ 8\\ 4508.64 \ 17\\ (4656) \end{array}$	$\begin{array}{c} 0.34 \ 3 \\ < 0.05 \\ 1.22 \ 5 \\ 0.71 \ 4 \\ 2.91 \ 9 \\ 0.66 \ 4 \\ 0.06 \ 2 \end{array}$	8898.08 7667.2 8163.18 8163.18 6641.20 6744.06 8154.83	1^{-} (1,2) ⁺ 1^{-} 1^{-} 2^{-} 1^{-} (1,2)	4810.34 3498.51 3787.71 3769.49 2235.311 2235.311 3498.51	2^+ 2^+ 0^+ 1^+ 2^+ 2^+ 2^+	0.40 4 <0.06 1.45 6 0.84 5 3.46 11 0.79 5 0.07 2	I _γ : 7.4 20 per 100 neutron captures (2007ChZX).
$\begin{array}{c} 4168.4^{C} \\ 4375.18 \ 15 \\ 4393.43 \ 23 \\ 4405.56^{\textcircled{0}} \ 8 \\ 4508.64 \ 17 \\ (4656) \\ 4664.36 \ 12 \end{array}$	$\begin{array}{c} 0.34 \ 3 \\ < 0.05 \\ 1.22 \ 5 \\ 0.71 \ 4 \\ 2.91 \ 9 \\ 0.66 \ 4 \\ 0.06 \ 2 \\ 1.13 \ 4 \end{array}$	8898.08 7667.2 8163.18 8163.18 6641.20 6744.06 8154.83 8163.18	1^{-} $(1,2)^{+}$ 1^{-} 1^{-} 2^{-} 1^{-} (1,2) 1^{-}	4810.34 3498.51 3787.71 3769.49 2235.311 2235.311 3498.51 3498.51	2+ 2+ 0+ 1+ 2+ 2+ 2+ 2+ 2+	0.40 4 <0.06 1.45 6 0.84 5 3.46 11 0.79 5 0.07 2 1.35 5	I _γ : 7.4 <i>20</i> per 100 neutron captures (2007ChZX).
$\begin{array}{c} 4168.4^{c} \\ 4375.18 \ 15 \\ 4393.43 \ 23 \\ 4405.56^{\textcircled{0}} \ 8 \\ 4508.64 \ 17 \\ (4656) \\ 4664.36 \ 12 \\ 4679.2 \ 3 \end{array}$	$\begin{array}{c} 0.34 \ 3\\ < 0.05\\ 1.22 \ 5\\ 0.71 \ 4\\ 2.91 \ 9\\ \hline 0.66 \ 4\\ 0.06 \ 2\\ 1.13 \ 4\\ 0.43 \ 3\\ \end{array}$	8898.08 7667.2 8163.18 8163.18 6641.20 6744.06 8154.83 8163.18 6914.78	$ \begin{array}{c} 1^{-} \\ (1,2)^{+} \\ 1^{-} \\ 1^{-} \\ 2^{-} \\ 1^{-} \\ (1,2) \\ 1^{-} \\ 2^{+} \\ \end{array} $	4810.34 3498.51 3787.71 3769.49 2235.311 2235.311 3498.51 3498.51 2235.311	2^+ 2^+ 1^+ 2^+ 2^+ 2^+ 2^+ 2^+ 2^+	$\begin{array}{c} 0.40 \ 4 \\ < 0.06 \\ 1.45 \ 6 \\ 0.84 \ 5 \\ 3.46 \ 11 \\ 0.79 \ 5 \\ 0.07 \ 2 \\ 1.35 \ 5 \\ 0.51 \ 4 \end{array}$	I _γ : 7.4 <i>20</i> per 100 neutron captures (2007ChZX).
$\begin{array}{c} 4168.4^{c} \\ 4375.18 \ 15 \\ 4393.43 \ 23 \\ 4405.56^{\textcircled{0}} \ 8 \\ 4508.64 \ 17 \\ (4656) \\ 4664.36 \ 12 \\ 4679.2 \ 3 \\ 4766.7 \ 7 \end{array}$	$\begin{array}{c} 0.34 \ 3 \\ < 0.05 \\ 1.22 \ 5 \\ 0.71 \ 4 \\ 2.91 \ 9 \\ \hline \\ 0.66 \ 4 \\ 0.06 \ 2 \\ 1.13 \ 4 \\ 0.43 \ 3 \\ 0.10 \ 3 \end{array}$	8898.08 7667.2 8163.18 8163.18 6641.20 6744.06 8154.83 8163.18 6914.78 9597.17	1^{-} (1,2) ⁺ 1^{-} 1^{-} (1,2) 1^{-} 2^{+}	4810.34 3498.51 3787.71 3769.49 2235.311 2235.311 3498.51 3498.51 2235.311 4830.84	$2^{+} \\ 2^{+} \\ 0^{+} \\ 1^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 3^{+} $	$\begin{array}{c} 0.40 \ 4 \\ < 0.06 \\ 1.45 \ 6 \\ 0.84 \ 5 \\ 3.46 \ 11 \\ 0.79 \ 5 \\ 0.07 \ 2 \\ 1.35 \ 5 \\ 0.51 \ 4 \\ 0.12 \ 3 \end{array}$	I _γ : 7.4 <i>20</i> per 100 neutron captures (2007ChZX).
$\begin{array}{c} 4168.4^{c}\\ 4375.18 \ 15\\ 4393.43 \ 23\\ 4405.56^{\textcircled{0}} \ 8\\ 4508.64 \ 17\\ (4656)\\ 4664.36 \ 12\\ 4679.2 \ 3\\ 4766.7 \ 7\\ 4786.5 \ 8\\ \end{array}$	$\begin{array}{c} 0.34 \ 3 \\ < 0.05 \\ 1.22 \ 5 \\ 0.71 \ 4 \\ 2.91 \ 9 \\ \hline \\ 0.66 \ 4 \\ 0.06 \ 2 \\ 1.13 \ 4 \\ 0.43 \ 3 \\ 0.10 \ 3 \\ 0.08 \ 3 \end{array}$	8898.08 7667.2 8163.18 8163.18 6641.20 6744.06 8154.83 8163.18 6914.78 9597.17 9597.17	1^{-} (1,2) ⁺ 1^{-} 1^{-} (1,2) 1^{-} 2^{+}	4810.34 3498.51 3787.71 3769.49 2235.311 2235.311 3498.51 3498.51 2235.311 4830.84 4810.34	$2^{+} \\ 2^{+} \\ 0^{+} \\ 1^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 3^{+} \\ 2^{+} \\ 2^{+} $	$\begin{array}{c} 0.40 \ 4 \\ < 0.06 \\ 1.45 \ 6 \\ 0.84 \ 5 \\ 3.46 \ 11 \\ 0.79 \ 5 \\ 0.07 \ 2 \\ 1.35 \ 5 \\ 0.51 \ 4 \\ 0.12 \ 3 \\ 0.10 \ 3 \end{array}$	I _γ : 7.4 <i>20</i> per 100 neutron captures (2007ChZX).
$\begin{array}{c} 4168.4^{c}\\ 4375.18 \ 15\\ 4393.43 \ 23\\ 4405.56^{\textcircled{0}} \ 8\\ 4508.64 \ 17\\ (4656)\\ 4664.36 \ 12\\ 4679.2 \ 3\\ 4766.7 \ 7\\ 4786.5 \ 8\\ 4810.0 \ 3\\ \end{array}$	$\begin{array}{c} 0.34 \ 3 \\ < 0.05 \\ 1.22 \ 5 \\ 0.71 \ 4 \\ 2.91 \ 9 \\ \hline \\ 0.66 \ 4 \\ 0.06 \ 2 \\ 1.13 \ 4 \\ 0.43 \ 3 \\ 0.10 \ 3 \\ 0.08 \ 3 \\ 0.45 \ 3 \\ \end{array}$	8898.08 7667.2 8163.18 8163.18 6641.20 6744.06 8154.83 8163.18 6914.78 9597.17 9597.17 4810.34	1^{-} (1,2) ⁺ 1^{-} 1^{-} (1,2) 1^{-} 2^{+} 2^{+}	4810.34 3498.51 3787.71 3769.49 2235.311 2235.311 3498.51 2235.311 4830.84 4810.34 0	$2^{+} \\ 2^{+} \\ 0^{+} \\ 1^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 3^{+} \\ 2^{+} \\ 0^{+$	$\begin{array}{c} 0.40 \ 4 \\ < 0.06 \\ 1.45 \ 6 \\ 0.84 \ 5 \\ 3.46 \ 11 \\ 0.79 \ 5 \\ 0.07 \ 2 \\ 1.35 \ 5 \\ 0.51 \ 4 \\ 0.12 \ 3 \\ 0.10 \ 3 \\ 0.54 \ 4 \end{array}$	I _γ : 7.4 <i>20</i> per 100 neutron captures (2007ChZX).
$\begin{array}{c} 4168.4^{c} \\ 4375.18 \ 15 \\ 4393.43 \ 23 \\ 4405.56^{\textcircled{0}} \ 8 \\ 4508.64 \ 17 \\ (4656) \\ 4664.36 \ 12 \\ 4679.2 \ 3 \\ 4766.7 \ 7 \\ 4786.5 \ 8 \\ 4810.0 \ 3 \\ 4994.9 \ 7 \end{array}$	$\begin{array}{c} 0.34 \ 3 \\ < 0.05 \\ 1.22 \ 5 \\ 0.71 \ 4 \\ 2.91 \ 9 \\ \hline \\ 0.66 \ 4 \\ 0.06 \ 2 \\ 1.13 \ 4 \\ 0.43 \ 3 \\ 0.10 \ 3 \\ 0.08 \ 3 \\ 0.45 \ 3 \\ 0.27 \ 4 \\ \end{array}$	8898.08 7667.2 8163.18 8163.18 6641.20 6744.06 8154.83 8163.18 6914.78 9597.17 9597.17 4810.34 10609.20	$ \begin{array}{c} 1^{-} \\ (1,2)^{+} \\ 1^{-} \\ 1^{-} \\ 2^{-} \\ 1^{-} \\ (1,2) \\ 1^{-} \\ 2^{+} \\ 2^{+} \\ (0^{+},1^{+}) \end{array} $	4810.34 3498.51 3787.71 3769.49 2235.311 3498.51 3498.51 2235.311 4830.84 4810.34 0 5614.04	$2^{+} \\ 2^{+} \\ 0^{+} \\ 1^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 3^{+} \\ 2^{+} \\ 0^{+} \\ 2^{+} \\ 2^{+} \\ 0^{+} \\ 2^{+} \\ 0^{+} \\ 2^{+} \\ 0^{+} \\ 2^{+} \\ 0^{+} \\ 0^{+} \\ 2^{+} \\ 0^{+$	$\begin{array}{c} 0.40 \ 4 \\ < 0.06 \\ 1.45 \ 6 \\ 0.84 \ 5 \\ 3.46 \ 11 \\ 0.79 \ 5 \\ 0.07 \ 2 \\ 1.35 \ 5 \\ 0.51 \ 4 \\ 0.12 \ 3 \\ 0.10 \ 3 \\ 0.54 \ 4 \\ 0.32 \ 5 \end{array}$	I _γ : 7.4 <i>20</i> per 100 neutron captures (2007ChZX).
$\begin{array}{c} 4168.4^{c}\\ 4375.18 \ 15\\ 4393.43 \ 23\\ 4405.56^{@} \ 8\\ 4508.64 \ 17\\ (4656)\\ 4664.36 \ 12\\ 4679.2 \ 3\\ 4766.7 \ 7\\ 4786.5 \ 8\\ 4810.0 \ 3\\ 4994.9 \ 7\\ 5128.18^{\#} \ 17\\ \end{array}$	$\begin{array}{c} 0.34 \ 3 \\ < 0.05 \\ 1.22 \ 5 \\ 0.71 \ 4 \\ 2.91 \ 9 \\ \hline \\ 0.66 \ 4 \\ 0.06 \ 2 \\ 1.13 \ 4 \\ 0.43 \ 3 \\ 0.10 \ 3 \\ 0.08 \ 3 \\ 0.45 \ 3 \\ 0.27 \ 4 \\ 1.64 \ 7 \end{array}$	8898.08 7667.2 8163.18 8163.18 6641.20 6744.06 8154.83 8163.18 6914.78 9597.17 9597.17 4810.34 10609.20 8898.08	$\begin{array}{c} 1^{-} \\ (1,2)^{+} \\ 1^{-} \\ 1^{-} \\ 2^{-} \\ 1^{-} \\ (1,2) \\ 1^{-} \\ 2^{+} \\ 2^{+} \\ (0^{+},1^{+}) \\ 1^{-} \end{array}$	4810.34 3498.51 3787.71 3769.49 2235.311 2235.311 2235.311 3498.51 2235.311 4830.84 4810.34 0 5614.04 3769.49	$2^{+} \\ 2^{+} \\ 0^{+} \\ 1^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 1^{+} \\ 1^{+} $	$\begin{array}{c} 0.40 \ 4 \\ < 0.06 \\ 1.45 \ 6 \\ 0.84 \ 5 \\ 3.46 \ 11 \\ 0.79 \ 5 \\ 0.07 \ 2 \\ 1.35 \ 5 \\ 0.51 \ 4 \\ 0.12 \ 3 \\ 0.10 \ 3 \\ 0.54 \ 4 \\ 0.32 \ 5 \\ 1.95 \ 8 \end{array}$	I _y : 7.4 20 per 100 neutron captures (2007ChZX).
$\begin{array}{r} 4168.4^{c}\\ 4375.18 \ 15\\ 4393.43 \ 23\\ 4405.56^{@} \ 8\\ 4508.64 \ 17\\ (4656)\\ 4664.36 \ 12\\ 4679.2 \ 3\\ 4766.7 \ 7\\ 4786.5 \ 8\\ 4810.0 \ 3\\ 4994.9 \ 7\\ 5128.18^{\#} \ 17\\ 5272.09^{\ddagger} \ 7\end{array}$	$\begin{array}{c} 0.34 \ 3 \\ < 0.05 \\ 1.22 \ 5 \\ 0.71 \ 4 \\ 2.91 \ 9 \\ \hline \\ 0.66 \ 4 \\ 0.06 \ 2 \\ 1.13 \ 4 \\ 0.43 \ 3 \\ 0.10 \ 3 \\ 0.08 \ 3 \\ 0.45 \ 3 \\ 0.27 \ 4 \\ 1.64 \ 7 \\ 15.8 \ 5 \end{array}$	8898.08 7667.2 8163.18 8163.18 6641.20 6744.06 8154.83 8163.18 6914.78 9597.17 9597.17 4810.34 10609.20 8898.08 7507.86	$ \begin{array}{c} 1^{-} \\ (1,2)^{+} \\ 1^{-} \\ 1^{-} \\ 2^{-} \\ 1^{-} \\ (1,2) \\ 1^{-} \\ 2^{+} \\ \end{array} $ $ \begin{array}{c} 2^{+} \\ (0^{+},1^{+}) \\ 1^{-} \\ (2^{-}) \end{array} $	4810.34 3498.51 3787.71 3769.49 2235.311 2235.311 2235.311 498.51 2235.311 4830.84 4810.34 0 5614.04 3769.49 2235.311	$2^{+} \\ 2^{+} \\ 0^{+} \\ 1^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 1^{+} \\ 2^{+} \\ 2^{+} \\ 1^{+} \\ 2^{+$	$\begin{array}{c} 0.40 \ 4 \\ < 0.06 \\ 1.45 \ 6 \\ 0.84 \ 5 \\ 3.46 \ 11 \\ 0.79 \ 5 \\ 0.07 \ 2 \\ 1.35 \ 5 \\ 0.51 \ 4 \\ 0.12 \ 3 \\ 0.10 \ 3 \\ 0.54 \ 4 \\ 0.32 \ 5 \\ 1.95 \ 8 \\ 18.8 \ 6 \end{array}$	I _y : 7.4 20 per 100 neutron captures (2007ChZX).
$\begin{array}{r} 4168.4^{c}\\ 4375.18 \ 15\\ 4393.43 \ 23\\ 4405.56^{@} \ 8\\ 4508.64 \ 17\\ (4656)\\ 4664.36 \ 12\\ 4679.2 \ 3\\ 4766.7 \ 7\\ 4786.5 \ 8\\ 4810.0 \ 3\\ 4994.9 \ 7\\ 5128.18^{\#} \ 17\\ 5272.09^{\ddagger} \ 7\\ 5398.8 \ 4\end{array}$	$\begin{array}{c} 0.34 \ 3 \\ < 0.05 \\ 1.22 \ 5 \\ 0.71 \ 4 \\ 2.91 \ 9 \\ \hline \\ 0.66 \ 4 \\ 0.06 \ 2 \\ 1.13 \ 4 \\ 0.43 \ 3 \\ 0.10 \ 3 \\ 0.08 \ 3 \\ 0.45 \ 3 \\ 0.27 \ 4 \\ 1.64 \ 7 \\ 15.8 \ 5 \\ 0.40 \ 5 \\ \end{array}$	8898.08 7667.2 8163.18 8163.18 6641.20 6744.06 8154.83 8163.18 6914.78 9597.17 9597.17 4810.34 10609.20 8898.08 7507.86 8898.08	$\begin{array}{c} 1^{-} \\ (1,2)^{+} \\ 1^{-} \\ 1^{-} \\ 2^{-} \\ 1^{-} \\ (1,2) \\ 1^{-} \\ 2^{+} \\ 2^{+} \\ (0^{+},1^{+}) \\ 1^{-} \\ (2^{-}) \\ 1^{-} \end{array}$	4810.34 3498.51 3787.71 3769.49 2235.311 2235.311 2235.311 2235.311 4830.84 4810.34 0 5614.04 3769.49 2235.311 3498.51	$2^{+} \\ 2^{+} \\ 0^{+} \\ 1^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 1^{+} \\ 2^{+$	$\begin{array}{c} 0.40 \ 4 \\ < 0.06 \\ 1.45 \ 6 \\ 0.84 \ 5 \\ 3.46 \ 11 \\ 0.79 \ 5 \\ 0.07 \ 2 \\ 1.35 \ 5 \\ 0.51 \ 4 \\ 0.12 \ 3 \\ 0.10 \ 3 \\ 0.54 \ 4 \\ 0.32 \ 5 \\ 1.95 \ 8 \\ 18.8 \ 6 \\ 0.48 \ 6 \end{array}$	I _γ : 7.4 20 per 100 neutron captures (2007ChZX).
$\begin{array}{r} 4168.4^{c}\\ 4375.18 \ 15\\ 4393.43 \ 23\\ 4405.56^{\textcircled{0}} \ 8\\ 4508.64 \ 17\\ (4656)\\ 4664.36 \ 12\\ 4679.2 \ 3\\ 4766.7 \ 7\\ 4786.5 \ 8\\ 4810.0 \ 3\\ 4994.9 \ 7\\ 5128.18^{\ddagger} \ 17\\ 5272.09^{\ddagger} \ 7\\ 5398.8 \ 4\\ 5431.5 \ 6\\ \end{array}$	$\begin{array}{c} 0.34 \ 3 \\ < 0.05 \\ 1.22 \ 5 \\ 0.71 \ 4 \\ 2.91 \ 9 \\ \hline \\ 0.66 \ 4 \\ 0.06 \ 2 \\ 1.13 \ 4 \\ 0.43 \ 3 \\ 0.10 \ 3 \\ 0.08 \ 3 \\ 0.45 \ 3 \\ 0.27 \ 4 \\ 1.64 \ 7 \\ 15.8 \ 5 \\ 0.40 \ 5 \\ 0.17 \ 3 \\ \end{array}$	8898.08 7667.2 8163.18 8163.18 6641.20 6744.06 8154.83 8163.18 6914.78 9597.17 9597.17 4810.34 10609.20 8898.08 7507.86 8898.08 7667.2	$\begin{array}{c} 1^{-} \\ (1,2)^{+} \\ 1^{-} \\ 1^{-} \\ 2^{-} \\ 1^{-} \\ (1,2) \\ 1^{-} \\ 2^{+} \\ \end{array}$ $\begin{array}{c} 2^{+} \\ (0^{+},1^{+}) \\ 1^{-} \\ (2^{-}) \\ 1^{-} \\ (1,2)^{+} \end{array}$	4810.34 3498.51 3787.71 3769.49 2235.311 2235.311 2235.311 498.51 2235.311 4830.84 4810.34 0 5614.04 3769.49 2235.311 3498.51 2235.311	$2^{+} \\ 2^{+} \\ 0^{+} \\ 1^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 1^{+} \\ 2^{+$	$\begin{array}{c} 0.40 \ 4 \\ < 0.06 \\ 1.45 \ 6 \\ 0.84 \ 5 \\ 3.46 \ 11 \\ 0.79 \ 5 \\ 0.07 \ 2 \\ 1.35 \ 5 \\ 0.51 \ 4 \\ 0.12 \ 3 \\ 0.10 \ 3 \\ 0.54 \ 4 \\ 0.32 \ 5 \\ 1.95 \ 8 \\ 18.8 \ 6 \\ 0.48 \ 6 \\ 0.20 \ 4 \end{array}$	I _γ : 7.4 20 per 100 neutron captures (2007ChZX).
$\begin{array}{r} 4168.4^{c}\\ 4375.18 \ 15\\ 4393.43 \ 23\\ 4405.56^{\textcircled{0}} \ 8\\ 4508.64 \ 17\\ (4656)\\ 4664.36 \ 12\\ 4679.2 \ 3\\ 4766.7 \ 7\\ 4786.5 \ 8\\ 4810.0 \ 3\\ 4994.9 \ 7\\ 5128.18^{\ddagger} \ 17\\ 5272.09^{\ddagger} \ 7\\ 5398.8 \ 4\\ 5431.5 \ 6\\ 5538.05 \ 24\\ \end{array}$	$\begin{array}{c} 0.34 \ 3 \\ 0.05 \\ 1.22 \ 5 \\ 0.71 \ 4 \\ 2.91 \ 9 \\ \hline \\ 0.66 \ 4 \\ 0.06 \ 2 \\ 1.13 \ 4 \\ 0.43 \ 3 \\ 0.10 \ 3 \\ 0.45 \ 3 \\ 0.27 \ 4 \\ 1.64 \ 7 \\ 15.8 \ 5 \\ 0.40 \ 5 \\ 0.17 \ 3 \\ 0.80 \ 5 \\ \end{array}$	8898.08 7667.2 8163.18 8163.18 6641.20 6744.06 8154.83 8163.18 6914.78 9597.17 9597.17 4810.34 10609.20 8898.08 7507.86 8898.08 7667.2 9308.07	$\begin{array}{c} 1^{-} \\ (1,2)^{+} \\ 1^{-} \\ 1^{-} \\ 2^{-} \\ 1^{-} \\ (1,2) \\ 1^{-} \\ 2^{+} \\ \end{array}$ $\begin{array}{c} 2^{+} \\ (0^{+},1^{+}) \\ 1^{-} \\ (2^{-}) \\ 1^{-} \\ (1,2)^{+} \end{array}$	4810.34 3498.51 3787.71 3769.49 2235.311 2235.311 2235.311 2235.311 4830.84 4810.34 0 5614.04 3769.49 2235.311 3498.51 2235.311 3498.51 2235.311 3769.49	$2^{+} \\ 2^{+} \\ 0^{+} \\ 1^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 1^{+} \\ 2^{+} \\ 2^{+} \\ 2^{+} \\ 1^{+} \\ 1^{+} $	$\begin{array}{c} 0.40 \ 4 \\ < 0.06 \\ 1.45 \ 6 \\ 0.84 \ 5 \\ 3.46 \ 11 \\ 0.79 \ 5 \\ 0.07 \ 2 \\ 1.35 \ 5 \\ 0.51 \ 4 \\ 0.12 \ 3 \\ 0.10 \ 3 \\ 0.54 \ 4 \\ 0.32 \ 5 \\ 1.95 \ 8 \\ 18.8 \ 6 \\ 0.48 \ 6 \\ 0.20 \ 4 \\ 0.95 \ 6 \end{array}$	I _γ : 7.4 <i>20</i> per 100 neutron captures (2007ChZX).

Continued on next page (footnotes at end of table)

²⁹ Si(n, γ) E=thermal	1992Ra19,1990Is02 (continued)
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$\gamma(^{30}Si)$ (continued)

E_{γ}^{\dagger}	$I_{\gamma}^{\&b}$	E _i (level)	\mathbf{J}_i^{π}	E_f	\mathbf{J}_f^{π}	$\sigma \text{ (mb)}^{a}$	Comments
5920.2 7	0.13 3	8154.83	(1,2)	2235.311	2^{+}	0.16 4	
5927.24 15	1.34 7	8163.18	1-	2235.311	2^{+}	1.60 8	
6004.4 9	0.07 3	9792.34	1-	3787.71	0^{+}	0.08 3	
6098.0 <i>3</i>	0.53 5	9597.17		3498.51	2^{+}	0.63 6	
6487.0 7	0.10 3	10275.8		3787.71	0^{+}	0.12 3	
6640.7 9	0.14 4	6641.20	2-	0	0^{+}	0.17 5	
6662.00 25	1.04 5	8898.08	1-	2235.311	2+	1.24 6	
6717.3 8	0.24 4	8953.29	(1,2)	2235.311	2^{+}	0.29 5	
6743.22 [@] 4	30.7 9	6744.06	1-	0	0^+	36.6 11	I_{γ} : 43 7 per 100 neutron captures (2007ChZX).
6820.7 4	1.08 8	10609.20	$(0^+, 1^+)$	3787.71	0^{+}	1.28 9	,
6838.77 ^{‡@} 9	3.68 13	10609.20	$(0^+, 1^+)$	3769.49	1^{+}	4.38 16	
6913.7 5	0.34 5	6914.78	2^{+}	0	0^+	0.40 6	
7071.8 7	0.15 5	9308.07		2235.311	2^{+}	0.18 4	
7109.82 7	5.02 15	10609.20	$(0^+, 1^+)$	3498.51	2^{+}	5.98 18	
7507.4 8	0.14 3	7507.86	(2 ⁻)	0	0^{+}	0.17 4	
(7666)	0.020 7	7667.2	$(1,2)^+$	0	0^{+}	0.024 8	
^x 7944.5 9	0.06 2					0.07 2	
7965.8 9	0.06 2	10202.09	(1^{-})	2235.311	2+	0.07 2	
8162.01 [‡] 11	2.93 10	8163.18	1-	0	0^{+}	3.49 12	
8372.7 3	0.66 5	10609.20	$(0^+, 1^+)$	2235.311	2^{+}	0.79 6	
8896.7 [‡] <i>3</i>	0.50 5	8898.08	1-	0	0^{+}	0.60 6	
8951.9 5	0.27 3	8953.29	(1,2)	0	0^{+}	0.32 4	
9618.08 [‡] <i>13</i>	1.02 5	9619.75	(1^{-})	0	0^+	1.22 6	
9790.5 [‡] 3	0.93 5	9792.34	1-	0	0^+	1.11 6	
10200.6 [‡] 6	0.24 3	10202.09	(1 ⁻)	0	0^+	0.28 3	
10607.17 ^{‡@} 8	6.73 21	10609.20	$(0^+, 1^+)$	0	0^+	8.01 25	

[†] From 1992Ra19, except otherwise noted.
[‡] Weighted average of 1992Ra19 and 1990Is02.

[#] From 1990Is02.
[@] Also reported by 2007ChZX.
[&] Per 100 neutron capture, obtained by multiplying the reported γ-ray cross section data by 0.840 as stated in 1992Ra19.

^{*a*} From 1992Ra19. ^{*b*} Intensity per 100 neutron captures.

^c Placement of transition in the level scheme is uncertain.

 $x \gamma$ ray not placed in level scheme.