

$^{59}\text{Co}(^{28}\text{Si},3\text{p}\gamma)$ **1994Ch28**

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	B. Singh, A. Negret, and K. Zuber	NDS 110,2815 (2009)	30-Sep-2009

1994Ch28: E=98 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, $\gamma\gamma(\theta)$ (DCO) using multiplicity filter consisting of eight NaI(Tl) detectors and five Compton suppressed HPGe detectors.

1995Ch29: comment from authors of [1994Ch28](#) about following discrepancies in results of [1994Ga15](#): 1. [1994Ga15](#) placed a 707γ feeding a $6070, \pi=-$, level which [1995Ch29](#) suggest 707γ to be a transition in ^{84}Y . 2. [1995Ch29](#) also account for an increase in the intensity of 433γ reported by [1994Ga15](#) due to contribution from a similar energy transition in ^{84}Y .

 ^{84}Sr Levels

E(level) [†]	J [‡]	T _{1/2} [#]	Comments
0.0 ^a	0 ⁺		
793.10 ^a 10	2 ⁺	6.2 [@] ps 21	
1767.51 ^a 14	4 ⁺	4.16 [@] ps 14	
2768.72 ^d 17	5 ⁻		
2807.62 ^b 17	6 ⁺	0.97 ps 28	
3040.7 8	5 ⁻		
3278.7 8	6 ⁻		
3331.58 ^c 18	8 ⁺	162.9 [@] ps 35	
3487.62 ^d 18	7 ⁻		
3679.56 ^b 18	8 ⁺		
4268? ^{&}	(8 ⁻)		
4447.25 ^c 21	10 ⁺		
4533.57 ^b 20	10 ⁺		
4635.83 ^d 22	9 ⁻		
5444.13 ^d 22	11 ⁻		
5652.94 ^b 25	12 ⁺	0.49 ps 21	
5891.3 ^c 10	12 ⁺	0.24 ps 10	
6068.9 ^d 3	12 ⁻	0.42 ps 14	
6483.9 ^d 3	13 ⁻	0.62 ps 28	
6739.2 ^b 4	14 ⁺	0.42 ps 14	
6916.4 ^d 4	14 ⁻		
7374? ^{&d}	(15 ⁻)		
8005.8 ^b 6	16 ⁺	0.21 ps 7	
9423.8 ^b 12	18 ⁺	0.14 ps 6	
11058.8 ^b 23	(20 ⁺)	0.14 ps 4	T _{1/2} : effective lifetime, not corrected for side feedings.

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

[‡] As proposed by [1994Ch28](#) based on their $\gamma\gamma(\theta)$ data for new transitions. The assignments for previously known levels have been taken from literature.

[#] From DSA line-shape method, unless otherwise stated.

[@] Value measured by [1982De05](#) has been reanalyzed by [1994Ch28](#) by reading RDDS data of [1982De05](#) and using a three-level formula. The lifetimes of the top feeding levels and their relative intensities were fixed from the values given in [1982De05](#). Original measured values from [1982De05](#) are: 3.19 ps 35 for 793,2⁺; 1.73 ps 21 for 1768,4⁺ and 157 ps 5 for 3332, 8⁺ levels. Note significant disagreements for 793,2⁺ and 1768,4⁺ level lifetimes. The evaluators have not used the reanalyzed values of [1994Ch28](#) in Adopted Levels.

[&] Tentative level and associated γ rays shown only in figure 2 of [1994Ch28](#).

$^{59}\text{Co}(^{28}\text{Si},3\text{p}\gamma)$ 1994Ch28 (continued) **^{84}Sr Levels (continued)**^a Band(A): g.s. band.^b Band(B): Band based on 6⁺.^c Band(C): Band based on 8⁺.^d Band(D): Band based on 5⁻. **$\gamma(^{84}\text{Sr})$**

1994Ch28 state that multipolarities of new transitions were determined from measured DCO ratios, but details of such measurements are not presented by the authors, thus no multipolarities are given here.

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
86.3 2	3 1	4533.57	10 ⁺	4447.25	10 ⁺	872.0 1	17 1	3679.56	8 ⁺	2807.62	6 ⁺
238 1	<1	3278.7	6 ⁻	3040.7	5 ⁻	974.4 1	80 2	1767.51	4 ⁺	793.10	2 ⁺
272 1	<1	3040.7	5 ⁻	2768.72	5 ⁻	989 [†]		4268?	(8 ⁻)	3278.7	6 ⁻
347.9 1	5.0 4	3679.56	8 ⁺	3331.58	8 ⁺	996.9 1	7 1	5444.13	11 ⁻	4447.25	10 ⁺
415.1 2	8 1	6483.9	13 ⁻	6068.9	12 ⁻	1001.2 1	19 1	2768.72	5 ⁻	1767.51	4 ⁺
432.5 3	6 2	6916.4	14 ⁻	6483.9	13 ⁻	1040 1	<1	6483.9	13 ⁻	5444.13	11 ⁻
454 [†]		7374?	(15 ⁻)	6916.4	14 ⁻	1040.1 1	60 2	2807.62	6 ⁺	1767.51	4 ⁺
510 1	<1	3278.7	6 ⁻	2768.72	5 ⁻	1086.3 3	17 2	6739.2	14 ⁺	5652.94	12 ⁺
523.9 1	31 1	3331.58	8 ⁺	2807.62	6 ⁺	1115.7 2	23 2	4447.25	10 ⁺	3331.58	8 ⁺
624.9 2	12 1	6068.9	12 ⁻	5444.13	11 ⁻	1119.3 2	15 1	5652.94	12 ⁺	4533.57	10 ⁺
634 [†]		7374?	(15 ⁻)	6739.2	14 ⁺	1148.2 2	22 1	4635.83	9 ⁻	3487.62	7 ⁻
680.0 2	4.0 4	3487.62	7 ⁻	2807.62	6 ⁺	1205.6 3	6 1	5652.94	12 ⁺	4447.25	10 ⁺
718.9 1	19 1	3487.62	7 ⁻	2768.72	5 ⁻	1266.5 5	12 2	8005.8	16 ⁺	6739.2	14 ⁺
793.1 1	100 2	793.10	2 ⁺	0.0	0 ⁺	1418 1	8 2	9423.8	18 ⁺	8005.8	16 ⁺
808.3 1	24 1	5444.13	11 ⁻	4635.83	9 ⁻	1444 1	5 1	5891.3	12 ⁺	4447.25	10 ⁺
830.9 2	<1	6483.9	13 ⁻	5652.94	12 ⁺	1635 2	5 2	11058.8	(20 ⁺)	9423.8	18 ⁺
854.0 1	21 1	4533.57	10 ⁺	3679.56	8 ⁺						

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

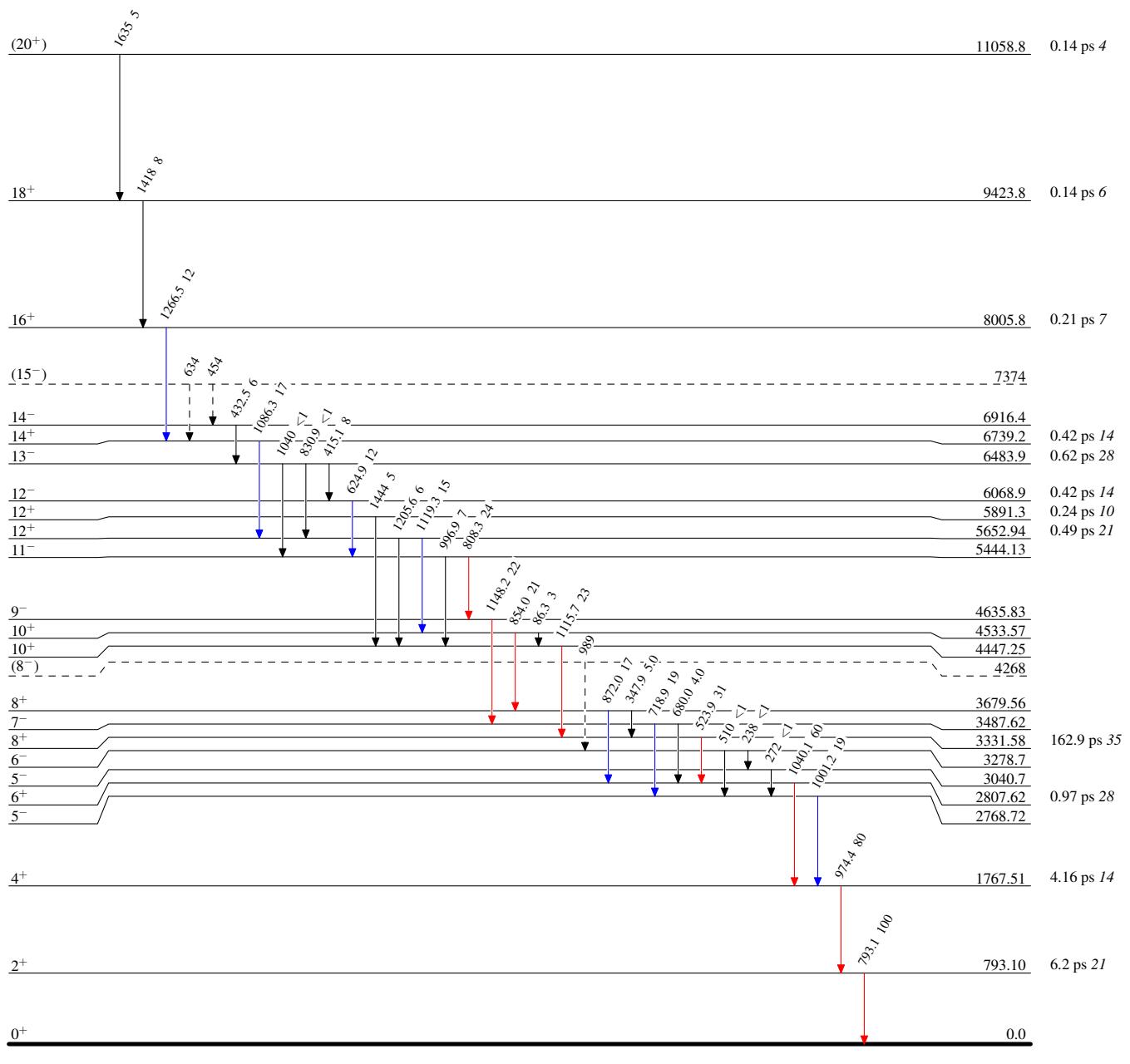
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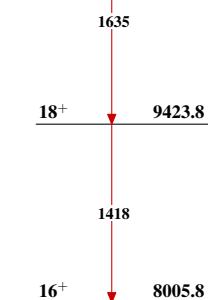
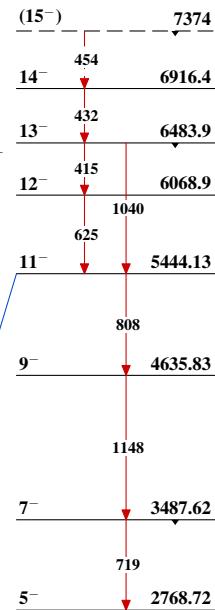
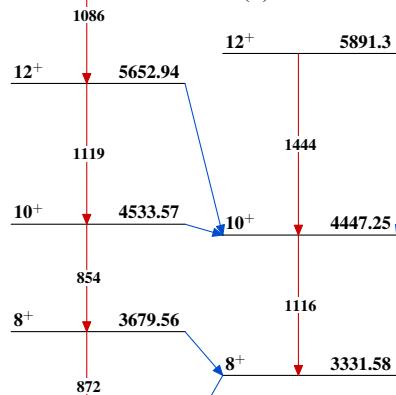
Legend

Level Scheme

Intensities: Relative I_γ

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



$^{59}\text{Co}(\gamma, \gamma)$ 1994Ch28Band(B): Band based on 6^+ (20 $^+$) 11058.8Band(D): Band based on 5^- Band(C): Band based on 8^+ 

Band(A): g.s. band

