$\chi_{c0}(1P)$

$I^G(J^{PC}) = 0^+(0^{++})$

$\chi_{c0}(1P)$ MASS

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
3414.75± 0.31 OUR AVERAGE					
3414.2 ± 0.5 ±2.3	5.4k	UEHARA	08	BELL	$\gamma\gamma \to \chi_{c0} \to$ hadrons
3406 ± 7 ±6	230	[1] ABE	07	BELL	$e^+e^- \to J/\psi(c\overline{c})$
3414.21± 0.39±0.27		ABLIKIM	05G	BES2	$\psi(2S) \to \gamma\chi_{c0}$
3414.7 $^{+\ 0.7}_{-\ 0.6}$ ±0.2		[2] ANDREOTTI	03	E835	$\overline{p}p \to \chi_{c0} \to \pi^0\pi^0$
3415.5 ± 0.4 ±0.4	392	[3] BAGNASCO	02	E835	$\overline{p}p \to \chi_{c0} \to J/\psi\gamma$
3417.4 $^{+\ 1.8}_{-\ 1.9}$ ±0.2		[2] AMBROGIANI	99B	E835	$\overline{p}p \to e^+e^-\gamma$
3414.1 ± 0.6 ±0.8		BAI	99B	BES	$\psi(2S) \to \gamma$X
3417.8 ± 0.4 ±4		[2] GAISER	86	CBAL	$\psi(2S) \to \gamma$X
3416 ± 3 ±4		[4] TANENBAUM	78	MRK1	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3416.5 ± 3.0		EISENSTEIN	01	CLE2	$e^+e^- \to e^+e^-\chi_{c0}$
3422 ±10		[4] BARTEL	78B	CNTR	$e^+e^- \to J/\psi 2\gamma$
3415 ± 9		[4] BIDDICK	77	CNTR	$e^+e^- \to \gamma$X

[1] From a fit of the J/ψ recoil mass spectrum. Supersedes ABE,K 02 and ABE 04G.

[2] Using mass of $\psi(2S) = 3686.0$ MeV.

[3] Recalculated by ANDREOTTI 05A, using the value of $\psi(2S)$ mass from AULCHENKO 03.

[4] Mass value shifted by us by amount appropriate for $\psi(2S)$ mass = 3686 MeV and $J/\psi(1S)$ mass = 3097 MeV.

$\chi_{c0}(1P)$ WIDTH

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
10.4±0.7 OUR FIT					
10.5±0.8 OUR AVERAGE Error includes scale factor of 1.1.					
10.6±1.9±2.6	5.4k	UEHARA	08	BELL	$\gamma\gamma \to \chi_{c0} \to$ hadrons
$12.6^{+1.5+0.9}_{-1.6-1.1}$		ABLIKIM	05G	BES2	$\psi(2S) \to \gamma\chi_{c0}$
$8.6^{+1.7}_{-1.3}$±0.1		ANDREOTTI	03	E835	$\overline{p}p \to \chi_{c0} \to \pi^0\pi^0$
9.7±1.0	392	[5] BAGNASCO	02	E835	$\overline{p}p \to \chi_{c0} \to J/\psi\gamma$
$16.6^{+5.2}_{-3.7}$±0.1		AMBROGIANI	99B	E835	$\overline{p}p \to e^+e^-\gamma$
14.3±2.0±3.0		BAI	98I	BES	$\psi(2S) \to \gamma\pi^+\pi^-$
13.5±3.3±4.2		GAISER	86	CBAL	$\psi(2S) \to \gamma$X, $\gamma\pi^0\pi^0$

[5] Recalculated by ANDREOTTI 05A.

$\chi_{c0}(1P)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)	Scale factor/ Confidence level

Hadronic decays

Γ_1	$2(\pi^+\pi^-)$	(2.25 ± 0.19) %	
Γ_2	$\rho^0\pi^+\pi^-$	$(8.8\ \pm2.8\ )\times10^{-3}$	
Γ_3	$\rho^0\rho^0$		
Γ_4	$f_0(980)f_0(980)$	$(6.9\ \pm2.2\ )\times10^{-4}$	
Γ_5	$\pi^+\pi^-\pi^0\pi^0$	$(3.5\ \pm0.4\ )$ %	
Γ_6	$\rho^+\pi^-\pi^0$ + c.c.	$(3.0\ \pm0.5\ )$ %	
Γ_7	$\pi^+\pi^-K^+K^-$	(1.80 ± 0.15) %	
Γ_8	$K_0^*(1430)^0\overline{K}_0^*(1430)^0\to$ $\pi^+\pi^-K^+K^-$	$(1.02^{+0.40}_{-0.29})\times10^{-3}$	
Γ_9	$K_0^*(1430)^0\overline{K}_2^*(1430)^0$ + c.c. $\to$ $\pi^+\pi^-K^+K^-$	$(8.3\ ^{+2.0}_{-2.5}\ )\times10^{-4}$	
Γ_{10}	$K_1(1270)^+K^-$ + c.c. $\to$ $\pi^+\pi^-K^+K^-$	$(6.5\ \pm2.0\ )\times10^{-3}$	
Γ_{11}	$K_1(1400)^+K^-$ + c.c. $\to$ $\pi^+\pi^-K^+K^-$	$<2.8\times10^{-3}$	CL=90%
Γ_{12}	$f_0(980)f_0(980)$	$(1.7\ ^{+1.1}_{-0.9}\ )\times10^{-4}$	
Γ_{13}	$f_0(980)f_0(2200)$	$(8.2\ ^{+2.1}_{-2.6}\ )\times10^{-4}$	
Γ_{14}	$f_0(1370)f_0(1370)$	$<2.8\times10^{-4}$	CL=90%
Γ_{15}	$f_0(1370)f_0(1500)$	$<1.8\times10^{-4}$	CL=90%
Γ_{16}	$f_0(1370)f_0(1710)$	$(7.0\ ^{+4.0}_{-2.4}\ )\times10^{-4}$	
Γ_{17}	$f_0(1500)f_0(1370)$	$<1.4\times10^{-4}$	CL=90%
Γ_{18}	$f_0(1500)f_0(1500)$	$<5\times10^{-5}$	CL=90%
Γ_{19}	$f_0(1500)f_0(1710)$	$<7\times10^{-5}$	CL=90%
Γ_{20}	$K^+K^-\pi^0\pi^0$	$(5.8\ \pm0.9\ )\times10^{-3}$	
Γ_{21}	$K^+\pi^-K^0\pi^0$ + c.c.	(2.58 ± 0.35) %	
Γ_{22}	$\rho^+K^-K^0$ + c.c.	(1.25 ± 0.22) %	
Γ_{23}	$K^*(892)^-K^+\pi^0\to$ $K^+\pi^-K^0\pi^0$ + c.c.	$(4.8\ \pm1.2\ )\times10^{-3}$	
Γ_{24}	$K_S^0K_S^0\pi^+\pi^-$	$(5.9\ \pm1.1\ )\times10^{-3}$	
Γ_{25}	$K^+K^-\eta\pi^0$	$(3.1\ \pm0.7\ )\times10^{-3}$	
Γ_{26}	$3(\pi^+\pi^-)$	(1.20 ± 0.18) %	
Γ_{27}	$K^+\overline{K}^*(892)^0\pi^-$ + c.c.	$(7.3\ \pm1.6\ )\times10^{-3}$	
Γ_{28}	$K^*(892)^0\overline{K}^*(892)^0$	$(1.8\ \pm0.6\ )\times10^{-3}$	
Γ_{29}	$\pi\pi$	$(7.2\ \pm0.6\ )\times10^{-3}$	
Γ_{30}	$\pi^0\eta$	$<1.7\times10^{-4}$	
Γ_{31}	$\pi^0\eta'$	$<1.0\times10^{-3}$	
Γ_{32}	$\eta\eta$	$(2.2\ \pm0.4\ )\times10^{-3}$	
Γ_{33}	$\eta\eta'$	$<5\times10^{-4}$	CL=90%
Γ_{34}	$\eta'\eta'$	$(1.7\ \pm0.4\ )\times10^{-3}$	
Γ_{35}	$\omega\omega$	$(2.2\ \pm0.7\ )\times10^{-3}$	
Γ_{36}	K^+K^-	$(5.8\ \pm0.6\ )\times10^{-3}$	

Γ_{37}	$K^0_S K^0_S$	$(2.84\pm0.28)\times10^{-3}$		
Γ_{38}	$\pi^+\pi^-\eta$	< 2.1	$\times10^{-4}$	CL=90%
Γ_{39}	$\pi^+\pi^-\eta'$	< 4	$\times10^{-4}$	CL=90%
Γ_{40}	$\overline{K}^0 K^+\pi^-$ + c.c.	< 1.0	$\times10^{-4}$	CL=90%
Γ_{41}	$K^+K^-\pi^0$	< 6	$\times10^{-5}$	CL=90%
Γ_{42}	$K^+K^-\eta$	< 2.3	$\times10^{-4}$	CL=90%
Γ_{43}	$K^+K^-K^0_S K^0_S$	$(1.5\ \pm0.5\ )\times10^{-3}$		
Γ_{44}	$K^+K^-K^+K^-$	$(2.83\pm0.30)\times10^{-3}$		
Γ_{45}	$K^+K^-\phi$	$(1.01\pm0.26)\times10^{-3}$		
Γ_{46}	$\phi\phi$	$(9.3\ \pm1.9\ )\times10^{-4}$		
Γ_{47}	$p\overline{p}$	$(2.39\pm0.15)\times10^{-4}$		
Γ_{48}	$p\overline{p}\pi^0$	$(5.8\ \pm1.2\ )\times10^{-4}$		
Γ_{49}	$p\overline{p}\eta$	$(3.8\ \pm1.1\ )\times10^{-4}$		
Γ_{50}	$\pi^+\pi^- p\overline{p}$	$(2.1\ \pm0.7\ )\times10^{-3}$		S=1.4
Γ_{51}	$\pi^0\pi^0 p\overline{p}$	$(1.08\pm0.29)\times10^{-3}$		
Γ_{52}	$K^0_S K^0_S p\overline{p}$	< 8.8	$\times10^{-4}$	CL=90%
Γ_{53}	$p\overline{n}\pi^-$	$(1.17\pm0.32)\times10^{-3}$		
Γ_{54}	$\Lambda\overline{\Lambda}$	$(3.4\ \pm0.4\ )\times10^{-4}$		
Γ_{55}	$\Lambda\overline{\Lambda}\pi^+\pi^-$	< 4.0	$\times10^{-3}$	CL=90%
Γ_{56}	$K^+\overline{p}\Lambda$ + c.c.	$(1.05\pm0.20)\times10^{-3}$		
Γ_{57}	$\Sigma^0\overline{\Sigma}^0$	$(4.3\ \pm0.7\ )\times10^{-4}$		
Γ_{58}	$\Sigma^+\overline{\Sigma}^-$	$(3.2\ \pm0.7\ )\times10^{-4}$		
Γ_{59}	$\Xi^0\overline{\Xi}^0$	$(3.3\ \pm0.8\ )\times10^{-4}$		
Γ_{60}	$\Xi^-\overline{\Xi}^+$	$(5.0\ \pm0.7\ )\times10^{-4}$		

Radiative decays

Γ_{61}	$\gamma J/\psi(1S)$	(1.14 ± 0.08) %		
Γ_{62}	$\gamma\rho^0$	< 9	$\times10^{-6}$	CL=90%
Γ_{63}	$\gamma\omega$	< 9	$\times10^{-6}$	CL=90%
Γ_{64}	$\gamma\phi$	< 6	$\times10^{-6}$	CL=90%
Γ_{65}	$\gamma\gamma$	$(2.27\pm0.18)\times10^{-4}$		

CONSTRAINED FIT INFORMATION

A multiparticle fit to $\chi_{c1}(1P)$, $\chi_{c0}(1P)$, $\chi_{c2}(1P)$, and $\psi(2S)$ with 4 total widths, a partial width, 24 combinations of partial widths obtained from integrated cross section, and 78 branching ratios uses 203 measurements to determine 47 parameters. The overall fit has a $\chi^2 = 273.3$ for 156 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\left\langle \delta p_i \delta p_j \right\rangle / (\delta p_i \cdot \delta p_j)$, in percent, from the fit to parameters p_i, including the branching fractions, $x_i \equiv \Gamma_i/\Gamma_{\rm total}$.

x_2	26									
x_7	21	6								
x_{27}	10	3	30							
x_{29}	13	3	12	5						
x_{32}	2	1	2	1	5					
x_{36}	16	4	14	6	11	2				
x_{37}	20	5	17	8	10	2	13			
x_{44}	14	4	13	5	10	2	11	11		
x_{46}	7	2	7	3	5	1	5	6	5	
x_{47}	5	1	5	2	−15	−16	4	5	4	2
x_{54}	9	2	9	3	8	2	8	8	8	4
x_{61}	0	0	1	0	12	9	1	0	2	1
x_{65}	−28	−8	−21	−12	−6	0	−13	−21	−10	−6
Γ	−15	−4	−13	−6	−8	−2	−9	−12	−8	−4
	x_1	x_2	x_7	x_{27}	x_{29}	x_{32}	x_{36}	x_{37}	x_{44}	x_{46}

x_{54}	4			
x_{61}	−49	2		
x_{65}	−8	−3	13	
Γ	2	−5	−10	−53
	x_{47}	x_{54}	x_{61}	x_{65}

$\chi_{c0}(1P)$ PARTIAL WIDTHS

$\chi_{c0}(1P)$ Γ(i)$\Gamma(\gamma J/\psi(1S))/\Gamma$(total)

$\Gamma(p\overline{p})$ × $\Gamma(\gamma J/\psi(1S))/\Gamma_{\rm total}$ **$\Gamma_{47}\Gamma_{61}/\Gamma$**

VALUE (eV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
28.4± 2.5 OUR FIT					
• • • We do not use the following data for averages, fits, limits, etc. • • •					
26.6± 2.6±1.4	392	[6,7] BAGNASCO	02	E835	$\overline{p}p \to \chi_{c0} \to J/\psi\gamma$
$48.7^{+11.3}_{-8.9}$±2.4		[6,7] AMBROGIANI	99B	E835	$\overline{p}p \to \gamma J/\psi$

[6] Calculated by us using $B(J/\psi(1S) \to e^+e^-) = 0.0593 \pm 0.0010$.

[7] Values in $(\Gamma(p\overline{p}) \times \Gamma(\gamma J/\psi(1S))/\Gamma_{total})$ and $(\Gamma(p\overline{p})/\Gamma_{total} \times \Gamma(\gamma J/\psi(1S))/\Gamma_{total})$ are not independent. The latter is used in the fit since it is less correlated to the total width.

$\chi_{c0}(1P)$ Γ(i)Γ($\gamma\gamma$)/Γ(total)

$\Gamma(\pi\pi) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{29}\Gamma_{65}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
17.1±1.7 OUR FIT					
22.7±3.2±3.5	129 ± 18	[8] NAKAZAWA	05	BELL	$e^+e^- \to e^+e^-\chi_{c0}$

[8] We have multiplied $\pi^+\pi^-$ measurement by 3/2 to obtain $\pi\pi$.

$\Gamma(K^+K^-) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{36}\Gamma_{65}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
13.7±1.5 OUR FIT					
14.3±1.6±2.3	153 ± 17	NAKAZAWA	05	BELL	$e^+e^- \to e^+e^-\chi_{c0}$

$\Gamma(K^0_S K^0_S) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{37}\Gamma_{65}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
6.7 ±0.7 OUR FIT					
7.00±0.65±0.71	134 ± 12	CHEN	07B	BELL	$e^+e^- \to e^+e^-\chi_{c0}$

$\Gamma(2(\pi^+\pi^-)) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_1\Gamma_{65}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
53 ± 4 OUR FIT					
49 ±10 OUR AVERAGE	Error includes scale factor of 1.8.				
44.7± 3.6±4.9	3.6k	UEHARA	08	BELL	$\gamma\gamma \to \chi_{c0} \to 2(\pi^+\pi^-)$
75 ±13 ±8		EISENSTEIN	01	CLE2	$e^+e^- \to e^+e^-\chi_{c0}$

$\Gamma(\rho^0\rho^0) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_3\Gamma_{65}/\Gamma$

VALUE (eV)	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<12	90	<252	UEHARA	08	BELL	$\gamma\gamma \to \chi_{c0} \to 2(\pi^+\pi^-)$

$\Gamma(\pi^+\pi^- K^+K^-) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_7\Gamma_{65}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
43 ±4 OUR FIT					
38.8±3.7±4.7	1.7k	UEHARA	08	BELL	$\gamma\gamma \to \chi_{c0} \to K^+K^-\pi^+\pi^-$

$\Gamma(K^+\overline{K}^*(892)^0\pi^- + \text{c.c.}) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{27}\Gamma_{65}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
17 ±4 OUR FIT					
16.7±6.1±3.0	495 ± 182	UEHARA	08	BELL	$\gamma\gamma \to \chi_{c0} \to K^+K^-\pi^+\pi^-$

$\Gamma(K^*(892)^0\overline{K}^*(892)^0) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{28}\Gamma_{65}/\Gamma$

VALUE (eV)	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<6	90	<148	UEHARA	08	BELL	$\gamma\gamma \to \chi_{c0} \to K^+K^-\pi^+\pi^-$

$\Gamma(K^+K^-K^+K^-) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ $\Gamma_{44}\Gamma_{65}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
6.7±0.8 OUR FIT					
7.9±1.3±1.1	215 ± 36	UEHARA	08	BELL	$\gamma\gamma \to \chi_{c0} \to 2(K^+K^-)$

$\Gamma(\phi\phi) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ $\Gamma_{46}\Gamma_{65}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
2.2±0.5 OUR FIT					
2.3±0.9±0.4	23.6 ± 9.6	UEHARA	08	BELL	$\gamma\gamma \to \chi_{c0} \to 2(K^+K^-)$

$\chi_{c0}(1P)$ BRANCHING RATIOS

HADRONIC DECAYS

$\Gamma(2(\pi^+\pi^-))/\Gamma_{total}$ Γ_1/Γ

VALUE	DOCUMENT ID
0.0225±0.0019 OUR FIT	

$\Gamma(\rho^0\pi^+\pi^-)/\Gamma(2(\pi^+\pi^-))$ Γ_2/Γ_1

VALUE	DOCUMENT ID		TECN	COMMENT
0.39±0.12 OUR FIT				
0.39±0.12	TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(\rho^0\pi^+\pi^-)/\Gamma_{total}$ Γ_2/Γ

VALUE	DOCUMENT ID
0.0088±0.0028 OUR FIT	

$\Gamma(f_0(980)f_0(980))/\Gamma_{total}$ Γ_4/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
6.9±2.2±0.2	36 ± 9	[9] ABLIKIM	04G	BES	$\psi(2S) \to \gamma 2\pi^+ 2\pi^-$

[9] ABLIKIM 04G reports $[\Gamma(\chi_{c0}(1P) \to f_0(980)f_0(980))/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (6.5 \pm 1.6 \pm 1.3) \times 10^{-5}$. We divide by our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\pi^+\pi^-\pi^0\pi^0)/\Gamma_{total}$ Γ_5/Γ

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
3.5±0.4±0.1	1751.4	[10] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[10] HE 08B reports 3.54 ± 0.10 ± 0.43 ± 0.18 % from a measurement of $[\Gamma(\chi_{c0}(1P) \to \pi^+\pi^-\pi^0\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\rho^+\pi^-\pi^0 + \text{c.c.})/\Gamma_{\text{total}}$ Γ_6/Γ

VALUE (%)	EVTS		DOCUMENT ID		TECN	COMMENT
3.0±0.4±0.1	1358.5	[11,12]	HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[11] HE 08B reports 3.04 ± 0.18 ± 0.42 ± 0.16 % from a measurement of $[\Gamma(\chi_{c0}(1P) \to \rho^+\pi^-\pi^0 + \text{ c.c.})/\Gamma_{\text{total}}] \times [\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[12] Calculated by us. We have added the values from HE 08B for $\rho^+\pi^-\pi^0$ and $\rho^-\pi^+\pi^0$ decays assuming uncorrelated statistical and fully correlated systematic uncertainties.

$\Gamma(\pi^+\pi^- K^+ K^-)/\Gamma_{\text{total}}$ Γ_7/Γ

VALUE (units 10^{-3})	DOCUMENT ID
18.0±1.5 OUR FIT	

$\Gamma(K^+\overline{K}^*(892)^0\pi^- + \text{c.c.})/\Gamma(\pi^+\pi^- K^+ K^-)$ Γ_{27}/Γ_7

VALUE	DOCUMENT ID		TECN	COMMENT
0.40±0.09 OUR FIT				
0.41±0.10	TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(K_0^*(1430)^0\overline{K}_0^*(1430)^0 \to \pi^+\pi^- K^+ K^-)/\Gamma_{\text{total}}$ Γ_8/Γ

VALUE (units 10^{-4})	EVTS		DOCUMENT ID		TECN	COMMENT
$\mathbf{10.2^{+3.7}_{-2.9}\pm0.3}$	83	[13]	ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+ K^-$

[13] ABLIKIM 05Q reports $(10.44 \pm 2.37^{+3.05}_{-1.90}) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K_0^*(1430)^0\overline{K}_0^*(1430)^0 \to \pi^+\pi^- K^+ K^-)/\Gamma_{\text{total}}] \times [\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(K_0^*(1430)^0\overline{K}_2^*(1430)^0 + \text{c.c.} \to \pi^+\pi^- K^+ K^-)/\Gamma_{\text{total}}$ Γ_9/Γ

VALUE (units 10^{-4})	EVTS		DOCUMENT ID		TECN	COMMENT
$\mathbf{8.3^{+2.0}_{-2.5}\pm0.3}$	62	[14]	ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+ K^-$

[14] ABLIKIM 05Q reports $(8.49 \pm 1.66^{+1.32}_{-1.99}) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K_0^*(1430)^0\overline{K}_2^*(1430)^0 + \text{ c.c.} \to \pi^+\pi^- K^+ K^-)/\Gamma_{\text{total}}] \times [\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(K_1(1270)^+ K^- + \text{c.c.} \to \pi^+\pi^- K^+ K^-)/\Gamma_{\text{total}}$ Γ_{10}/Γ

VALUE (units 10^{-3})	EVTS		DOCUMENT ID		TECN	COMMENT
$\mathbf{6.5^{+2.0}_{-1.9}\pm0.2}$	68	[15]	ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+ K^-$

[15] ABLIKIM 05Q reports $(6.66 \pm 1.31^{+1.60}_{-1.51}) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K_1(1270)^+ K^- + \text{c.c.} \to \pi^+\pi^- K^+ K^-)/\Gamma_{\text{total}}] \times [\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. The measurement assumes $\text{B}(K_1(1270) \to K\rho(770)) = 42 \pm 6\%$.

$\Gamma(K_1(1400)^+ K^- + \text{c.c.} \to \pi^+\pi^- K^+ K^-)/\Gamma_{\text{total}}$ Γ_{11}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<2.8	90	[16] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+ K^-$

[16] ABLIKIM 05Q reports $< 2.85 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K_1(1400)^+ K^- + \text{c.c.} \to \pi^+\pi^- K^+ K^-)/\Gamma_{\text{total}}] \times [\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$. The measurement assumes $\text{B}(K_1(1400) \to K^*(892)\pi) = 94 \pm 6\%$.

$\Gamma(f_0(980) f_0(980))/\Gamma_{\text{total}}$ Γ_{12}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{17^{+11}_{-9} \pm 1}$	28	[17] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+ K^-$

[17] ABLIKIM 05Q reports $[\Gamma(\chi_{c0}(1P) \to f_0(980) f_0(980))/\Gamma_{\text{total}}] \times [\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P))] = (1.59 \pm 0.50^{+0.89}_{-0.72}) \times 10^{-5}$. We divide by our best value $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. One of the $f_0(980)$ mesons is identified via decay to $\pi^+\pi^-$ while the other via K^+K^- decay.

$\Gamma(f_0(980) f_0(2200))/\Gamma_{\text{total}}$ Γ_{13}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{8.2^{+2.1}_{-2.6} \pm 0.3}$	77	[18] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+ K^-$

[18] ABLIKIM 05Q reports $(8.42 \pm 1.42^{+1.65}_{-2.29}) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to f_0(980) f_0(2200))/\Gamma_{\text{total}}] \times [\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. The f_0 mesons are identified via $f_0(980) \to \pi^+\pi^-$ and $f_0(2200) \to K^+K^-$ decays.

$\Gamma(f_0(1370) f_0(1370))/\Gamma_{\text{total}}$ Γ_{14}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<2.8	90	[19] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+ K^-$

[19] ABLIKIM 05Q reports $< 2.9 \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to f_0(1370) f_0(1370))/\Gamma_{\text{total}}] \times [\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$. One of the $f_0(1370)$ mesons is identified via decay to $\pi^+\pi^-$ while the other via K^+K^- decay. Both branching fractions for these f_0 decays are implicitly included in the quoted result.

$\Gamma(f_0(1370)f_0(1500))/\Gamma_{total}$ Γ_{15}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<1.8	90	[20] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+K^-$

[20] ABLIKIM 05Q reports $< 1.8 \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to f_0(1370)f_0(1500))/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$. The f_0 mesons are identified via $f_0(1370) \to \pi^+\pi^-$ and $f_0(1500) \to K^+K^-$ decays. Both branching fractions for these f_0 decays are implicitly included in the quoted result.

$\Gamma(f_0(1370)f_0(1710))/\Gamma_{total}$ Γ_{16}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$7.0^{+3.7}_{-2.4} \pm 0.2$	61	[21] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+K^-$

[21] ABLIKIM 05Q reports $(7.12 \pm 1.85^{+3.28}_{-1.68}) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to f_0(1370)f_0(1710))/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. The f_0 mesons are identified via $f_0(1370) \to \pi^+\pi^-$ and $f_0(1710) \to K^+K^-$ decays. Both branching fractions for these f_0 decays are implicitly included in the quoted result.

$\Gamma(f_0(1500)f_0(1370))/\Gamma_{total}$ Γ_{17}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<1.4	90	[22] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+K^-$

[22] ABLIKIM 05Q reports $< 1.4 \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to f_0(1500)f_0(1370))/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$. The f_0 mesons are identified via $f_0(1500) \to \pi^+\pi^-$ and $f_0(1370) \to K^+K^-$ decays. Both branching fractions for these f_0 decays are implicitly included in the quoted result.

$\Gamma(f_0(1500)f_0(1500))/\Gamma_{total}$ Γ_{18}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<0.5	90	[23] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+K^-$

[23] ABLIKIM 05Q reports $< 0.55 \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to f_0(1500)f_0(1500))/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$. One of the $f_0(1500)$ is identified via decay to $\pi^+\pi^-$ while the other via K^+K^- decay. Both branching fractions for these f_0 decays are implicitly included in the quoted result.

$\Gamma(f_0(1500)f_0(1710))/\Gamma_{total}$ Γ_{19}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<0.7	90	[24] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+K^-$

[24] ABLIKIM 05Q reports $< 0.73 \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to f_0(1500)\, f_0(1710))/\Gamma_{\text{total}}] \times [\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$. The f_0 mesons are identified via $f_0(1500) \to \pi^+\pi^-$ and $f_0(1710) \to K^+K^-$ decays. Both branching fractions for these f_0 decays are implicitly included in the quoted result.

$\Gamma(K^+K^-\pi^0\pi^0)/\Gamma_{\text{total}}$ Γ_{20}/Γ

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.58±0.09±0.02	213.5	[25] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[25] HE 08B reports $0.59 \pm 0.05 \pm 0.08 \pm 0.03$ % from a measurement of $[\Gamma(\chi_{c0}(1P) \to K^+K^-\pi^0\pi^0)/\Gamma_{\text{total}}] \times [\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(K^+\pi^-K^0\pi^0 + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{21}/Γ

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
2.58±0.34±0.09	401.7	[26] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[26] HE 08B reports $2.64 \pm 0.15 \pm 0.31 \pm 0.14$ % from a measurement of $[\Gamma(\chi_{c0}(1P) \to K^+\pi^-K^0\pi^0 + \text{ c.c.})/\Gamma_{\text{total}}] \times [\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\rho^+K^-K^0 + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{22}/Γ

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.25±0.22±0.04	179.7	[27] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[27] HE 08B reports $1.28 \pm 0.16 \pm 0.15 \pm 0.07$ % from a measurement of $[\Gamma(\chi_{c0}(1P) \to \rho^+K^-K^0 + \text{ c.c.})/\Gamma_{\text{total}}] \times [\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(K^*(892)^-K^+\pi^0 \to K^+\pi^-K^0\pi^0 + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{23}/Γ

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.48±0.12±0.02	64.1	[28] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[28] HE 08B reports $0.49 \pm 0.10 \pm 0.07 \pm 0.03$ % from a measurement of $[\Gamma(\chi_{c0}(1P) \to K^*(892)^-K^+\pi^0 \to K^+\pi^-K^0\pi^0 + \text{ c.c.})/\Gamma_{\text{total}}] \times [\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $\text{B}(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(K^0_S K^0_S \pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{24}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
5.9±1.1±0.2	152 ± 14	[29] ABLIKIM	05O	BES2	$\psi(2S) \to \gamma\chi_{c0}$

[29] ABLIKIM 05O reports $[\Gamma(\chi_{c0}(1P) \to K^0_S K^0_S \pi^+\pi^-)/\Gamma_{\rm total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (0.558 \pm 0.051 \pm 0.089) \times 10^{-3}$. We divide by our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(K^+K^-\eta\pi^0)/\Gamma_{\rm total}$ Γ_{25}/Γ

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.31±0.07±0.01	56.4	[30] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[30] HE 08B reports $0.32 \pm 0.05 \pm 0.05 \pm 0.02$ % from a measurement of $[\Gamma(\chi_{c0}(1P) \to K^+K^-\eta\pi^0)/\Gamma_{\rm total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(3(\pi^+\pi^-))/\Gamma_{\rm total}$ Γ_{26}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
12.0±1.8 OUR EVALUATION	Treating systematic error as correlated.			
12.0±1.7 OUR AVERAGE				
11.7±1.0±1.9	[31] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c0}$
12.5±2.9±0.5	[31] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

[31] Rescaled by us using $B(\psi(2S) \to \gamma\chi_{c0}) = (9.4 \pm 0.4)\%$ and $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (32.6 \pm 0.5)\%$.

$\Gamma(K^+\overline{K}^*(892)^0\pi^- + \text{c.c.})/\Gamma_{\rm total}$ Γ_{27}/Γ

VALUE	DOCUMENT ID
0.0073±0.0016 OUR FIT	

$\Gamma(K^*(892)^0\overline{K}^*(892)^0)/\Gamma_{\rm total}$ Γ_{28}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.8±0.6±0.1	64	[32] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.6±0.4±0.1	30.1 ± 5.7	[33,34] ABLIKIM	04H	BES	Repl. by ABLIKIM 05Q

[32] ABLIKIM 05Q reports $[\Gamma(\chi_{c0}(1P) \to K^*(892)^0\overline{K}^*(892)^0)/\Gamma_{\rm total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (0.168 \pm 0.035^{+0.047}_{-0.040}) \times 10^{-3}$. We divide by our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[33] Assumes $B(K^*(892)^0 \to K^-\pi^+) = 2/3$.

[34] ABLIKIM 04H reports $[\Gamma(\chi_{c0}(1P) \to K^*(892)^0\overline{K}^*(892)^0)/\Gamma_{\rm total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (1.53 \pm 0.29 \pm 0.26) \times 10^{-4}$. We divide by our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\pi\pi)/\Gamma_{\rm total}$ Γ_{29}/Γ

VALUE (units 10^{-3})	DOCUMENT ID
7.2±0.6 OUR FIT	

$\Gamma(\eta\eta)/\Gamma_{\text{total}}$ Γ_{32}/Γ

VALUE (units 10^{-3})	DOCUMENT ID
2.2±0.4 OUR FIT	

$\Gamma(\eta\eta)/\Gamma(\pi\pi)$ Γ_{32}/Γ_{29}

VALUE	DOCUMENT ID	TECN	COMMENT
0.31±0.06 OUR FIT			
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.26\pm0.09^{+0.03}_{-0.02}$	[35] ANDREOTTI	05C E835	$\overline{p}p \rightarrow$ 2 mesons
$0.24\pm0.10\pm0.08$	[35] BAI	03C BES	$\psi(2S) \rightarrow 5\gamma$

[35] We have multiplied $\pi^0\pi^0$ measurement by 3 to obtain $\pi\pi$.

$\Gamma(\eta\eta')/\Gamma_{\text{total}}$ Γ_{33}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID	TECN	COMMENT
<0.5	90	[36] ADAMS	07 CLEO	$\psi(2S) \rightarrow \gamma\chi_{c0}$

[36] ADAMS 07 reports $< 0.5 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \rightarrow \eta\eta')/\Gamma_{\text{total}}]$ $\times$ [B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = 0.0922 ± 0.0011 ± 0.0046. We rescale to our best value B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = 9.42×10^{-2}.

$\Gamma(\eta'\eta')/\Gamma_{\text{total}}$ Γ_{34}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
1.7±0.4±0.1	23	[37] ADAMS	07 CLEO	$\psi(2S) \rightarrow \gamma\chi_{c0}$

[37] ADAMS 07 reports $(1.7 \pm 0.4 \pm 0.2) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \rightarrow \eta'\eta')/\Gamma_{\text{total}}]$ $\times$ [B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = 0.0922 ± 0.0011 ± 0.0046. We rescale to our best value B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = $(9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\omega\omega)/\Gamma_{\text{total}}$ Γ_{35}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
2.2±0.7±0.1	38.1 ± 9.6	[38] ABLIKIM	05N BES2	$\psi(2S) \rightarrow \gamma\chi_{c0} \rightarrow \gamma 6\pi$

[38] ABLIKIM 05N reports $[\Gamma(\chi_{c0}(1P) \rightarrow \omega\omega)/\Gamma_{\text{total}}]$ $\times$ [B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$)] = $(0.212 \pm 0.053 \pm 0.037) \times 10^{-3}$. We divide by our best value B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = $(9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(K^+K^-)/\Gamma_{\text{total}}$ Γ_{36}/Γ

VALUE (units 10^{-3})	DOCUMENT ID
5.8±0.6 OUR FIT	

$\Gamma(K^0_S K^0_S)/\Gamma_{\text{total}}$ Γ_{37}/Γ

VALUE (units 10^{-3})	DOCUMENT ID
2.84±0.28 OUR FIT	

$\Gamma(K^0_S K^0_S)/\Gamma(\pi\pi)$ Γ_{37}/Γ_{29}

VALUE	DOCUMENT ID	TECN	COMMENT
0.39±0.05 OUR FIT			
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.31±0.05±0.05	[39,40] CHEN	07B BELL	$e^+e^- \to e^+e^-\chi_{c0}$

[39] Using $\Gamma(\pi\pi) \times \Gamma(\gamma\gamma)/\Gamma_{\rm total}$ from the $\pi^+\pi^-$ measurement of NAKAZAWA 05 rescaled by 3/2 to convert to $\pi\pi$.
[40] Not independent from other measurements.

$\Gamma(K^0_S K^0_S)/\Gamma(K^+K^-)$ Γ_{37}/Γ_{36}

VALUE	DOCUMENT ID	TECN	COMMENT
0.49±0.06 OUR FIT			
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.49±0.07±0.08	[41,42] CHEN	07B BELL	$e^+e^- \to e^+e^-\chi_{c0}$

[41] Using $\Gamma(K^+K^-) \times \Gamma(\gamma\gamma)/\Gamma_{\rm total}$ from NAKAZAWA 05.
[42] Not independent from other measurements.

$\Gamma(\pi^+\pi^-\eta)/\Gamma_{\rm total}$ Γ_{38}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID	TECN	COMMENT
<0.21	90	[43] ATHAR	07 CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<1.1	90	[44] ABLIKIM	06R BES2	$\psi(2S) \to \gamma\chi_{c0}$

[43] ATHAR 07 reports $< 0.21 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \pi^+\pi^-\eta)/\Gamma_{\rm total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$.
[44] ABLIKIM 06R reports $< 1.1 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \pi^+\pi^-\eta)/\Gamma_{\rm total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.2 \pm 0.4) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$.

$\Gamma(\pi^+\pi^-\eta')/\Gamma_{\rm total}$ Γ_{39}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID	TECN	COMMENT
<0.4	90	[45] ATHAR	07 CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

[45] ATHAR 07 reports $< 0.38 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \pi^+\pi^-\eta')/\Gamma_{\rm total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$.

$\Gamma(\overline{K^0}K^+\pi^- + \text{c.c.})/\Gamma_{\rm total}$ Γ_{40}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID	TECN	COMMENT
<0.10	90	[46] ATHAR	07 CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.7	90	[47,48] ABLIKIM	06R BES2	$\psi(2S) \to \gamma\chi_{c0}$
<0.7	90	[48,49] BAI	99B BES	$\psi(2S) \to \gamma\chi_{c0}$

[46] ATHAR 07 reports $< 0.10 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \overline{K}^0 K^+ \pi^- + \text{c.c.})/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$.

[47] ABLIKIM 06R reports $< 0.70 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \overline{K}^0 K^+ \pi^- + \text{c.c.})/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.2 \pm 0.4) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$.

[48] We have multiplied the $K^0_S K^+ \pi^-$ measurement by a factor of 2 to convert to $K^0 K^+ \pi^-$.

[49] Rescaled by us using $B(\psi(2S) \to \gamma\chi_{c0}) = (9.4 \pm 0.4)\%$ and $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (32.6 \pm 0.5)\%$.

$\Gamma(K^+K^-\pi^0)/\Gamma_{\text{total}}$ Γ_{41}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<0.06	90	[50] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

[50] ATHAR 07 reports $< 0.06 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K^+K^-\pi^0)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$.

$\Gamma(K^+K^-\eta)/\Gamma_{\text{total}}$ Γ_{42}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<0.23	90	[51] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

[51] ATHAR 07 reports $< 0.24 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K^+K^-\eta)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$.

$\Gamma(K^+K^-K^0_SK^0_S)/\Gamma_{\text{total}}$ Γ_{43}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.46±0.49±0.05	16.8 ± 4.8	[52] ABLIKIM	05O	BES2	$\psi(2S) \to \gamma\chi_{c0}$

[52] ABLIKIM 05O reports $[\Gamma(\chi_{c0}(1P) \to K^+K^-K^0_SK^0_S)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (0.138 \pm 0.039 \pm 0.025) \times 10^{-3}$. We divide by our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(K^+K^-K^+K^-)/\Gamma_{\text{total}}$ Γ_{44}/Γ

VALUE (units 10^{-3})	DOCUMENT ID
2.83±0.30 OUR FIT	

$\Gamma(K^+K^-\phi)/\Gamma_{\text{total}}$ Γ_{45}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.01±0.26±0.03	38	[53] ABLIKIM	06T	BES2	$\psi(2S) \to \gamma 2K^+ 2K^-$

[53] ABLIKIM 06T reports $(1.03 \pm 0.22 \pm 0.15) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K^+K^-\phi)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.2 \pm 0.4) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi\phi)/\Gamma_{total}$ Γ_{46}/Γ

VALUE (units 10^{-3})	DOCUMENT ID
0.93±0.19 OUR FIT	

$\Gamma(p\overline{p})/\Gamma_{total}$ Γ_{47}/Γ

VALUE (units 10^{-4})	DOCUMENT ID
2.39±0.15 OUR FIT	

$\Gamma(p\overline{p}\pi^0)/\Gamma_{total}$ Γ_{48}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.58±0.12±0.02	[54] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

[54] ATHAR 07 reports $(0.59 \pm 0.10 \pm 0.08) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to p\overline{p}\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(p\overline{p}\eta)/\Gamma_{total}$ Γ_{49}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.38±0.11±0.01	[55] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

[55] ATHAR 07 reports $(0.39 \pm 0.11 \pm 0.04) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to p\overline{p}\eta)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\pi^+\pi^- p\overline{p})/\Gamma_{total}$ Γ_{50}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
2.1 ±0.7 OUR EVALUATION Error includes scale factor of 1.4. Treating systematic error as correlated.				
2.1 ±1.0 OUR AVERAGE Error includes scale factor of 2.0.				
1.57±0.21±0.53	[56] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c0}$
4.20±1.15±0.18	[56] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

[56] Rescaled by us using $B(\psi(2S) \to \gamma\chi_{c0}) = (9.4 \pm 0.4)\%$ and $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (32.6 \pm 0.5)\%$.

$\Gamma(\pi^0\pi^0 p\overline{p})/\Gamma_{total}$ Γ_{51}/Γ

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.108±0.029±0.004	39.5	[57] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[57] HE 08B reports $0.11 \pm 0.02 \pm 0.02 \pm 0.01$ % from a measurement of $[\Gamma(\chi_{c0}(1P) \to \pi^0\pi^0 p\overline{p})/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(K^0_S K^0_S p\overline{p})/\Gamma_{total}$ Γ_{52}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<8.8	90	[58] ABLIKIM	06D	BES2	$\psi(2S) \to \chi_{c0}\gamma$

[58] Using B($\psi(2S) \to \chi_{c0}\gamma$) = (9.2 ± 0.5)%

$\Gamma(p\overline{n}\pi^-)/\Gamma_{total}$ Γ_{53}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
11.7±3.2±0.4	[59] ABLIKIM	06I	BES2	$\psi(2S) \to \gamma p\pi^- X$

[59] ABLIKIM 06I reports [$\Gamma(\chi_{c0}(1P) \to p\overline{n}\pi^-)/\Gamma_{total}$] × [B($\psi(2S) \to \gamma\chi_{c0}(1P)$)] = (1.10 ± 0.24 ± 0.18) × 10^{-4}. We divide by our best value B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = (9.42 ± 0.31) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\Lambda\overline{\Lambda})/\Gamma_{total}$ Γ_{54}/Γ

VALUE (units 10^{-4})	DOCUMENT ID
3.4±0.4 OUR FIT	

$\Gamma(\Lambda\overline{\Lambda}\pi^+\pi^-)/\Gamma_{total}$ Γ_{55}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<4.0	90	[60] ABLIKIM	06D	BES2	$\psi(2S) \to \chi_{c0}\gamma$

[60] Using B($\psi(2S) \to \chi_{c0}\gamma$) = (9.2 ± 0.5)%

$\Gamma(K^+\overline{p}\Lambda + \text{c.c.})/\Gamma_{total}$ Γ_{56}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
1.05±0.20±0.03	[61] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

[61] ATHAR 07 reports (1.07 ± 0.17 ± 0.12) × 10^{-3} from a measurement of [$\Gamma(\chi_{c0}(1P) \to K^+\overline{p}\Lambda + \text{c.c.})/\Gamma_{total}$] × [B($\psi(2S) \to \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = (9.22 ± 0.11 ± 0.46) × 10^{-2}. We rescale to our best value B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = (9.42 ± 0.31) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\Sigma^0\overline{\Sigma}^0)/\Gamma_{total}$ Γ_{57}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
4.3±0.7±0.1	78 ± 10	[62] NAIK	08	CLEO	$\psi(2S) \to \gamma\Sigma^0\overline{\Sigma}^0$

[62] NAIK 08 reports (4.41 ± 0.56 ± 0.47) × 10^{-4} from a measurement of [$\Gamma(\chi_{c0}(1P) \to \Sigma^0\overline{\Sigma}^0)/\Gamma_{total}$] × [B($\psi(2S) \to \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = (9.22 ± 0.11 ± 0.46) × 10^{-2}. We rescale to our best value B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = (9.42 ± 0.31) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\Sigma^+\overline{\Sigma}^-)/\Gamma_{total}$ Γ_{58}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
3.2±0.7±0.1	39 ± 7	[63] NAIK	08	CLEO	$\psi(2S) \to \gamma\Sigma^+\overline{\Sigma}^-$

[63] NAIK 08 reports $(3.25 \pm 0.57 \pm 0.43) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Sigma^+\overline{\Sigma}^-)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\Xi^0\overline{\Xi}^0)/\Gamma_{\text{total}}$ Γ_{59}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
3.3±0.8±0.1	23.3 ± 4.9	[64] NAIK	08	CLEO	$\psi(2S) \to \gamma\Xi^0\overline{\Xi}^0$

[64] NAIK 08 reports $(3.34 \pm 0.70 \pm 0.48) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Xi^0\overline{\Xi}^0)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\Xi^-\overline{\Xi}^+)/\Gamma_{\text{total}}$ Γ_{60}/Γ

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
5.0±0.7±0.2		95 ± 11	[65] NAIK	08	CLEO	$\psi(2S) \to \gamma\Xi^+\overline{\Xi}^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<10.3	90		[66] ABLIKIM	06D	BES2	$\psi(2S) \to \chi_{c0}\gamma$

[65] NAIK 08 reports $(5.14 \pm 0.60 \pm 0.47) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Xi^-\overline{\Xi}^+)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.42 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[66] Using $B(\psi(2S) \to \chi_{c0}\gamma) = (9.2 \pm 0.5)\%$

$\Gamma(p\overline{p})/\Gamma_{\text{total}} \times \Gamma(\pi\pi)/\Gamma_{\text{total}}$ $\Gamma_{47}/\Gamma \times \Gamma_{29}/\Gamma$

VALUE (units 10^{-7})	DOCUMENT ID		TECN	COMMENT
17.2±1.6 OUR FIT				
15.3±2.4±0.8	[67] ANDREOTTI	03	E835	$\overline{p}p \to \chi_{c0} \to \pi^0\pi^0$

[67] We have multiplied $B(p\overline{p})\cdot B(\pi^0\pi^0)$ measurement by 3 to obtain $B(p\overline{p})\cdot B(\pi\pi)$.

$\Gamma(p\overline{p})/\Gamma_{\text{total}} \times \Gamma(\pi^0\eta)/\Gamma_{\text{total}}$ $\Gamma_{47}/\Gamma \times \Gamma_{30}/\Gamma$

VALUE (units 10^{-7})	DOCUMENT ID		TECN	COMMENT
<0.4	ANDREOTTI	05C	E835	$\overline{p}p \to \pi^0\eta$

$\Gamma(p\overline{p})/\Gamma_{\text{total}} \times \Gamma(\pi^0\eta')/\Gamma_{\text{total}}$ $\Gamma_{47}/\Gamma \times \Gamma_{31}/\Gamma$

VALUE (units 10^{-7})	DOCUMENT ID		TECN	COMMENT
<2.5	ANDREOTTI	05C	E835	$\overline{p}p \to \pi^0\eta$

$\Gamma(p\overline{p})/\Gamma_{\text{total}} \times \Gamma(\eta\eta)/\Gamma_{\text{total}}$ $\Gamma_{47}/\Gamma \times \Gamma_{32}/\Gamma$

VALUE (units 10^{-7})	DOCUMENT ID		TECN	COMMENT
5.3±0.9 OUR FIT				
$4.0 \pm 1.2^{+0.5}_{-0.3}$	ANDREOTTI	05C	E835	$\overline{p}p \to \eta\eta$

$\Gamma(p\overline{p})/\Gamma_{total} \times \Gamma(\eta\eta')/\Gamma_{total}$ $\Gamma_{47}/\Gamma \times \Gamma_{33}/\Gamma$

VALUE (units 10^{-6})	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$2.1^{+2.3}_{-1.5}$	ANDREOTTI 05C	E835	$\overline{p}p \rightarrow \pi^0\eta$

RADIATIVE DECAYS

$\Gamma(\gamma J/\psi(1S))/\Gamma_{total}$ Γ_{61}/Γ

VALUE (units 10^{-4})	DOCUMENT ID	TECN	COMMENT
114± 8 OUR FIT			
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$200 \pm 20 \pm 20$	[68] ADAM 05A	CLEO	$e^+e^- \rightarrow \psi(2S) \rightarrow \gamma\chi_{c0}$

[68] Uses B($\psi(2S) \rightarrow \gamma\chi_{c0} \rightarrow \gamma\gamma J/\psi$) from ADAM 05A and B($\psi(2S) \rightarrow \gamma\chi_{c0}$) from ATHAR 04.

$\Gamma(\gamma\rho^0)/\Gamma_{total}$ Γ_{62}/Γ

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<9	90	1.2 ± 4.5	[69] BENNETT 08A	CLEO	$\psi(2S) \rightarrow \gamma\gamma\rho^0$

[69] BENNETT 08A reports $< 9.6 \times 10^{-6}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \rightarrow \gamma\rho^0)/\Gamma_{total}] \times [B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P)) = (9.2 \pm 0.4) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$.

$\Gamma(\gamma\omega)/\Gamma_{total}$ Γ_{63}/Γ

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<9	90	0.0 ± 2.8	[70] BENNETT 08A	CLEO	$\psi(2S) \rightarrow \gamma\gamma\omega$

[70] BENNETT 08A reports $< 8.8 \times 10^{-6}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \rightarrow \gamma\omega)/\Gamma_{total}] \times [B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P)) = (9.2 \pm 0.4) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$.

$\Gamma(\gamma\phi)/\Gamma_{total}$ Γ_{64}/Γ

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<6	90	0.1 ± 1.6	[71] BENNETT 08A	CLEO	$\psi(2S) \rightarrow \gamma\gamma\phi$

[71] BENNETT 08A reports $< 6.4 \times 10^{-6}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \rightarrow \gamma\phi)/\Gamma_{total}] \times [B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P)) = (9.2 \pm 0.4) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P)) = 9.42 \times 10^{-2}$.

$\Gamma(\gamma\gamma)/\Gamma_{total}$ Γ_{65}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID	TECN	COMMENT
2.27±0.18 OUR FIT				
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<8	90	[72] WICHT 08	BELL	$B^{\pm} \rightarrow K^{\pm}\gamma\gamma$

[72] WICHT 08 reports $[\Gamma(\chi_{c0}(1P) \rightarrow \gamma\gamma)/\Gamma_{total}] \times [B(B^+ \rightarrow \chi_{c0}(1P)K^+)] < 0.11 \times 10^{-6}$. We divide by our best value $B(B^+ \rightarrow \chi_{c0}(1P)K^+) = 1.43 \times 10^{-4}$.

$\Gamma(\gamma\gamma)/\Gamma(\gamma J/\psi(1S))$ Γ_{65}/Γ_{61}

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
1.99±0.20 OUR FIT				
2.0 ±0.4 OUR AVERAGE				
$2.2 \pm 0.4\ ^{+0.1}_{-0.2}$	[73] ANDREOTTI	04	E835	$p\overline{p} \to \chi_{c0} \to \gamma\gamma$
1.45 ± 0.74	[74] AMBROGIANI	00B	E835	$\overline{p}p \to \chi_{c2} \to \gamma\gamma, \gamma J/\psi$

[73] The values of $B(p\overline{p})B(\gamma\gamma)$ and $B(\gamma\gamma)B(\gamma J/\psi)$ measured by ANDREOTTI 04 are not independent. The latter is used in the fit because of smaller systematics.

[74] Calculated by us using $B(J/\psi(1S) \to e^+e^-) = 0.0593 \pm 0.0010$.

$\Gamma(p\overline{p})/\Gamma_{\text{total}} \times \Gamma(\gamma J/\psi(1S))/\Gamma_{\text{total}}$ $\Gamma_{47}/\Gamma \times \Gamma_{61}/\Gamma$

VALUE (units 10^{-7})	EVTS	DOCUMENT ID		TECN	COMMENT
27.3±1.8 OUR FIT					
28.2±2.1 OUR AVERAGE					
$28.0 \pm 1.9 \pm 1.3$	392	[75,76,77] BAGNASCO	02	E835	$\overline{p}p \to \chi_{c0} \to J/\psi\gamma$
$29.3\ ^{+5.7}_{-4.7} \pm 1.5$	89	[75,76] AMBROGIANI	99B		$\overline{p}p \to \chi_{c0} \to J/\psi\gamma$

[75] Values in $(\Gamma(p\overline{p}) \times \Gamma(\gamma J/\psi(1S))/\Gamma_{\text{total}})$ and $(\Gamma(p\overline{p})/\Gamma_{\text{total}} \times \Gamma(\gamma J/\psi(1S))/\Gamma_{\text{total}})$ are not independent. The latter is used in the fit since it is less correlated to the total width.

[76] Calculated by us using $B(J/\psi(1S) \to e^+e^-) = 0.0593 \pm 0.0010$.

[77] Recalculated by ANDREOTTI 05A.

$\Gamma(p\overline{p})/\Gamma_{\text{total}} \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ $\Gamma_{47}/\Gamma \times \Gamma_{65}/\Gamma$

VALUE (units 10^{-8})	DOCUMENT ID		TECN	COMMENT
5.4 ±0.5 OUR FIT				
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$6.52 \pm 1.18\ ^{+0.48}_{-0.72}$	[78] ANDREOTTI	04	E835	$p\overline{p} \to \chi_{c0} \to \gamma\gamma$

[78] The values of $B(p\overline{p})B(\gamma\gamma)$ and $B(\gamma\gamma)B(\gamma J/\psi)$ measured by ANDREOTTI 04 are not independent. The latter is used in the fit because of smaller systematics.

$\chi_{c0}(1P)$ CROSS-PARTICLE BRANCHING RATIOS

$\Gamma(\chi_{c0}(1P) \to p\overline{p})/\Gamma_{\text{total}} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{\text{total}}$ $\Gamma_{47}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
22.5±1.5 OUR FIT					
23.7±1.8 OUR AVERAGE					
$23.7 \pm 1.4 \pm 1.4$	383 ± 22	[79] NAIK	08	CLEO	$\psi(2S) \to \gamma p\overline{p}$
$23.6\ ^{+3.7}_{-3.4} \pm 3.4$	$89.5\ ^{+14}_{-13}$	BAI	04F	BES	$\psi(2S) \to \gamma\chi_{c0}(1P) \to \gamma\overline{p}p$

[79] Calculated by us. NAIK 08 reports $B(\chi_c^0 \to p\overline{p}) = (25.7 \pm 1.5 \pm 1.5 \pm 1.3) \times 10^{-5}$ using $B(\psi(2S) \to \gamma\chi_c^0) = (9.22 \pm 0.11 \pm 0.46)\%$.

$\Gamma(\chi_{c0}(1P) \to p\overline{p})/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{47}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma_{9}^{\psi(2S)}$

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
6.8±0.5 OUR FIT				
4.6±1.9	[80] BAI	98I	BES	$\psi(2S) \to \gamma\chi_{c0} \to \gamma\overline{p}p$

[80] Calculated by us. The value for $B(\chi_{c0} \to p\overline{p})$ reported in BAI 98I is derived using $B(\psi(2S) \to \gamma\chi_{c0}) = (9.3 \pm 0.8)\%$ and $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (32.4 \pm 2.6)\%$ [BAI 98D].

$\Gamma(\chi_{c0}(1P) \to \Lambda\overline{\Lambda})/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{54}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
32 ±4 OUR FIT					
31.2±3.3±2.0	131 ± 12	[81] NAIK	08	CLEO	$\psi(2S) \to \gamma\Lambda\overline{\Lambda}$

[81] Calculated by us. NAIK 08 reports $B(\chi_c^0 \to \Lambda\overline{\Lambda}) = (33.8 \pm 3.6 \pm 2.2 \pm 1.7) \times 10^{-5}$ using $B(\psi(2S) \to \gamma\chi_c^0) = (9.22 \pm 0.11 \pm 0.46)\%$.

$\Gamma(\chi_{c0}(1P) \to \Lambda\overline{\Lambda})/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{54}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma_{9}^{\psi(2S)}$

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
9.7±1.1 OUR FIT					
$\mathbf{13.0^{+3.6}_{-3.5}\pm2.5}$	$15.2^{+4.2}_{-4.0}$	[82] BAI	03E	BES	$\psi(2S) \to \gamma\Lambda\overline{\Lambda}$

[82] BAI 03E reports [$B(\chi_c^0 \to \Lambda\overline{\Lambda})\, B(\psi(2S) \to \gamma\chi_c^0)$ / $B(\psi(2S) \to J/\psi\pi^+\pi^-)$] × [$B^2(\Lambda \to \pi^- p)$ / $B(J/\psi \to p\overline{p})$] = $(2.45^{+0.68}_{-0.65} \pm 0.46)\%$. We calculate from this measurement the presented value using $B(\Lambda \to \pi^- p) = (63.9 \pm 0.5)\%$ and $B(J/\psi \to p\overline{p}) = (2.17 \pm 0.07) \times 10^{-3}$.

$\Gamma(\chi_{c0}(1P) \to \gamma J/\psi(1S))/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{61}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
0.107±0.008 OUR FIT					
0.073±0.018 OUR AVERAGE					
0.069±0.018		[83] OREGLIA	82	CBAL	$\psi(2S) \to \gamma\chi_{c0}$
0.4 ±0.3		[84] BRANDELIK	79B	DASP	$\psi(2S) \to \gamma\chi_{c0}$
0.16 ±0.11		[84] BARTEL	78B	CNTR	$\psi(2S) \to \gamma\chi_{c0}$
3.3 ±1.7		[85] BIDDICK	77	CNTR	$e^+e^- \to \gamma X$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.125±0.007±0.013	560	[86] MENDEZ	08	CLEO	$\psi(2S) \to \gamma\chi_{c0}$
0.18 ±0.01 ±0.02	172	[87] ADAM	05A	CLEO	Repl. by MENDEZ 08

[83] Recalculated by us using $B(J/\psi(1S) \to \ell^+\ell^-) = 0.1181 \pm 0.0020$.
[84] Recalculated by us using $B(J/\psi(1S) \to \mu^+\mu^-) = 0.0588 \pm 0.0010$.
[85] Assumes isotropic gamma distribution.
[86] Not independent from other measurements of MENDEZ 08.
[87] Not independent from other values reported by ADAM 05A.

$\Gamma(\chi_{c0}(1P) \to \gamma J/\psi(1S))/\Gamma_{\text{total}} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\text{anything})$ $\Gamma_{61}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma_{7}^{\psi(2S)}$

$\Gamma_{61}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma_{7}^{\psi(2S)} = \Gamma_{61}/\Gamma \times \Gamma_{102}^{\psi(2S)}/(\Gamma_{9}^{\psi(2S)}+\Gamma_{10}^{\psi(2S)}+\Gamma_{11}^{\psi(2S)}+0.341\Gamma_{103}^{\psi(2S)}+0.194\Gamma_{104}^{\psi(2S)})$

VALUE (units 10^{-2})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.183±0.014 OUR FIT					
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.201±0.011±0.021	560	[88] MENDEZ	08	CLEO	$\psi(2S) \to \gamma\chi_{c0}$
0.31 ±0.02 ±0.03	172	ADAM	05A	CLEO	Repl. by MENDEZ 08

[88] Not independent from other measurements of MENDEZ 08.

$\Gamma(\chi_{c0}(1P) \to \gamma J/\psi(1S))/\Gamma_{\text{total}} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{61}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma_{9}^{\psi(2S)}$

VALUE (units 10^{-2})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.324±0.024 OUR FIT					
0.358±0.020±0.037	560	MENDEZ	08	CLEO	$\psi(2S) \to \gamma\chi_{c0}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.55 ±0.04 ±0.06	172	[89] ADAM	05A	CLEO	Repl. by MENDEZ 08

[89] Not independent from other values reported by ADAM 05A.

$\Gamma(\chi_{c0}(1P) \to \gamma\gamma)/\Gamma_{\text{total}} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{\text{total}}$ $\Gamma_{65}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-5})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.14±0.19 OUR FIT					
2.21±0.33 OUR AVERAGE					
2.17±0.32±0.10	207 ± 31	ECKLUND	08A	CLEO	$\psi(2S) \to \gamma\chi_{c0} \to 3\gamma$
3.7 ±1.8 ±1.0		LEE	85	CBAL	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(\chi_{c0}(1P) \to \pi\pi)/\Gamma_{\text{total}} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{29}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma_{9}^{\psi(2S)}$

VALUE (units 10^{-4})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
20.5±1.5 OUR FIT					
20.7±1.7 OUR AVERAGE					
23.9±2.7±4.1	97 ± 11	[90] BAI	03C	BES	$\psi(2S) \to \gamma\chi_{c0} \to \gamma\pi^0\pi^0$
20.2±1.1±1.5	720 ± 32	[91] BAI	98I	BES	$\psi(2S) \to \gamma\chi_{c0} \to \gamma\pi^+\pi^-$

[90] We have multiplied $\pi^0\pi^0$ measurement by 3 to obtain $\pi\pi$.

[91] Calculated by us. The value for $B(\chi_{c0} \to \pi^+\pi^-)$ reported in BAI 98I is derived using $B(\psi' \to \gamma\chi_{c0}) = (9.3 \pm 0.8)\%$ and $B(\psi' \to J/\psi\pi^+\pi^-) = (32.4 \pm 2.6)\%$ [BAI 98D]. We have multiplied $\pi^+\pi^-$ measurement by 3/2 to obtain $\pi\pi$.

$\Gamma(\chi_{c0}(1P) \to \eta\eta)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{32}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.1 ±0.4 OUR FIT					
2.86±0.46±0.37	48	[92] ADAMS	07	CLEO	$\psi(2S) \to \gamma\chi_{c0}$

[92] Calculated by us. The value of $B(\chi_{c0}(1P) \to \eta\eta)$ reported by ADAMS 07 was derived using $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46)\%$ (ATHAR 04).

$\Gamma(\chi_{c0}(1P) \to \eta\eta)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{32}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma_9^{\psi(2S)}$

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.63 ±0.11 OUR FIT				
0.578±0.241±0.158	BAI	03C	BES	$\psi(2S) \to \gamma\eta\eta$

$\Gamma(\chi_{c0}(1P) \to K^+K^-)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{36}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma_9^{\psi(2S)}$

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.65±0.16 OUR FIT					
1.63±0.10±0.15	774 ± 38	[93] BAI	98I	BES	$\psi(2S) \to \gamma K^+K^-$

[93] Calculated by us. The value for $B(\chi_{c0} \to K^+K^-)$ reported by BAI 98I is derived using $B(\psi(2S) \to \gamma\chi_{c0}) = (9.3 \pm 0.8)\%$ and $B(\psi(2S) \to J/\psi\pi^+\pi^-) = (32.4 \pm 2.6)\%$ [BAI 98D].

$\Gamma(\chi_{c0}(1P) \to K_S^0K_S^0)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{37}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.67±0.25 OUR FIT					
3.02±0.19±0.33	322	ABLIKIM	05O	BES2	$\psi(2S) \to \gamma K_S^0K_S^0$

$\Gamma(\chi_{c0}(1P) \to K_S^0K_S^0)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{37}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma_9^{\psi(2S)}$

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
8.1±0.8 OUR FIT				
5.6±0.8±1.3	[94] BAI	99B	BES	$\psi(2S) \to \gamma K_S^0K_S^0$

[94] Calculated by us. The value of $B(\chi_{c0} \to K_S^0K_S^0)$ reported by BAI 99B was derived using $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.3 \pm 0.8)\%$ and $B(\psi(2S) \to J/\psi\pi^+\pi^-) = (32.4 \pm 2.6)\%$ [BAI 98D].

$\Gamma(\chi_{c0}(1P) \to 2(\pi^+\pi^-))/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_1/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma_9^{\psi(2S)}$

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
6.4±0.5 OUR FIT				
6.9±2.4 OUR AVERAGE	Error includes scale factor of 3.8.			
4.4±0.1±0.9	[95] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c0}$
9.3±0.9	[96] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

[95] Calculated by us. The value for $B(\chi_{c0} \to 2\pi^+ 2\pi^-)$ reported in BAI 99B is derived using $B(\psi(2S) \to \gamma\chi_{c0}) = (9.3 \pm 0.8)\%$ and $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (32.4 \pm 2.6)\%$ [BAI 98D].

[96] The value $B(\psi(1S) \to \gamma\chi_{c0}) \times B(\chi_{c0} \to 2\pi^+ 2\pi^-)$ reported in TANENBAUM 78 is derived using $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) \times B(J/\psi(1S) \to \ell^+\ell^-) = (4.6 \pm 0.7)\%$. Calculated by us using $B(J/\psi(1S) \to \ell^+\ell^-) = 0.1181 \pm 0.0020$.

$\Gamma(\chi_{c0}(1P) \to \pi^+\pi^- K^+ K^-)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_7/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
1.70±0.13 OUR FIT				
1.64±0.05±0.2	ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(\chi_{c0}(1P) \to \pi^+\pi^- K^+ K^-)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_7/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma_9^{\psi(2S)}$

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
5.1 ±0.4 OUR FIT				
5.8 ±1.6 OUR AVERAGE Error includes scale factor of 2.3.				
4.22±0.20±0.97	BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c0}$
7.4 ±1.0	[97] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

[97] The reported value is derived using $B(\psi(2S) \to \pi^+\pi^- J/\psi) \times B(J/\psi \to \ell^+\ell^-) = (4.6 \pm 0.7)\%$. Calculated by us using $B(J/\psi \to \ell^+\ell^-) = 0.1181 \pm 0.0020$.

$\Gamma(\chi_{c0}(1P) \to K^+ K^- K^+ K^-)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{44}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.66±0.27 OUR FIT					
3.20±0.11±0.41	278	[98] ABLIKIM	06T	BES2	$\psi(2S) \to \gamma 2K^+ 2K^-$

[98] Calculated by us. The value of $B(\chi_{c0} \to 2K^+ 2K^-)$ reported by ABLIKIM 06T was derived using $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.2 \pm 0.4)\%$.

$\Gamma(\chi_{c0}(1P) \to K^+ K^- K^+ K^-)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{44}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma_9^{\psi(2S)}$

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
8.0±0.8 OUR FIT				
6.1±0.8±0.9	[99] BAI	99B	BES	$\psi(2S) \to \gamma 2K^+ 2K^-$

[99] Calculated by us. The value of $B(\chi_{c0} \to 2K^+ 2K^-)$ reported by BAI 99B was derived using $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.3 \pm 0.8)\%$ and $B(\psi(2S) \to J/\psi\pi^+\pi^-) = (32.4 \pm 2.6)\%$ [BAI 98D].

$\Gamma(\chi_{c0}(1P) \to \phi\phi)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{46}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
0.87±0.18 OUR FIT					
0.86±0.19±0.12	26	[100] ABLIKIM	06T	BES2	$\psi(2S) \to \gamma 2K^+ 2K^-$

[100] Calculated by us. The value of $B(\chi_{c0} \to \phi\phi)$ reported by ABLIKIM 06T was derived using $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.2 \pm 0.4)\%$.

$\Gamma(\chi_{c0}(1P) \to \phi\phi)/\Gamma_{\text{total}} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{46}/\Gamma \times \Gamma_{102}^{\psi(2S)}/\Gamma_{9}^{\psi(2S)}$

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.6±0.5 OUR FIT				
2.6±1.0±1.1	[101] BAI	99B	BES	$\psi(2S) \to \gamma 2K^+ 2K^-$

[101] Calculated by us. The value of $B(\chi_{c0} \to \phi\phi)$ reported by BAI 99B was derived using $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.3 \pm 0.8)\%$ and $B(\psi(2S) \to J/\psi\pi^+\pi^-) = (32.4 \pm 2.6)\%$ [BAI 98D].

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