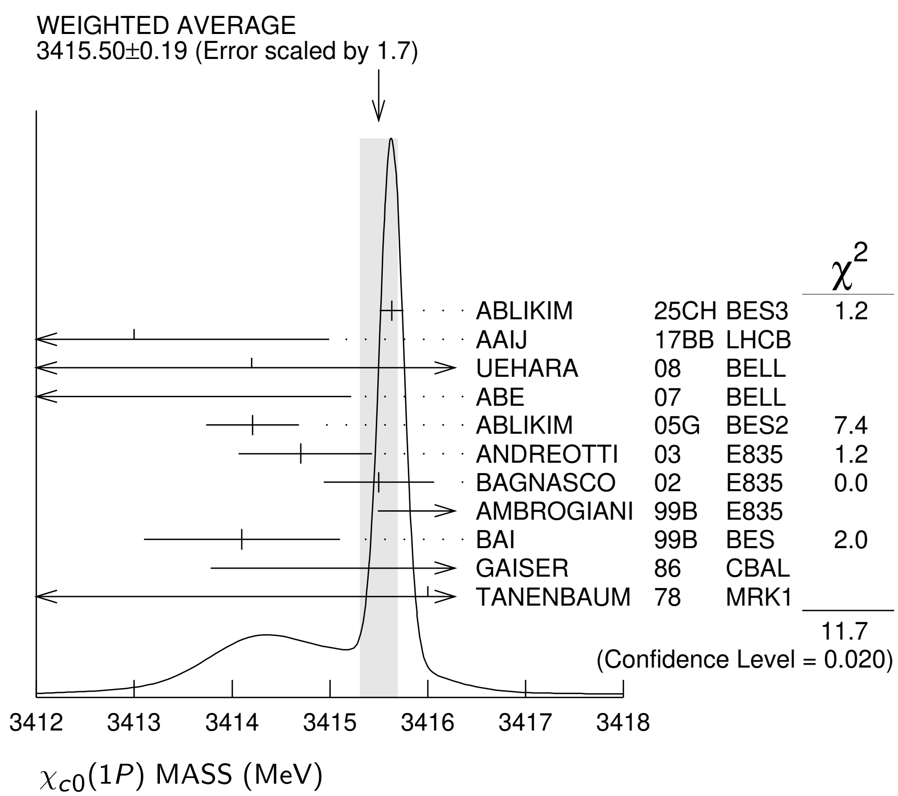
$\chi_{c0}(1P)$

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

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

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
3415.50± 0.19 OUR AVERAGE		Error includes scale factor of 1.7. See the ideogram below.			
3415.63± 0.07±0.10		[1] ABLIKIM	25CH	BES3	$\psi(2S) \to \gamma \chi_{c0}$
3413.0 ± 1.9 ±0.6	933	[2] AAIJ	17BB	LHCB	$p p \to b \overline{b} X \to 2(K^+ K^-) X$
3414.2 ± 0.5 ±2.3	5.4k	UEHARA	08	BELL	$\gamma\gamma \to \chi_{c0} \to$ hadrons
3406 ± 7 ±6	230	[3] 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		[4] ANDREOTTI	03	E835	$\overline{p} p \to \chi_{c0} \to \pi^0 \pi^0$
3415.5 ± 0.4 ±0.4	392	[5] BAGNASCO	02	E835	$\overline{p} p \to \chi_{c0} \to J/\psi \gamma$
3417.4 $^{+1.8}_{-1.9}$ ±0.2		[4] 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		[4] GAISER	86	CBAL	$\psi(2S) \to \gamma X$
3416 ± 3 ±4		[6] TANENBAUM	78	MRK1	$e^+ e^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3414.6 ± 1.1	266	UEHARA	13	BELL	$\gamma\gamma \to K^0_S K^0_S$
3416.5 ± 3.0		EISENSTEIN	01	CLE2	$e^+ e^- \to e^+ e^- \chi_{c0}$
3422 ±10		[6] BARTEL	78B	CNTR	$e^+ e^- \to J/\psi 2\gamma$
3415 ± 9		[6] BIDDICK	77	CNTR	$e^+ e^- \to \gamma X$



[1] From a measurement of M($\chi_{c2}(1P)$) − M($\chi_{c0}(1P)$) = 140.54 ± 0.07 ± 0.07 MeV and using M($\chi_{c2}(1P)$) = 3556.17 ± 0.07 MeV from PDG 24.
[2] From a fit of the $\phi\phi$ invariant mass with the width of $\chi_{c0}(1P)$ fixed to the PDG 16 value.
[3] From a fit of the J/ψ recoil mass spectrum. Supersedes ABE,K 02 and ABE 04G.
[4] Using mass of $\psi(2S)$ = 3686.0 MeV.
[5] Recalculated by ANDREOTTI 05A, using the value of $\psi(2S)$ mass from AULCHENKO 03.
[6] 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
12.40±0.27 OUR FIT	Error includes scale factor of 1.6.				
12.4 ±0.5 OUR AVERAGE	Error includes scale factor of 2.8.				
12.52±0.12±0.13		ABLIKIM	25CH	BES3	$\psi(2S) \to \gamma\chi_{c0}$
10.6 ±1.9 ±2.6	5.4k	UEHARA	08	BELL	$\gamma\gamma \to \chi_{c0} \to$ hadrons
12.6 $^{+1.5}_{-1.6}$ $^{+0.9}_{-1.1}$		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	[1] 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	$\psi(2S) \to \gamma X$, $\gamma\pi^0\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
13.2 ±2.1	266	UEHARA	13	BELL	$\gamma\gamma \to K^0_S K^0_S$

[1] Recalculated by ANDREOTTI 05A.

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

	Mode	Fraction (Γ_i/Γ)	Scale factor/ Confidence level
	Hadronic decays		
Γ_1	$2(\pi^+\pi^-)$	(2.10±0.10) %	S=1.2
Γ_2	$\rho^0\pi^+\pi^-$	(8.2 ±2.6) × 10^{-3}	
Γ_3	$\rho^0\rho^0$		
Γ_4	$f_0(980) f_0(980)$	(6.5 ±2.1) × 10^{-4}	
Γ_5	$\pi^+\pi^-\pi^0\pi^0$	(3.2 ±0.4) %	
Γ_6	$\rho^+\pi^-\pi^0$ + c.c.	(2.8 ±0.4) %	
Γ_7	$4\pi^0$	(3.2 ±0.4) × 10^{-3}	
Γ_8	$\pi^+\pi^- K^+K^-$	(1.73±0.15) %	S=1.1
Γ_9	$K^*_0(1430)^0 \overline{K}^*_0(1430)^0 \to \pi^+\pi^- K^+K^-$	(9.6 $^{+3.5}_{-2.8}$) × 10^{-4}	
Γ_{10}	$K^*_0(1430)^0 \overline{K}^*_2(1430)^0$ + c.c. $\to \pi^+\pi^- K^+K^-$	(7.8 $^{+1.9}_{-2.4}$) × 10^{-4}	
Γ_{11}	$K_1(1270)^+ K^-$ + c.c. $\to \pi^+\pi^- K^+K^-$	(6.1 ±1.8) × 10^{-3}	

Γ_{12}	$K_1(1400)^+ K^- +$ c.c. $\to \pi^+\pi^- K^+ K^-$	< 2.6	$\times 10^{-3}$	CL=90%
Γ_{13}	$f_0(980) f_0(980)$	$(1.6\ ^{+1.0}_{-0.9}$	$) \times 10^{-4}$	
Γ_{14}	$f_0(980) f_0(2200)$	$(7.7\ ^{+2.0}_{-2.4}$	$) \times 10^{-4}$	
Γ_{15}	$f_0(1370) f_0(1370)$	< 2.7	$\times 10^{-4}$	CL=90%
Γ_{16}	$f_0(1370) f_0(1500)$	< 1.7	$\times 10^{-4}$	CL=90%
Γ_{17}	$f_0(1370) f_0(1710)$	$(6.5\ ^{+3.4}_{-2.3}$	$) \times 10^{-4}$	
Γ_{18}	$f_0(1500) f_0(1370)$	< 1.3	$\times 10^{-4}$	CL=90%
Γ_{19}	$f_0(1500) f_0(1500)$	< 5	$\times 10^{-5}$	CL=90%
Γ_{20}	$f_0(1500) f_0(1710)$	< 7	$\times 10^{-5}$	CL=90%
Γ_{21}	$K^+ K^- \pi^+ \pi^- \pi^0$	$(8.6\ \pm 0.9$	$) \times 10^{-3}$	
Γ_{22}	$K^0_S K^\pm \pi^\mp \pi^+ \pi^-$	$(4.1\ \pm 0.4$	$) \times 10^{-3}$	
Γ_{23}	$K^+ K^- \pi^0 \pi^0$	$(5.4\ \pm 0.9$	$) \times 10^{-3}$	
Γ_{24}	$K^+ \pi^- \overline{K}^0 \pi^0 +$ c.c.	(2.42 ± 0.32) %		
Γ_{25}	$\rho^+ K^- K^0 +$ c.c.	(1.17 ± 0.20) %		
Γ_{26}	$K^*(892)^- K^+ \pi^0 \to K^+ \pi^- \overline{K}^0 \pi^0 +$ c.c.	$(4.5\ \pm 1.1$	$) \times 10^{-3}$	
Γ_{27}	$K^0_S K^0_S \pi^+ \pi^-$	$(5.5\ \pm 1.0$	$) \times 10^{-3}$	
Γ_{28}	$K^+ K^- \eta \pi^0$	$(2.9\ \pm 0.7$	$) \times 10^{-3}$	
Γ_{29}	$3(\pi^+ \pi^-)$	(1.97 ± 0.22) %		S=3.0
Γ_{30}	$K^+ \overline{K}^*(892)^0 \pi^- +$ c.c.	$(7.0\ \pm 1.5$	$) \times 10^{-3}$	
Γ_{31}	$K^*(892)^0 \overline{K}^*(892)^0$	$(1.7\ \pm 0.6$	$) \times 10^{-3}$	
Γ_{32}	$\pi \pi$	(8.76 ± 0.26)	$\times 10^{-3}$	S=1.4
Γ_{33}	$\pi^0 \eta$	< 1.7	$\times 10^{-4}$	
Γ_{34}	$\pi^0 \eta'$	< 1.1	$\times 10^{-3}$	
Γ_{35}	$\pi^0 \eta_c$	< 1.6	$\times 10^{-3}$	CL=90%
Γ_{36}	$\eta \eta$	(2.94 ± 0.22)	$\times 10^{-3}$	S=1.2
Γ_{37}	$\eta \eta'$	$(8.9\ \pm 1.1$	$) \times 10^{-5}$	
Γ_{38}	$\eta' \eta'$	(2.11 ± 0.12)	$\times 10^{-3}$	
Γ_{39}	$\omega \omega$	(1.02 ± 0.05)	$\times 10^{-3}$	
Γ_{40}	$\omega \phi$	(1.21 ± 0.10)	$\times 10^{-4}$	S=1.4
Γ_{41}	$\omega K^+ K^-$	(1.87 ± 0.20)	$\times 10^{-3}$	
Γ_{42}	$K^+ K^-$	(6.15 ± 0.19)	$\times 10^{-3}$	S=1.4
Γ_{43}	$K^0_S K^0_S$	(3.08 ± 0.18)	$\times 10^{-3}$	S=1.1
Γ_{44}	$\pi^+ \pi^- \eta$	< 1.9	$\times 10^{-4}$	CL=90%
Γ_{45}	$2\pi^+ 2\pi^- \eta$	$(4.4\ \pm 0.4$	$) \times 10^{-3}$	
Γ_{46}	$\pi^+ \pi^- \eta'$	< 3.5	$\times 10^{-4}$	CL=90%
Γ_{47}	$\eta \eta \eta'$	< 2.5	$\times 10^{-5}$	CL=90%
Γ_{48}	$\overline{K}^0 K^+ \pi^- +$ c.c.	< 9	$\times 10^{-5}$	CL=90%
Γ_{49}	$K^+ K^- \pi^0$	< 6	$\times 10^{-5}$	CL=90%
Γ_{50}	$K^+ K^- \eta$	< 2.2	$\times 10^{-4}$	CL=90%
Γ_{51}	$K^+ K^- K^0_S K^0_S$	$(1.4\ \pm 0.5$	$) \times 10^{-3}$	

Γ_{52}	$K^0_S K^0_S K^0_S K^0_S$	$(5.6 \pm 0.5) \times 10^{-4}$	
Γ_{53}	$K^+ K^- K^+ K^-$	$(2.7 \pm 0.4) \times 10^{-3}$	S=1.5
Γ_{54}	$K^+ K^- \phi$	$(9.4 \pm 2.4) \times 10^{-4}$	
Γ_{55}	$\overline{K}^0 K^+ \pi^- \phi +$ c.c.	$(3.7 \pm 0.6) \times 10^{-3}$	
Γ_{56}	$K^+ K^- \pi^0 \phi$	$(1.90 \pm 0.35) \times 10^{-3}$	
Γ_{57}	$K^0_S K^0_S K^0_S K^\pm \pi^\mp$	$(7.7 \pm 0.8) \times 10^{-5}$	
Γ_{58}	$3(K^+ K^-)$	$(1.04 \pm 0.21) \times 10^{-5}$	
Γ_{59}	$\phi \pi^+ \pi^- \pi^0$	$(1.14 \pm 0.14) \times 10^{-3}$	
Γ_{60}	$\phi \phi$	$(8.3 \pm 0.4) \times 10^{-4}$	S=1.1
Γ_{61}	$\phi \phi \eta$	$(8.2 \pm 0.9) \times 10^{-4}$	
Γ_{62}	$p \overline{p}$	$(2.35 \pm 0.12) \times 10^{-4}$	S=1.9
Γ_{63}	$p \overline{p} \pi^0$	$(6.8 \pm 0.7) \times 10^{-4}$	S=1.3
Γ_{64}	$p \overline{p} \eta$	$(3.4 \pm 0.4) \times 10^{-4}$	
Γ_{65}	$p \overline{p} \omega$	$(5.1 \pm 0.6) \times 10^{-4}$	
Γ_{66}	$p \overline{p} \pi^+ \pi^-$	$(1.9 \pm 1.1) \times 10^{-3}$	S=2.3
Γ_{67}	$p \overline{p} \pi^0 \pi^0$	$(1.01 \pm 0.27) \times 10^{-3}$	
Γ_{68}	$p \overline{p} \eta \pi^0$	$(2.35 \pm 0.20) \times 10^{-4}$	
Γ_{69}	$p \overline{p} \eta \eta$	$(5.6 \pm 0.7) \times 10^{-5}$	
Γ_{70}	$p \overline{p} K^+ K^-$	$(2.48 \pm 0.17) \times 10^{-4}$	
Γ_{71}	$p \overline{p} K^+ K^-$ (non-resonant)	$(1.19 \pm 0.26) \times 10^{-4}$	
Γ_{72}	$K^+ \overline{p} \Lambda(1520) +$ c.c.	$(2.9 \pm 0.7) \times 10^{-4}$	
Γ_{73}	$\Lambda(1520) \overline{\Lambda}(1520)$	$(3.0 \pm 1.2) \times 10^{-4}$	
Γ_{74}	$p \overline{p} \phi$	$(5.9 \pm 1.4) \times 10^{-5}$	
Γ_{75}	$p \overline{p} K^0_S K^0_S$	$< 8 \times 10^{-4}$	CL=90%
Γ_{76}	$p \overline{p} K^0_S K^- \pi^+ +$ c.c.	$(2.5 \pm 0.4) \times 10^{-5}$	
Γ_{77}	$p \overline{n} \pi^-$	$(1.23 \pm 0.11) \times 10^{-3}$	
Γ_{78}	$\overline{p} n \pi^+$	$(1.33 \pm 0.12) \times 10^{-3}$	
Γ_{79}	$p \overline{n} \pi^- \pi^0$	$(2.28 \pm 0.20) \times 10^{-3}$	
Γ_{80}	$\overline{p} n \pi^+ \pi^0$	$(2.15 \pm 0.18) \times 10^{-3}$	
Γ_{81}	$\Lambda \overline{\Lambda}$	$(3.50 \pm 0.17) \times 10^{-4}$	S=1.1
Γ_{82}	$\Lambda \overline{\Lambda} \pi^+ \pi^-$	$(1.15 \pm 0.12) \times 10^{-3}$	
Γ_{83}	$\Lambda \overline{\Lambda} \pi^+ \pi^-$ (non-resonant)	$< 5 \times 10^{-4}$	CL=90%
Γ_{84}	$\Sigma(1385)^+ \overline{\Lambda} \pi^- +$ c.c.	$< 5 \times 10^{-4}$	CL=90%
Γ_{85}	$\Sigma(1385)^- \overline{\Lambda} \pi^+ +$ c.c.	$< 5 \times 10^{-4}$	CL=90%
Γ_{86}	$\Lambda \overline{\Lambda} \eta$	$(2.2 \pm 0.4) \times 10^{-4}$	
Γ_{87}	$\Lambda \overline{\Lambda} \eta'$	$(7.3 \pm 1.6) \times 10^{-5}$	
Γ_{88}	$\Lambda \overline{\Lambda} \omega$	$(2.31 \pm 0.33) \times 10^{-4}$	
Γ_{89}	$\Lambda \overline{\Lambda} \phi$	$(2.9 \pm 1.2) \times 10^{-5}$	
Γ_{90}	$K^+ \overline{p} \Lambda +$ c.c.	$(1.21 \pm 0.12) \times 10^{-3}$	S=1.3
Γ_{91}	$n K^0_S \overline{\Lambda} +$ c.c.	$(6.5 \pm 0.5) \times 10^{-4}$	
Γ_{92}	$K^*(892)^+ \overline{p} \Lambda +$ c.c.	$(4.7 \pm 0.9) \times 10^{-4}$	
Γ_{93}	$\overline{p} \Lambda(1520) K^0_S \pi^+ +$ c.c.	$(1.6 \pm 0.7) \times 10^{-5}$	
Γ_{94}	$\Sigma^0 \overline{\Sigma}^0$	$(4.56 \pm 0.32) \times 10^{-4}$	
Γ_{95}	$\Sigma^+ \overline{p} K^0_S +$ c.c.	$(3.43 \pm 0.27) \times 10^{-4}$	

Γ_{96}	$\Sigma^0 \overline{p} K^+$ + c.c.	$(2.95\pm0.20) \times 10^{-4}$	
Γ_{97}	$\Sigma^+ \overline{\Sigma}^-$	$(4.5 \pm0.8) \times 10^{-4}$	S=2.6
Γ_{98}	$\Sigma^+ \overline{\Sigma}^- \eta$	$(1.23\pm0.23) \times 10^{-4}$	
Γ_{99}	$\Sigma^- \overline{\Sigma}^+$	$(5.0 \pm0.5) \times 10^{-4}$	
Γ_{100}	$\Sigma(1385)^+ \overline{\Sigma}(1385)^-$	$(1.6 \pm0.6) \times 10^{-4}$	
Γ_{101}	$\Sigma(1385)^- \overline{\Sigma}(1385)^+$	$(2.3 \pm0.6) \times 10^{-4}$	
Γ_{102}	$K^- \Lambda \overline{\Xi}^+$ + c.c.	$(1.89\pm0.34) \times 10^{-4}$	
Γ_{103}	$\Xi^0 \overline{\Xi}^0$	$(4.3 \pm0.5) \times 10^{-4}$	S=1.7
Γ_{104}	$\Xi^- \overline{\Xi}^+$	$(4.34\pm0.20) \times 10^{-4}$	
Γ_{105}	$\Omega^- \overline{\Omega}^+$	$(3.4 \pm0.6) \times 10^{-5}$	
Γ_{106}	$\eta_c \pi^+ \pi^-$	$< 7 \times 10^{-4}$	CL=90%
	Radiative decays		
Γ_{107}	$\gamma J/\psi(1S)$	(1.35 ± 0.09) %	S=1.8
Γ_{108}	$\gamma \rho^0$	$< 9 \times 10^{-6}$	CL=90%
Γ_{109}	$\gamma \omega$	$< 8 \times 10^{-6}$	CL=90%
Γ_{110}	$\gamma \phi$	$< 6 \times 10^{-6}$	CL=90%
Γ_{111}	$\gamma \gamma$	$(1.96\pm0.08) \times 10^{-4}$	S=1.1
Γ_{112}	$e^+ e^- J/\psi(1S)$	$(1.29\pm0.29) \times 10^{-4}$	
Γ_{113}	$\mu^+ \mu^- J/\psi(1S)$	$< 1.8 \times 10^{-5}$	CL=90%

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, 27 combinations of partial widths obtained from integrated cross section, and 87 branching ratios uses 263 measurements to determine 50 parameters. The overall fit has a $\chi^2 = 435.4$ for 213 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, $x_i \equiv \Gamma_i/\Gamma_{total}$.

	x_1	x_2	x_8	x_{21}	x_{30}	x_{32}	x_{36}	x_{42}	x_{43}	x_{53}
x_2	15									
x_8	8	1								
x_{21}	12	2	4							
x_{30}	2	0	31	1						
x_{32}	47	7	13	21	3					
x_{36}	18	3	5	8	1	31				
x_{42}	46	7	13	21	3	83	31			
x_{43}	23	4	7	10	2	41	15	41		
x_{53}	6	1	3	3	1	10	4	10	5	
x_{60}	30	5	9	14	2	53	20	53	26	7
x_{62}	19	3	5	9	1	34	11	34	17	4
x_{81}	30	5	8	13	2	53	20	52	26	7
x_{107}	6	1	1	3	0	11	5	11	5	1
x_{111}	9	1	−11	2	−8	25	8	25	10	−5
Γ	−10	−2	−9	−6	−4	−15	−6	−15	−8	−5

	x_{60}	x_{62}	x_{81}	x_{107}	x_{111}
x_{62}	22				
x_{81}	34	22			
x_{107}	7	−19	7		
x_{111}	13	10	16	6	
Γ	−11	−6	−9	−2	−20

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

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

$\Gamma(2(\pi^+\pi^-)) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ **$\Gamma_1\Gamma_{111}/\Gamma$**

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
51.1± 3.3 OUR FIT Error includes scale factor of 1.2.					
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	$e^+e^- \to e^+e^-\chi_{c0}$

$\Gamma(\rho^0\rho^0) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ **$\Gamma_3\Gamma_{111}/\Gamma$**

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	$\gamma\gamma \to \chi_{c0} \to 2(\pi^+\pi^-)$

$\Gamma(\pi^+\pi^-K^+K^-) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ **$\Gamma_8\Gamma_{111}/\Gamma$**

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
42 ±4 OUR FIT Error includes scale factor of 1.1.					
38.8±3.7±4.7	1.7k	UEHARA	08	BELL	$\gamma\gamma \to \chi_{c0} \to K^+K^-\pi^+\pi^-$

$\Gamma(K^+K^-\pi^+\pi^-\pi^0) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{21}\Gamma_{111}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
20.9±2.3 OUR FIT	Error includes scale factor of 1.1.			
26 ±4 ±4	1094	DEL-AMO-SA..11M	BABR	$\gamma\gamma \to K^+K^-\pi^+\pi^-\pi^0$

$\Gamma(K^+\overline{K}^*(892)^0\pi^- + \text{c.c.}) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{30}\Gamma_{111}/\Gamma$

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

$\Gamma(K^*(892)^0\overline{K}^*(892)^0) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{31}\Gamma_{111}/\Gamma$

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	$\gamma\gamma \to \chi_{c0} \to K^+K^-\pi^+\pi^-$

$\Gamma(\pi\pi) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{32}\Gamma_{111}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
21.3± 1.2 OUR FIT	Error includes scale factor of 1.2.			
23 ± 5 OUR AVERAGE				
$29.7^{+17.4}_{-12.0}\pm4.8$	103^{+60}_{-42}	[1] UEHARA 09	BELL	10.6 $e^+e^- \to e^+e^-\pi^0\pi^0$
22.7± 3.2±3.5	129 ± 18	[2] NAKAZAWA 05	BELL	10.6 $e^+e^- \to e^+e^-\pi^+\pi^-$

[1] We multiplied the measurement by 3 to convert from $\pi^0\pi^0$ to $\pi\pi$. Interference with the continuum included.
[2] We have multiplied $\pi^+\pi^-$ measurement by 3/2 to obtain $\pi\pi$.

$\Gamma(\eta\eta) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{36}\Gamma_{111}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
7.2±0.6 OUR FIT	Error includes scale factor of 1.2.			
9.4±2.3±1.2	22	[1] UEHARA 10A	BELL	10.6 $e^+e^- \to e^+e^-\eta\eta$

[1] Interference with the continuum not included.

$\Gamma(\omega\omega) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{39}\Gamma_{111}/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<3.9	90	[1] LIU 12B	BELL	$\gamma\gamma \to 2(\pi^+\pi^-\pi^0)$

[1] Using B($\omega \to \pi^+\pi^-\pi^0$) = (89.2 ± 0.7)%.

$\Gamma(\omega\phi) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{40}\Gamma_{111}/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.34	90	[1] LIU 12B	BELL	$\gamma\gamma \to K^+K^-\pi^+\pi^-\pi^0$

[1] Using B($\phi \to K^+K^-$) = (48.9 ± 0.5)% and B($\omega \to \pi^+\pi^-\pi^0$) = (89.2 ± 0.7)%.

$\Gamma(K^+K^-) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{42}\Gamma_{111}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
15.0±0.8 OUR FIT	Error includes scale factor of 1.2.			
14.3±1.6±2.3	153 ± 17	NAKAZAWA 05	BELL	10.6 $e^+e^- \to e^+e^-K^+K^-$

$\Gamma(K^0_S K^0_S) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{43}\Gamma_{111}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
7.5 ±0.6 OUR FIT	Error includes scale factor of 1.2.				
8.7 ±1.7 ±0.9	266	[1] UEHARA	13	BELL	$\gamma\gamma \to K^0_S K^0_S$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
7.00±0.65±0.71	134 ± 12	CHEN	07B	BELL	$e^+e^- \to e^+e^-\chi_{c0}$

[1] Supersedes CHEN 07B.

$\Gamma(K^+K^-K^+K^-) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{53}\Gamma_{111}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
6.6±1.0 OUR FIT	Error includes scale factor of 1.4.				
7.9±1.3±1.1	215 ± 36	UEHARA	08	BELL	$\gamma\gamma \to \chi_{c0} \to 2(K^+K^-)$

$\Gamma(\phi\phi) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{60}\Gamma_{111}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
2.03±0.13 OUR FIT	Error includes scale factor of 1.2.				
1.72±0.33±0.14	56 ± 11	[1] LIU	12B	BELL	$\gamma\gamma \to 2(K^+K^-)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.3 ±0.9 ±0.4	23.6 ± 9.6	UEHARA	08	BELL	$\gamma\gamma \to \chi_{c0} \to 2(K^+K^-)$

[1] Supersedes UEHARA 08. Using B($\phi \to K^+K^-$) = (48.9 ± 0.5)%.

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

HADRONIC DECAYS

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

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.07±0.09±0.05	1946k	[1,2] ABLIKIM	24BT	BES3	$\psi(2S) \to \gamma 2\pi^+ 2\pi^-$

[1] ABLIKIM 24BT reports 2.127 ± 0.002 ± 0.101 % from a measurement of [$\Gamma(\chi_{c0}(1P) \to 2(\pi^+\pi^-))/\Gamma_{total}$] × [B($\psi(2S) \to \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = $(9.79 \pm 0.20) \times 10^{-2}$, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = $(10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] Not used since the same experimental measurement has been used in another related quantity included elsewhere in the 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	$\psi(2S) \to \gamma\chi_{c0}$

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

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
6.5±2.1±0.2	36 ± 9	[1] ABLIKIM	04G	BES	$\psi(2S) \to \gamma 2\pi^+ 2\pi^-$

[1] ABLIKIM 04G reports [$\Gamma(\chi_{c0}(1P) \to f_0(980) f_0(980))/\Gamma_{total}$] × [B($\psi(2S) \to \gamma\chi_{c0}(1P)$)] = $(6.5 \pm 1.6 \pm 1.3) \times 10^{-5}$ which we divide by our best (shown rounded) value B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = $(10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

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

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
3.2±0.4±0.1	1751.4	[1] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[1] HE 08B reports $3.54 \pm 0.10 \pm 0.43 \pm 0.18$ % 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 $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

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

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
2.8±0.4±0.1	1358.5	[1,2] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[1] HE 08B reports $3.04 \pm 0.18 \pm 0.42 \pm 0.16$ % from a measurement of $[\Gamma(\chi_{c0}(1P) \to \rho^+\pi^-\pi^0 + \text{c.c.})/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] 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.

$\Gamma(4\pi^0)/\Gamma_{total}$ — Γ_7/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.2±0.4±0.1	3296	[1] ABLIKIM	11A	BES3	$e^+e^- \to \psi(2S) \to \gamma\chi_{c0}$

[1] ABLIKIM 11A reports $(3.34 \pm 0.06 \pm 0.44) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to 4\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.62 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(K_0^*(1430)^0\overline{K}_0^*(1430)^0 \to \pi^+\pi^-K^+K^-)/\Gamma_{total}$ — Γ_9/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$9.6^{+3.5}_{-2.7}\pm0.3$	83	[1] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^-K^+K^-$

[1] ABLIKIM 05Q reports $(10.44 \pm 2.37^{+3.05}_{-1.90}) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K_0^*(1430)^0\overline{K}_0^*(1430)^0 \to \pi^+\pi^-K^+K^-)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(K_0^*(1430)^0\overline{K}_2^*(1430)^0 + \text{c.c.} \to \pi^+\pi^-K^+K^-)/\Gamma_{total}$ — Γ_{10}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$7.8^{+1.9}_{-2.3}\pm0.2$	62	[1] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^-K^+K^-$

[1] ABLIKIM 05Q reports $(8.49 \pm 1.66 ^{+1.32}_{-1.99}) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K_0^*(1430)^0 \overline{K}_2^*(1430)^0 + \text{c.c.} \to \pi^+\pi^- K^+ K^-)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(K_1(1270)^+ K^- + \text{c.c.} \to \pi^+\pi^- K^+ K^-)/\Gamma_{\text{total}}$ — Γ_{11}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$6.1^{+1.9}_{-1.8} \pm 0.2$	68	[1] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+ K^-$

[1] ABLIKIM 05Q reports $(6.66 \pm 1.31 ^{+1.60}_{-1.51}) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K_1(1270)^+ K^- + \text{c.c.} \to \pi^+\pi^- K^+ K^-)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value. The measurement assumes $B(K_1(1270) \to K\rho(770)) = 42 \pm 6\%$.

$\Gamma(K_1(1400)^+ K^- + \text{c.c.} \to \pi^+\pi^- K^+ K^-)/\Gamma_{\text{total}}$ — Γ_{12}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<2.6	90	[1] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+ K^-$

[1] ABLIKIM 05Q reports $< 2.85 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K_1(1400)^+ K^- + \text{c.c.} \to \pi^+\pi^- K^+ K^-)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$. The measurement assumes $B(K_1(1400) \to K^*(892)\pi) = 94 \pm 6\%$.

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

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$15.8^{+10.2}_{-\ 8.7} \pm 0.4$	28	[1] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+ K^-$

[1] ABLIKIM 05Q reports $[\Gamma(\chi_{c0}(1P) \to f_0(980) f_0(980))/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (1.59 \pm 0.50 ^{+0.89}_{-0.72}) \times 10^{-5}$ which we divide by our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) 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_{14}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$7.7^{+2.0}_{-2.4} \pm 0.2$	77	[1] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+ K^-$

[1] ABLIKIM 05Q reports $(8.42 \pm 1.42 ^{+1.65}_{-2.29}) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to f_0(980) f_0(2200))/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error

is their experiment's error and our second error is the systematic error from using our best (shown rounded) value. The f_0 mesons are identified via $f_0(980) \to \pi^+\pi^-$ and $f_0(2200) \to K^+K^-$ decays.

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

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<2.7	90	[1] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^-K^+K^-$

[1] ABLIKIM 05Q reports $< 2.9 \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to f_0(1370)f_0(1370))/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$. 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_{16}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<1.7	90	[1] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^-K^+K^-$

[1] 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 $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$. 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_{17}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{6.5^{+3.4}_{-2.3}\pm0.2}$	61	[1] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^-K^+K^-$

[1] 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 $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) 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_{18}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<1.3	90	[1] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^-K^+K^-$

[1] 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 $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$. 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_{19}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<0.5	90	[1] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma \pi^+ \pi^- K^+ K^-$

[1] 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 $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = 10.06 \times 10^{-2}$. 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_{20}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<0.7	90	[1] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma \pi^+ \pi^- K^+ K^-$

[1] ABLIKIM 05Q reports $< 0.73 \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to f_0(1500) f_0(1710))/\Gamma_{total}] \times [B(\psi(2S) \to \gamma \chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = 10.06 \times 10^{-2}$. 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.

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

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
8.6±0.9 OUR FIT					
• • • We do not use the following data for averages, fits, limits, etc. • • •					
8.3±0.9±0.2	9.0k	[1,2] ABLIKIM	13B	BES3	$e^+ e^- \to \psi(2S) \to \gamma \chi_{c0}$

[1] ABLIKIM 13B reports $(8.61 \pm 0.13 \pm 0.94) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K^+ K^- \pi^+ \pi^- \pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma \chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = (9.68 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] Not used since the same experimental measurement has been used in another related quantity included elsewhere in the fit.

$\Gamma(K^0_S K^\pm \pi^\mp \pi^+ \pi^-)/\Gamma_{total}$ — Γ_{22}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
4.1±0.4±0.1	2.7k	[1] ABLIKIM	13B	BES3	$e^+ e^- \to \psi(2S) \to \gamma \chi_{c0}$

[1] ABLIKIM 13B reports $(4.22 \pm 0.10 \pm 0.43) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K^0_S K^\pm \pi^\mp \pi^+ \pi^-)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma \chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = (9.68 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(K^+ K^- \pi^0 \pi^0)/\Gamma_{total}$ — Γ_{23}/Γ

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.54±0.09±0.01	213.5	[1] HE	08B	CLEO	$e^+ e^- \to \gamma h^+ h^- h^0 h^0$

[1] HE 08B reports 0.59 ± 0.05 ± 0.08 ± 0.03 % from a measurement of [$\Gamma(\chi_{c0}(1P) \to K^+ K^- \pi^0 \pi^0)/\Gamma_{total}$] × [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}, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma \chi_{c0}(1P)$) = (10.06 ± 0.27) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

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

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
2.42±0.32±0.06	401.7	[1] HE 08B	CLEO	$e^+ e^- \to \gamma h^+ h^- h^0 h^0$

[1] HE 08B reports 2.64 ± 0.15 ± 0.31 ± 0.14 % from a measurement of [$\Gamma(\chi_{c0}(1P) \to K^+ \pi^- \overline{K}^0 \pi^0 + \text{c.c.})/\Gamma_{total}$] × [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}, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma \chi_{c0}(1P)$) = (10.06 ± 0.27) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\rho^+ K^- K^0 + \text{c.c.})/\Gamma_{total}$ — Γ_{25}/Γ

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
1.17±0.20±0.03	179.7	[1] HE 08B	CLEO	$e^+ e^- \to \gamma h^+ h^- h^0 h^0$

[1] HE 08B reports 1.28 ± 0.16 ± 0.15 ± 0.07 % from a measurement of [$\Gamma(\chi_{c0}(1P) \to \rho^+ K^- K^0 + \text{c.c.})/\Gamma_{total}$] × [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}, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma \chi_{c0}(1P)$) = (10.06 ± 0.27) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(K^*(892)^- K^+ \pi^0 \to K^+ \pi^- \overline{K}^0 \pi^0 + \text{c.c.})/\Gamma_{total}$ — Γ_{26}/Γ

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
0.45±0.11±0.01	64.1	[1] HE 08B	CLEO	$e^+ e^- \to \gamma h^+ h^- h^0 h^0$

[1] HE 08B reports 0.49 ± 0.10 ± 0.07 ± 0.03 % from a measurement of [$\Gamma(\chi_{c0}(1P) \to K^*(892)^- K^+ \pi^0 \to K^+ \pi^- \overline{K}^0 \pi^0 + \text{c.c.})/\Gamma_{total}$] × [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}, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma \chi_{c0}(1P)$) = (10.06 ± 0.27) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(K^0_S K^0_S \pi^+ \pi^-)/\Gamma_{total}$ — Γ_{27}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
5.5±1.0±0.1	152 ± 14	[1] ABLIKIM 05O	BES2	$\psi(2S) \to \gamma \chi_{c0}$

[1] ABLIKIM 05O reports [$\Gamma(\chi_{c0}(1P) \to K^0_S K^0_S \pi^+ \pi^-)/\Gamma_{total}$] × [B($\psi(2S) \to \gamma \chi_{c0}(1P)$)] = (0.558 ± 0.051 ± 0.089) × 10^{-3} which we divide by our best (shown rounded) value B($\psi(2S) \to \gamma \chi_{c0}(1P)$) = (10.06 ± 0.27) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(K^+ K^- \eta \pi^0)/\Gamma_{total}$ — Γ_{28}/Γ

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
0.29±0.07±0.01	56.4	[1] HE 08B	CLEO	$e^+ e^- \to \gamma h^+ h^- h^0 h^0$

[1] HE 08B reports 0.32 ± 0.05 ± 0.05 ± 0.02 % from a measurement of [Γ($\chi_{c0}(1P) \to K^+ K^- \eta \pi^0$)/Γ$_{total}$] × [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}, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma \chi_{c0}(1P)$) = (10.06 ± 0.27) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

Γ($3(\pi^+\pi^-)$)/Γ$_{total}$ — Γ$_{29}$/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
19.7±2.2 OUR AVERAGE	Error includes scale factor of 3.0.				
20.2±0.5±0.5	145k	[1] ABLIKIM	22Q	BES3	$\psi(2S) \to \gamma 3(\pi^+\pi^-)$
10.8±2.1±0.3	191	[2] BAI	99B	BES	$\psi(2S) \to \gamma \chi_{c0}$
13.9±5.0±0.4	37	[3] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma \chi_{c0}$

[1] ABLIKIM 22Q reports (2.080 ± 0.006 ± 0.068) × 10^{-2} from a measurement of [Γ($\chi_{c0}(1P) \to 3(\pi^+\pi^-)$)/Γ$_{total}$] × [B($\psi(2S) \to \gamma \chi_{c0}(1P)$)] assuming B($\psi(2S) \to \gamma \chi_{c0}(1P)$) = (9.79 ± 0.2) × 10^{-2}, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma \chi_{c0}(1P)$) = (10.06 ± 0.27) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] BAI 99B reports (11.7 ± 1.0 ± 2.3) × 10^{-3} from a measurement of [Γ($\chi_{c0}(1P) \to 3(\pi^+\pi^-)$)/Γ$_{total}$] × [B($\psi(2S) \to \gamma \chi_{c0}(1P)$)] assuming B($\psi(2S) \to \gamma \chi_{c0}(1P)$) = (9.3 ± 0.8) × 10^{-2}, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma \chi_{c0}(1P)$) = (10.06 ± 0.27) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[3] TANENBAUM 78 reports [Γ($\chi_{c0}(1P) \to 3(\pi^+\pi^-)$)/Γ$_{total}$] × [B($\psi(2S) \to \gamma \chi_{c0}(1P)$)] = (1.4 ± 0.5) × 10^{-3} which we divide by our best (shown rounded) value B($\psi(2S) \to \gamma \chi_{c0}(1P)$) = (10.06 ± 0.27) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

Γ($K^+ \overline{K}^*(892)^0 \pi^-$ + c.c.)/Γ($\pi^+\pi^- K^+ K^-$) — Γ$_{30}$/Γ$_8$

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

Γ($K^*(892)^0 \overline{K}^*(892)^0$)/Γ$_{total}$ — Γ$_{31}$/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$1.67^{+0.58}_{-0.53}$±0.04	64	[1] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma \pi^+\pi^- K^+ K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.52±0.39±0.04	30 ± 6	[2,3] ABLIKIM	04H	BES	Repl. by ABLIKIM 05Q

[1] ABLIKIM 05Q reports [Γ($\chi_{c0}(1P) \to K^*(892)^0 \overline{K}^*(892)^0$)/Γ$_{total}$] × [B($\psi(2S) \to \gamma \chi_{c0}(1P)$)] = (0.168 ± $0.035^{+0.047}_{-0.040}$) × 10^{-3} which we divide by our best (shown rounded) value B($\psi(2S) \to \gamma \chi_{c0}(1P)$) = (10.06 ± 0.27) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

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

[3] ABLIKIM 04H reports [Γ($\chi_{c0}(1P) \to K^*(892)^0 \overline{K}^*(892)^0$)/Γ$_{total}$] × [B($\psi(2S) \to \gamma \chi_{c0}(1P)$)] = (1.53 ± 0.29 ± 0.26) × 10^{-4} which we divide by our best (shown rounded)

value B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = $(10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\pi^0\eta_c)/\Gamma_{total}$ Γ_{35}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.6 \times 10^{-3}$	90	[1] ABLIKIM	15N	BES3	$\psi(2s)e^+e^- \to \gamma\pi^0\eta_c$

[1] Using B($\eta_c \to K^0_S K^\pm\pi^\mp$)×B($K^0_S \to \pi^+\pi^-$)×B($\pi^0 \to \gamma\gamma$) = $(1.66 \pm 0.11) \times 10^{-2}$.

$\Gamma(\eta\eta')/\Gamma_{total}$ Γ_{37}/Γ

VALUE (units 10^{-5})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
8.9±1.0±0.2		85	[1] ABLIKIM	17AI	BES3	$\psi(2S) \to \gamma\eta'\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<23	90	35 ± 13	[2] ASNER	09	CLEO	$\psi(2S) \to \gamma\eta'\eta$
<50	90		[3] ADAMS	07	CLEO	$\psi(2S) \to \gamma\chi_{c0}$

[1] ABLIKIM 17AI reports $(8.92 \pm 0.84 \pm 0.65) \times 10^{-5}$ from a measurement of [$\Gamma(\chi_{c0}(1P) \to \eta\eta')/\Gamma_{total}$] × [B($\psi(2S) \to \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = $(9.99 \pm 0.27) \times 10^{-2}$, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = $(10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] ASNER 09 reports $< 0.25 \times 10^{-3}$ from a measurement of [$\Gamma(\chi_{c0}(1P) \to \eta\eta')/\Gamma_{total}$] × [B($\psi(2S) \to \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = $(9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = 10.06×10^{-2}.

[3] Superseded by ASNER 09. ADAMS 07 reports $< 0.5 \times 10^{-3}$ from a measurement of [$\Gamma(\chi_{c0}(1P) \to \eta\eta')/\Gamma_{total}$] × [B($\psi(2S) \to \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = $(9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = 10.06×10^{-2}.

$\Gamma(\eta'\eta')/\Gamma_{total}$ Γ_{38}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.11±0.12 OUR AVERAGE					
2.18±0.13±0.06	2.5k	[1] ABLIKIM	17AI	BES3	$\psi(2S) \to \gamma\eta'\eta'$
1.94±0.20±0.05	0.4k	[2] ASNER	09	CLEO	$\psi(2S) \to \gamma\eta'\eta'$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.56±0.40±0.04	23	[3] ADAMS	07	CLEO	$\psi(2S) \to \gamma\chi_{c0}$

[1] ABLIKIM 17AI reports $(2.19 \pm 0.03 \pm 0.14) \times 10^{-3}$ from a measurement of [$\Gamma(\chi_{c0}(1P) \to \eta'\eta')/\Gamma_{total}$] × [B($\psi(2S) \to \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = $(9.99 \pm 0.27) \times 10^{-2}$, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = $(10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] ASNER 09 reports $(2.12 \pm 0.13 \pm 0.21) \times 10^{-3}$ from a measurement of [$\Gamma(\chi_{c0}(1P) \to \eta'\eta')/\Gamma_{total}$] × [B($\psi(2S) \to \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = $(9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = $(10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[3] Superseded by ASNER 09. ADAMS 07 reports $(1.7 \pm 0.4 \pm 0.2) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \eta'\eta')/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 0.0922 \pm 0.0011 \pm 0.0046$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\omega\omega)/\Gamma_{total}$ Γ_{39}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.02±0.05 OUR AVERAGE					
1.04±0.05±0.03	17.5k	[1] ABLIKIM	25K	BES3	$\psi(2S) \to \gamma 2(\pi^+\pi^-\pi^0)$
0.91±0.11±0.02	991	[2] ABLIKIM	11K	BES3	$\psi(2S) \to \gamma$ hadrons
2.1 ±0.6 ±0.1	38.1±9.6	[3] ABLIKIM	05N	BES2	$\psi(2S) \to \gamma\chi_{c0} \to \gamma 6\pi$

[1] ABLIKIM 25K reports $(10.66 \pm 0.11 \pm 0.57) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \omega\omega)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.79 \pm 0.20) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] ABLIKIM 11K reports $(0.95 \pm 0.03 \pm 0.11) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \omega\omega)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.62 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[3] ABLIKIM 05N reports $[\Gamma(\chi_{c0}(1P) \to \omega\omega)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (0.212 \pm 0.053 \pm 0.037) \times 10^{-3}$ which we divide by our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\omega\phi)/\Gamma_{total}$ Γ_{40}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.21±0.10 OUR AVERAGE	Error includes scale factor of 1.4.				
1.15±0.07±0.03	1.9k	[1] ABLIKIM	25K	BES3	$\psi(2S) \to \gamma\pi^+\pi^-\pi^0 K^+K^-$
1.38±0.12±0.04	486	[2] ABLIKIM	19J	BES3	$\psi(2S) \to \gamma$ hadrons
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.15±0.21±0.03	76	[3,4] ABLIKIM	11K	BES3	$\psi(2S) \to \gamma$ hadrons

[1] ABLIKIM 25K reports $(1.18 \pm 0.03 \pm 0.07) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \omega\phi)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.79 \pm 0.20) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] ABLIKIM 19J reports $[\Gamma(\chi_{c0}(1P) \to \omega\phi)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (13.83 \pm 0.70 \pm 1.01) \times 10^{-6}$ which we divide by our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[3] ABLIKIM 11K reports $(1.2 \pm 0.1 \pm 0.2) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \omega\phi)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.62 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to$

$\gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[4] Superseded by ABLIKIM 19J.

$\Gamma(\omega K^+ K^-)/\Gamma_{total}$ — Γ_{41}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.87±0.19±0.05	1.4k	[1] ABLIKIM	13B	BES3	$e^+ e^- \to \psi(2S) \to \gamma\chi_{c0}$

[1] ABLIKIM 13B reports $(1.94 \pm 0.06 \pm 0.20) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \omega K^+ K^-)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.68 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\pi^+\pi^-\eta)/\Gamma_{total}$ — Γ_{44}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<0.19	90	[1] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.0	90	[2] ABLIKIM	06R	BES2	$\psi(2S) \to \gamma\chi_{c0}$

[1] ATHAR 07 reports $< 0.21 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \pi^+\pi^-\eta)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

[2] ABLIKIM 06R reports $< 1.1 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \pi^+\pi^-\eta)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.2 \pm 0.4) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

$\Gamma(\pi^+\pi^-\eta')/\Gamma_{total}$ — Γ_{46}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<0.35	90	[1] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

[1] ATHAR 07 reports $< 0.38 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \pi^+\pi^-\eta')/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

$\Gamma(\eta\eta\eta')/\Gamma_{total}$ — Γ_{47}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.5 × 10^{-5}	90	[1] ABLIKIM	25CJ	BES3	$\psi(2S) \to \gamma\chi_c^0 \to \gamma\eta\eta\eta'$

[1] ABLIKIM 25CJ reports $< 2.59 \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \eta\eta\eta')/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.77 \pm 0.23) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

$\Gamma(\overline{K}^0 K^+ \pi^- + c.c.)/\Gamma_{total}$ — Γ_{48}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<0.09	90	[1] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

• • • We do not use the following data for averages, fits, limits, etc. • • •

<0.6	90	[2,3] ABLIKIM	06R	BES2	$\psi(2S) \to \gamma\chi_{c0}$
<0.7	90	[3,4] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c0}$

[1] ATHAR 07 reports $< 0.10 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \overline{K}^0 K^+ \pi^- +$ c.c.$)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

[2] ABLIKIM 06R reports $< 0.70 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \overline{K}^0 K^+ \pi^- +$ c.c.$)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.2 \pm 0.4) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

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

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

$\Gamma(K^+ K^- \pi^0)/\Gamma_{total}$ Γ_{49}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<0.06	90	[1] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

[1] ATHAR 07 reports $< 0.06 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K^+ K^- \pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

$\Gamma(K^+ K^- \eta)/\Gamma_{total}$ Γ_{50}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<0.22	90	[1] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

[1] ATHAR 07 reports $< 0.24 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K^+ K^- \eta)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

$\Gamma(K^+ K^- K^0_S K^0_S)/\Gamma_{total}$ Γ_{51}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.37±0.46±0.04	16.8 ± 4.8	[1] ABLIKIM	05O	BES2	$\psi(2S) \to \gamma\chi_{c0}$

[1] ABLIKIM 05O reports $[\Gamma(\chi_{c0}(1P) \to K^+ K^- K^0_S K^0_S)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (0.138 \pm 0.039 \pm 0.025) \times 10^{-3}$ which we divide by our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

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

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
5.6±0.5±0.1	319	[1] ABLIKIM	19AA	BES3	$\psi(2S) \to \gamma 4K^0_S$

[1] Using B($K^0_S \to \pi^+\pi^-$) = (69.20 ± 0.05)%. ABLIKIM 19AA reports [$\Gamma(\chi_{c0}(1P) \to K^0_S K^0_S K^0_S K^0_S)/\Gamma_{\rm total}$] × [B($\psi(2S) \to \gamma\chi_{c0}(1P)$)] = (5.64 ± 0.33 ± 0.37) × 10^{-5} which we divide by our best (shown rounded) value B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = (10.06 ± 0.27) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value..

$\Gamma(K^+K^-\phi)/\Gamma_{\rm total}$ Γ_{54}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.94±0.24±0.02	38	[1] ABLIKIM	06T	BES2	$\psi(2S) \to \gamma 2K^+ 2K^-$

[1] ABLIKIM 06T reports (1.03 ± 0.22 ± 0.15) × 10^{-3} from a measurement of [$\Gamma(\chi_{c0}(1P) \to K^+K^-\phi)/\Gamma_{\rm total}$] × [B($\psi(2S) \to \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = (9.2 ± 0.4) × 10^{-2}, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = (10.06 ± 0.27) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\overline{K}^0 K^+\pi^-\phi + \text{c.c.})/\Gamma_{\rm total}$ Γ_{55}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
3.68±0.30±0.50	ABLIKIM	15M	BES3	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(K^+K^-\pi^0\phi)/\Gamma_{\rm total}$ Γ_{56}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
1.90±0.14±0.32	ABLIKIM	15M	BES3	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(\phi\pi^+\pi^-\pi^0)/\Gamma_{\rm total}$ Γ_{59}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.14±0.14±0.03	538	[1] ABLIKIM	13B	BES3	$e^+e^- \to \psi(2S) \to \gamma\chi_{c0}$

[1] ABLIKIM 13B reports (1.18 ± 0.07 ± 0.13) × 10^{-3} from a measurement of [$\Gamma(\chi_{c0}(1P) \to \phi\pi^+\pi^-\pi^0)/\Gamma_{\rm total}$] × [B($\psi(2S) \to \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = (9.68 ± 0.31) × 10^{-2}, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = (10.06 ± 0.27) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\phi\phi)/\Gamma_{\rm total}$ Γ_{60}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.83 ±0.04 OUR FIT Error includes scale factor of 1.1.					
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.836±0.028±0.022	2701	[1,2,3] ABLIKIM	23N	BES3	$\psi(2S) \to \gamma$hadrons

[1] Using B($\phi \to K^+K^-$) = (49.2 ± 0.5) × 10^{-2} from PDG 22.

[2] ABLIKIM 23N reports (8.59 ± 0.27 ± 0.20) × 10^{-4} from a measurement of [$\Gamma(\chi_{c0}(1P) \to \phi\phi)/\Gamma_{\rm total}$] × [B($\psi(2S) \to \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = (9.79 ± 0.20) × 10^{-2}, which we rescale to our best (shown rounded) value B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = (10.06 ± 0.27) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[3] Not used since the same experimental measurement has been used in another related quantity included elsewhere in the fit.

$\Gamma(\phi\phi\eta)/\Gamma_{total}$ — Γ_{61}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
8.2±0.9±0.2	186.6	[1] ABLIKIM	20B	BES3	$\psi(2S) \to \gamma\phi\phi\eta$

[1] ABLIKIM 20B reports $(8.41 \pm 0.74 \pm 0.62) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \phi\phi\eta)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.79 \pm 0.20) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(p\overline{p})/\Gamma_{total} \times \Gamma(\pi\pi)/\Gamma_{total}$ — $\Gamma_{62}/\Gamma \times \Gamma_{32}/\Gamma$

VALUE (units 10^{-7})	DOCUMENT ID		TECN	COMMENT
20.6±1.4 OUR FIT Error includes scale factor of 1.7.				
15.3±2.4±0.8	[1] ANDREOTTI	03	E835	$\overline{p}p \to \chi_{c0} \to \pi^0\pi^0$

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

$\Gamma(p\overline{p})/\Gamma_{total} \times \Gamma(\pi^0\eta)/\Gamma_{total}$ — $\Gamma_{62}/\Gamma \times \Gamma_{33}/\Gamma$

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

$\Gamma(p\overline{p})/\Gamma_{total} \times \Gamma(\pi^0\eta')/\Gamma_{total}$ — $\Gamma_{62}/\Gamma \times \Gamma_{34}/\Gamma$

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

$\Gamma(p\overline{p})/\Gamma_{total} \times \Gamma(\eta\eta)/\Gamma_{total}$ — $\Gamma_{62}/\Gamma \times \Gamma_{36}/\Gamma$

VALUE (units 10^{-7})	DOCUMENT ID		TECN	COMMENT
6.9±0.7 OUR FIT Error includes scale factor of 1.4.				
$4.0\pm1.2^{+0.5}_{-0.3}$	ANDREOTTI	05C	E835	$\overline{p}p \to \eta\eta$

$\Gamma(p\overline{p})/\Gamma_{total} \times \Gamma(\eta\eta')/\Gamma_{total}$ — $\Gamma_{62}/\Gamma \times \Gamma_{37}/\Gamma$

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	$\overline{p}p \to \pi^0\eta$

$\Gamma(p\overline{p}\pi^0)/\Gamma_{total}$ — Γ_{63}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.68±0.07 OUR AVERAGE Error includes scale factor of 1.3.				
0.71±0.06±0.02	[1] ONYISI	10	CLE3	$\psi(2S) \to \gamma p\overline{p}X$
0.54±0.11±0.01	[2] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

[1] ONYISI 10 reports $(7.76 \pm 0.37 \pm 0.51 \pm 0.39) \times 10^{-4}$ 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 $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] 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 $B(\psi(2S) \to \gamma\chi_{c0}(1P)) =$

$(9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(p\overline{p}\eta)/\Gamma_{total}$ Γ_{64}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.34±0.04 OUR AVERAGE				
0.34±0.04±0.01	[1] ONYISI	10	CLE3	$\psi(2S) \to \gamma p\overline{p}X$
0.36±0.11±0.01	[2] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

[1] ONYISI 10 reports $(3.73 \pm 0.38 \pm 0.28 \pm 0.19) \times 10^{-4}$ 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 $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] 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 $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(p\overline{p}\omega)/\Gamma_{total}$ Γ_{65}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.51±0.05±0.01	[1] ONYISI	10	CLE3	$\psi(2S) \to \gamma p\overline{p}X$

[1] ONYISI 10 reports $(5.57 \pm 0.48 \pm 0.42 \pm 0.14) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to p\overline{p}\omega)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(p\overline{p}\pi^+\pi^-)/\Gamma_{total}$ Γ_{66}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.9 ±1.1 OUR AVERAGE	Error includes scale factor of 2.3.				
1.45±0.52±0.04	81	[1] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c0}$
4.7 ±1.3 ±0.1	23	[2] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

[1] BAI 99B reports $(1.57 \pm 0.21 \pm 0.54) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to p\overline{p}\pi^+\pi^-)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.3 \pm 0.8) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] TANENBAUM 78 reports $[\Gamma(\chi_{c0}(1P) \to p\overline{p}\pi^+\pi^-)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (4.7 \pm 1.3) \times 10^{-4}$ which we divide by our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(p\overline{p}\pi^0\pi^0)/\Gamma_{total}$ — Γ_{67}/Γ

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.101±0.027±0.003	39.5	[1] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[1] HE 08B reports $0.11 \pm 0.02 \pm 0.02 \pm 0.01$ % from a measurement of $[\Gamma(\chi_{c0}(1P) \to p\overline{p}\pi^0\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(p\overline{p}\eta\pi^0)/\Gamma_{total}$ — Γ_{68}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.35±0.19±0.06	1898	[1] ABLIKIM	25L	BES3	$\psi(3686) \to \gamma p\overline{p}\eta\pi^0$

[1] ABLIKIM 25L reports $(2.42 \pm 0.07 \pm 0.19) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to p\overline{p}\eta\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.77 \pm 0.23) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(p\overline{p}\eta\eta)/\Gamma_{total}$ — Γ_{69}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
5.6±0.7±0.1	180	[1] ABLIKIM	25CE	BES3	$\psi(2S) \to \gamma\chi_{c0}$

[1] ABLIKIM 25CE reports $(5.75 \pm 0.59 \pm 0.42) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to p\overline{p}\eta\eta)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.77 \pm 0.23) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(p\overline{p}K^+K^-)/\Gamma_{total}$ — Γ_{70}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.48±0.15±0.07	9952	[1] ABLIKIM	25V	BES3	$\psi(2S) \to \gamma p\overline{p}K^+K^-$

[1] ABLIKIM 25V reports $[\Gamma(\chi_{c0}(1P) \to p\overline{p}K^+K^-)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (2.49 \pm 0.03 \pm 0.15) \times 10^{-5}$ which we divide by our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(p\overline{p}K^+K^-\text{(non-resonant)})/\Gamma_{total}$ — Γ_{71}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.19±0.25±0.03	48 ± 8	[1] ABLIKIM	11F	BES3	$\psi(2S) \to \gamma p\overline{p}K^+K^-$

[1] ABLIKIM 11F reports $(1.24 \pm 0.20 \pm 0.18) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to p\overline{p}K^+K^-\text{(non-resonant)})/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.62 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(K^+\overline{p}\Lambda(1520)+\text{c.c.})/\Gamma_{\text{total}}$ Γ_{72}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.9±0.7±0.1	62 ± 12	[1] ABLIKIM	11F	BES3	$\psi(2S) \to \gamma p \overline{p} K^+ K^-$

[1] ABLIKIM 11F reports $(3.00 \pm 0.58 \pm 0.50) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to K^+\overline{p}\Lambda(1520)+\text{ c.c.})/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.62 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\Lambda(1520)\overline{\Lambda}(1520))/\Gamma_{\text{total}}$ Γ_{73}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
3.0±1.2±0.1	28 ± 10	[1] ABLIKIM	11F	BES3	$\psi(2S) \to \gamma p \overline{p} K^+ K^-$

[1] ABLIKIM 11F reports $(3.18 \pm 1.11 \pm 0.53) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Lambda(1520)\overline{\Lambda}(1520))/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.62 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(p\overline{p}\phi)/\Gamma_{\text{total}}$ Γ_{74}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
5.9±1.4±0.2	42 ± 8	[1] ABLIKIM	11F	BES3	$\psi(2S) \to \gamma p \overline{p} K^+ K^-$

[1] ABLIKIM 11F reports $(6.12 \pm 1.18 \pm 0.86) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to p\overline{p}\phi)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.62 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(p\overline{p}K^0_S K^0_S)/\Gamma_{\text{total}}$ Γ_{75}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<8 \times 10^{-4}$	90	[1] ABLIKIM	06D	BES2	$\psi(2S) \to \chi_{c0}\gamma$

[1] ABLIKIM 06D reports $< 8.8 \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to p\overline{p}K^0_S K^0_S)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.2 \pm 0.5) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

$\Gamma(p\overline{n}\pi^-)/\Gamma_{\text{total}}$ Γ_{77}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
12.3±1.1 OUR AVERAGE					
12.5±1.1±0.3	5150	[1] ABLIKIM	12J	BES3	$\psi(2S) \to \gamma p \overline{n} \pi^-$
10.9±3.0±0.3		[2] ABLIKIM	06I	BES2	$\psi(2S) \to \gamma p \pi^- X$

[1] ABLIKIM 12J reports $[\Gamma(\chi_{c0}(1P) \to p\overline{n}\pi^-)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (1.26 \pm 0.02 \pm 0.11) \times 10^{-4}$ which we divide by our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] ABLIKIM 06I reports $[\Gamma(\chi_{c0}(1P) \to p\overline{n}\pi^-)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (1.10 \pm 0.24 \pm 0.18) \times 10^{-4}$ which we divide by our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\overline{p}n\pi^+)/\Gamma_{total}$ — Γ_{78}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
13.3±1.1±0.4	5808	[1] ABLIKIM	12J	BES3	$\psi(2S) \to \gamma\overline{p}n\pi^+$

[1] ABLIKIM 12J reports $[\Gamma(\chi_{c0}(1P) \to \overline{p}n\pi^+)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (1.34 \pm 0.03 \pm 0.11) \times 10^{-4}$ which we divide by our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(p\overline{n}\pi^-\pi^0)/\Gamma_{total}$ — Γ_{79}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
22.8±2.0±0.6	2480	[1] ABLIKIM	12J	BES3	$\psi(2S) \to \gamma p\overline{n}\pi^-\pi^0$

[1] ABLIKIM 12J reports $[\Gamma(\chi_{c0}(1P) \to p\overline{n}\pi^-\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (2.29 \pm 0.08 \pm 0.18) \times 10^{-4}$ which we divide by our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\overline{p}n\pi^+\pi^0)/\Gamma_{total}$ — Γ_{80}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
21.5±1.7±0.6	2757	[1] ABLIKIM	12J	BES3	$\psi(2S) \to \gamma\overline{p}n\pi^+\pi^0$

[1] ABLIKIM 12J reports $[\Gamma(\chi_{c0}(1P) \to \overline{p}n\pi^+\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (2.16 \pm 0.07 \pm 0.16) \times 10^{-4}$ which we divide by our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\Lambda\overline{\Lambda}\pi^+\pi^-)/\Gamma_{total}$ — Γ_{82}/Γ

VALUE (units 10^{-5})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
115±12±3		426	[1] ABLIKIM	12I	BES3	$\psi(2S) \to \gamma\Lambda\overline{\Lambda}\pi^+\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<400	90		[2] ABLIKIM	06D	BES2	$\psi(2S) \to \chi_{c0}\gamma$

[1] ABLIKIM 12I reports $(119.0 \pm 6.4 \pm 11.4) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Lambda\overline{\Lambda}\pi^+\pi^-)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.68 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

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

$\Gamma(\Lambda\overline{\Lambda}\pi^+\pi^-\text{(non-resonant)})/\Gamma_{total}$ — Γ_{83}/Γ

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
<50	90	[1] ABLIKIM	12I	BES3	$\psi(2S) \to \gamma\Lambda\overline{\Lambda}\pi^+\pi^-$

[1] ABLIKIM 12I reports $<$ 54 $\times$ 10^{-5} from a measurement of [$\Gamma(\chi_{c0}(1P) \rightarrow \Lambda\overline{\Lambda}\pi^+\pi^-$ (non-resonant)$)/\Gamma_{total}$] $\times$ [B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = (9.68 $\pm$ 0.31) $\times$ 10^{-2}, which we rescale to our best (shown rounded) value B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = 10.06 $\times$ 10^{-2}.

$\Gamma(\Sigma(1385)^+\overline{\Lambda}\pi^- + \text{c.c.})/\Gamma_{total}$ — Γ_{84}/Γ

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
<50	90	[1] ABLIKIM	12I	BES3	$\psi(2S) \rightarrow \gamma\Sigma(1385)^+\overline{\Lambda}\pi^-$

[1] ABLIKIM 12I reports $<$ 55 $\times$ 10^{-5} from a measurement of [$\Gamma(\chi_{c0}(1P) \rightarrow \Sigma(1385)^+\overline{\Lambda}\pi^- +$ c.c.$)/\Gamma_{total}$] $\times$ [B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = (9.68 $\pm$ 0.31) $\times$ 10^{-2}, which we rescale to our best (shown rounded) value B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = 10.06 $\times$ 10^{-2}.

$\Gamma(\Sigma(1385)^-\overline{\Lambda}\pi^+ + \text{c.c.})/\Gamma_{total}$ — Γ_{85}/Γ

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
<50	90	[1] ABLIKIM	12I	BES3	$\psi(2S) \rightarrow \gamma\Sigma(1385)^-\overline{\Lambda}\pi^+$

[1] ABLIKIM 12I reports $<$ 50 $\times$ 10^{-5} from a measurement of [$\Gamma(\chi_{c0}(1P) \rightarrow \Sigma(1385)^-\overline{\Lambda}\pi^+ +$ c.c.$)/\Gamma_{total}$] $\times$ [B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = (9.68 $\pm$ 0.31) $\times$ 10^{-2}, which we rescale to our best (shown rounded) value B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = 10.06 $\times$ 10^{-2}.

$\Gamma(K^+\overline{p}\Lambda + \text{c.c.})/\Gamma_{total}$ — Γ_{90}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.21±0.12 OUR AVERAGE	Error includes scale factor of 1.3.				
1.27±0.09±0.03	9k	[1,2] ABLIKIM	13D	BES3	$\psi(2S) \rightarrow \gamma\Lambda\overline{p}K^+$
0.98±0.18±0.03		[3] ATHAR	07	CLEO	$\psi(2S) \rightarrow \gamma h^+h^-h^0$

[1] ABLIKIM 13D reports (1.32 $\pm$ 0.03 $\pm$ 0.10) $\times$ 10^{-3} from a measurement of [$\Gamma(\chi_{c0}(1P) \rightarrow K^+\overline{p}\Lambda +$ c.c.$)/\Gamma_{total}$] $\times$ [B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = (9.68 $\pm$ 0.31) $\times$ 10^{-2}, which we rescale to our best (shown rounded) value B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = (10.06 $\pm$ 0.27) $\times$ 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] Using B($\Lambda \rightarrow p\pi^-$) = 63.9%.

[3] ATHAR 07 reports (1.07 $\pm$ 0.17 $\pm$ 0.12) $\times$ 10^{-3} from a measurement of [$\Gamma(\chi_{c0}(1P) \rightarrow K^+\overline{p}\Lambda +$ c.c.$)/\Gamma_{total}$] $\times$ [B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$)] assuming B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = (9.22 $\pm$ 0.11 $\pm$ 0.46) $\times$ 10^{-2}, which we rescale to our best (shown rounded) value B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = (10.06 $\pm$ 0.27) $\times$ 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(K^*(892)^+\overline{p}\Lambda + \text{c.c.})/\Gamma_{total}$ — Γ_{92}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
4.7±0.9±0.1	254	[1] ABLIKIM	19AU	BES3	$\psi(2S) \rightarrow \gamma K^{*+}\overline{p}\Lambda$

[1] ABLIKIM 19AU reports [$\Gamma(\chi_{c0}(1P) \rightarrow K^*(892)^+\overline{p}\Lambda +$ c.c.$)/\Gamma_{total}$] $\times$ [B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$)] = (4.7 $\pm$ 0.7 $\pm$ 0.5) $\times$ 10^{-5} which we divide by our best (shown rounded) value B($\psi(2S) \rightarrow \gamma\chi_{c0}(1P)$) = (10.06 $\pm$ 0.27) $\times$ 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(n K^0_S \overline{\Lambda} + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{91}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID	TECN	COMMENT
6.5±0.5±0.2	1284	[1] ABLIKIM 21AV	BES3	$\psi(2S) \to \gamma n K^0_S \overline{\Lambda}$ + c.c.

[1] ABLIKIM 21AV reports $(6.65 \pm 0.26 \pm 0.41) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to n K^0_S \overline{\Lambda} + \text{c.c.})/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma \chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = 0.0979 \pm 0.0020$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value. Also uses $B(\overline{\Lambda} \to \overline{p} \pi^+) = (63.9 \pm 0.5)\%$ and $B(K^0_S \to \pi^+ \pi^-) = (69.20 \pm 0.05)\%$.

$\Gamma(\Sigma^0 \overline{\Sigma}^0)/\Gamma_{\text{total}}$ Γ_{94}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID	TECN	COMMENT
4.56±0.32 OUR AVERAGE				
4.69±0.33±0.12	1046	[1] ABLIKIM 18V	BES3	$\psi(2S) \to \gamma \Sigma^0 \overline{\Sigma}^0$
4.0 ±0.6 ±0.1	78 ± 10	[2] NAIK 08	CLEO	$\psi(2S) \to \gamma \Sigma^0 \overline{\Sigma}^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4.6 ±0.5 ±0.1	243	[3,4] ABLIKIM 13H	BES3	$\psi(2S) \to \gamma \Sigma^0 \overline{\Sigma}^0$

[1] ABLIKIM 18V reports $[\Gamma(\chi_{c0}(1P) \to \Sigma^0 \overline{\Sigma}^0)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma \chi_{c0}(1P))] = (4.72 \pm 0.18 \pm 0.28) \times 10^{-5}$ which we divide by our best (shown rounded) value $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] NAIK 08 reports $(4.41 \pm 0.56 \pm 0.47) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Sigma^0 \overline{\Sigma}^0)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma \chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[3] ABLIKIM 13H reports $(4.78 \pm 0.34 \pm 0.39) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Sigma^0 \overline{\Sigma}^0)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma \chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = (9.62 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[4] Superseded by ABLIKIM 18V

$\Gamma(\Sigma^+ \overline{\Sigma}^-)/\Gamma_{\text{total}}$ Γ_{97}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID	TECN	COMMENT
4.5 ±0.8 OUR AVERAGE Error includes scale factor of 2.6.				
4.96±0.34±0.13	747	[1] ABLIKIM 18V	BES3	$\psi(2S) \to \gamma \Sigma^+ \overline{\Sigma}^-$
3.0 ±0.6 ±0.1	39 ± 7	[2] NAIK 08	CLEO	$\psi(2S) \to \gamma \Sigma^+ \overline{\Sigma}^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4.3 ±0.5 ±0.1	148	[3,4] ABLIKIM 13H	BES3	$\psi(2S) \to \gamma \Sigma^+ \overline{\Sigma}^-$

[1] ABLIKIM 18V reports $[\Gamma(\chi_{c0}(1P) \to \Sigma^+ \overline{\Sigma}^-)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma \chi_{c0}(1P))] = (4.99 \pm 0.24 \pm 0.24) \times 10^{-5}$ which we divide by our best (shown rounded) value $B(\psi(2S) \to \gamma \chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] NAIK 08 reports $(3.25 \pm 0.57 \pm 0.43) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Sigma^+ \overline{\Sigma}^-)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[3] ABLIKIM 13H reports $(4.54 \pm 0.42 \pm 0.30) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Sigma^+ \overline{\Sigma}^-)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.62 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[4] Superseded by ABLIKIM 18V

$\Gamma(\Sigma^+ \overline{\Sigma}^- \eta)/\Gamma_{total}$ — Γ_{98}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
12.3±2.3±0.3	74	[1] ABLIKIM	24CA	BES3	$\psi(2S) \to \gamma\chi_{c0}(1P)$

[1] ABLIKIM 24CA reports $(12.6 \pm 2.0 \pm 1.3) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Sigma^+ \overline{\Sigma}^- \eta)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.79 \pm 0.20) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\Sigma^- \overline{\Sigma}^+)/\Gamma_{total}$ — Γ_{99}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
5.0±0.5±0.1	2143	[1] ABLIKIM	20I	BES3	$\psi(2S) \to \gamma \Sigma^- \overline{\Sigma}^+$

[1] ABLIKIM 20I reports $(5.13 \pm 0.24 \pm 0.41) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Sigma^- \overline{\Sigma}^+)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.79 \pm 0.20) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\Sigma(1385)^+ \overline{\Sigma}(1385)^-)/\Gamma_{total}$ — Γ_{100}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
15.8±5.7±0.4	27	[1] ABLIKIM	12I	BES3	$\psi(2S) \to \gamma \Lambda \overline{\Lambda} \pi^+ \pi^-$

[1] ABLIKIM 12I reports $(16.4 \pm 5.7 \pm 1.6) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Sigma(1385)^+ \overline{\Sigma}(1385)^-)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.68 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\Sigma(1385)^- \overline{\Sigma}(1385)^+)/\Gamma_{total}$ — Γ_{101}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
23±6±1	33	[1] ABLIKIM	12I	BES3	$\psi(2S) \to \gamma \Lambda \overline{\Lambda} \pi^+ \pi^-$

[1] ABLIKIM 12I reports $(23.5 \pm 6.2 \pm 2.3) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Sigma(1385)^- \overline{\Sigma}(1385)^+)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.68 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded)

value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(K^- \Lambda \Xi^+ + c.c.)/\Gamma_{total}$ — Γ_{102}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.89±0.34±0.05	57	[1] ABLIKIM	15I	BES3	$\psi(2S) \to \gamma K^- \Lambda \Xi^+ +$ c.c.

[1] ABLIKIM 15I reports $[\Gamma(\chi_{c0}(1P) \to K^- \Lambda \Xi^+ +$ c.c.$)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))] = (1.90 \pm 0.30 \pm 0.16) \times 10^{-5}$ which we divide by our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\Xi^0 \overline{\Xi}^0)/\Gamma_{total}$ — Γ_{103}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
4.3 ±0.5 OUR AVERAGE Error includes scale factor of 1.7.					
4.55±0.30±0.12	1741	[1] ABLIKIM	22O	BES3	$\psi(2S) \to \gamma \Xi^0 \overline{\Xi}^0$
3.1 ±0.8 ±0.1	23.3±4.9	[2] NAIK	08	CLEO	$\psi(2S) \to \gamma \Xi^0 \overline{\Xi}^0$

[1] ABLIKIM 22O reports $(4.67 \pm 0.19 \pm 0.26) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Xi^0 \overline{\Xi}^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.79 \pm 0.2) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] NAIK 08 reports $(3.34 \pm 0.70 \pm 0.48) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Xi^0 \overline{\Xi}^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\Xi^- \overline{\Xi}^+)/\Gamma_{total}$ — Γ_{104}/Γ

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
4.34±0.20 OUR AVERAGE						
4.31±0.17±0.11		4932	[1] ABLIKIM	22O	BES3	$\psi(2S) \to \gamma \Xi^- \overline{\Xi}^+$
4.7 ±0.7 ±0.1		95	[2] 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		[3] ABLIKIM	06D	BES2	$\psi(2S) \to \chi_{c0}\gamma$

[1] ABLIKIM 22O reports $(4.43 \pm 0.08 \pm 0.18) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Xi^- \overline{\Xi}^+)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.79 \pm 0.2) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] NAIK 08 reports $(5.14 \pm 0.60 \pm 0.47) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Xi^- \overline{\Xi}^+)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

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

$\Gamma(\Omega^-\overline{\Omega}^+)/\Gamma_{total}$ — Γ_{105}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
3.4±0.6±0.1	284	[1] ABLIKIM	23T	BES3	$\chi_c^0 \to \Omega^-\overline{\Omega}^+$

[1] ABLIKIM 23T reports $(3.51 \pm 0.54 \pm 0.29) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \Omega^-\overline{\Omega}^+)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.79 \pm 0.20) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

$\Gamma(\eta_c\pi^+\pi^-)/\Gamma_{total}$ — Γ_{106}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$< 7 \times 10^{-4}$	90	[1,2] ABLIKIM	13B	BES3	$e^+e^- \to \psi(2S) \to \gamma\chi_{c0}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<41 \times 10^{-4}$	90	[3,4] ABLIKIM	13B	BES3	$e^+e^- \to \psi(2S) \to \gamma\chi_{c0}$

[1] From the $\eta_c \to K^0_S K^\pm\pi^\mp$ decays.

[2] ABLIKIM 13B reports $< 7 \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \eta_c\pi^+\pi^-)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.68 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

[3] Using 1.06×10^8 $\psi(2S)$ mesons and $B(\psi(2S) \to \chi_{c0}\gamma) = (9.68 \pm 0.31)\%$.

[4] From the $\eta_c \to K^+K^-\pi^0$ decays.

RADIATIVE DECAYS

$\Gamma(\gamma\rho^0)/\Gamma_{total}$ — Γ_{108}/Γ

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
< 9	90	1.2 ± 4.5	[1] BENNETT	08A	CLEO	$\psi(2S) \to \gamma\gamma\rho^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<10	90	6 ± 12	[2] ABLIKIM	11E	BES3	$\psi(2S) \to \gamma\gamma\rho^0$

[1] BENNETT 08A reports $< 9.6 \times 10^{-6}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \gamma\rho^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.2 \pm 0.4) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

[2] ABLIKIM 11E reports $< 10.5 \times 10^{-6}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \gamma\rho^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.62 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

$\Gamma(\gamma\omega)/\Gamma_{total}$ — Γ_{109}/Γ

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
< 8	90	0.0 ± 2.8	[1] BENNETT	08A	CLEO	$\psi(2S) \to \gamma\gamma\omega$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<12	90	5 ± 11	[2] ABLIKIM	11E	BES3	$\psi(2S) \to \gamma\gamma\omega$

[1] BENNETT 08A reports $< 8.8 \times 10^{-6}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \gamma\omega)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.2 \pm 0.4) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

[2] ABLIKIM 11E reports $< 12.9 \times 10^{-6}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \gamma\omega)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.62 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

$\Gamma(\gamma\phi)/\Gamma_{total}$ — Γ_{110}/Γ

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
< 6	90	0.1 ± 1.6	[1] BENNETT	08A	CLEO	$\psi(2S) \to \gamma\gamma\phi$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<15	90	15 ± 7	[2] ABLIKIM	11E	BES3	$\psi(2S) \to \gamma\gamma\phi$

[1] BENNETT 08A reports $< 6.4 \times 10^{-6}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \gamma\phi)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.2 \pm 0.4) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

[2] ABLIKIM 11E reports $< 16.2 \times 10^{-6}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to \gamma\phi)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.62 \pm 0.31) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = 10.06 \times 10^{-2}$.

$\Gamma(e^+e^- J/\psi(1S))/\Gamma_{total}$ — Γ_{112}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.50 \pm 0.32 \pm 0.04$	56	[1,2] ABLIKIM	17I	BES3	$\psi(2S) \to \gamma e^+e^- J/\psi$

[1] ABLIKIM 17I reports $(1.51 \pm 0.30 \pm 0.13) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c0}(1P) \to e^+e^- J/\psi(1S))/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c0}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (9.99 \pm 0.27) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\psi(2S) \to \gamma\chi_{c0}(1P)) = (10.06 \pm 0.27) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

[2] Not independent from other measurements reported by ABLIKIM 17I

$\Gamma(e^+e^- J/\psi(1S))/\Gamma(\gamma J/\psi(1S))$ — $\Gamma_{112}/\Gamma_{107}$

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$9.5 \pm 1.9 \pm 0.7$	56	[1] ABLIKIM	17I	BES3	$\psi(2S) \to e^+e^-\gamma J/\psi$

[1] Uses $B(\psi(2S) \to \gamma\chi_{c0}(1P)) \times B(\chi_{c0}(1P) \to \gamma J/\psi(1S)) = (15.8 \pm 0.3 \pm 0.6) \times 10^{-4}$ from ABLIKIM 17N and accounts for common systematic errors.

$\Gamma(\mu^+\mu^- J/\psi(1S))/\Gamma(e^+e^- J/\psi(1S))$ — $\Gamma_{113}/\Gamma_{112}$

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<0.14	90	<9.5	ABLIKIM	19Z	BES3	$\psi(2S) \to \gamma\chi_c \to \gamma(\mu^+\mu^- J/\psi)$

$\Gamma(\gamma\gamma)/\Gamma(\gamma J/\psi(1S))$ — $\Gamma_{111}/\Gamma_{107}$

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
1.45 ± 0.12 OUR FIT Error includes scale factor of 1.6.				
2.0 ± 0.4 OUR AVERAGE				
$2.2 \pm 0.4\ ^{+0.1}_{-0.2}$	[1] ANDREOTTI	04	E835	$p\overline{p} \to \chi_{c0} \to \gamma\gamma$
1.45 ± 0.74	[2] AMBROGIANI	00B	E835	$\overline{p}p \to \chi_{c2} \to \gamma\gamma, \gamma J/\psi$

[1] 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.

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

$\Gamma(p\overline{p})/\Gamma_{total} \times \Gamma(\gamma J/\psi(1S))/\Gamma_{total}$ — $\Gamma_{62}/\Gamma \times \Gamma_{107}/\Gamma$

VALUE (units 10^{-7})	EVTS	DOCUMENT ID		TECN	COMMENT
31.8±2.3 OUR FIT Error includes scale factor of 1.6.					
28.2±2.1 OUR AVERAGE					
28.0±1.9±1.3	392	[1,2,3] BAGNASCO	02	E835	$\overline{p}p \to \chi_{c0} \to J/\psi\gamma$
$29.3^{+5.7}_{-4.7}\pm1.5$	89	[1,2] AMBROGIANI	99B		$\overline{p}p \to \chi_{c0} \to J/\psi\gamma$

[1] 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.

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

[3] Recalculated by ANDREOTTI 05A.

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

$\Gamma(\chi_{c0}(1P) \to 2(\pi^+\pi^-))/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ — $\Gamma_1/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}_{12}$

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
6.07±0.25 OUR FIT Error includes scale factor of 1.1.				
6.9 ±2.4 OUR AVERAGE Error includes scale factor of 3.8.				
4.4 ±0.1 ±0.9	[1] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c0}$
9.3 ±0.9	[2] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

[1] 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].

[2] 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 $B(J/\psi(1S) \to \ell^+\ell^-) = 0.1181 \pm 0.0020$.

$\Gamma(\chi_{c0}(1P) \to 2(\pi^+\pi^-))/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ — $\Gamma_1/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.11 ±0.09 OUR FIT Error includes scale factor of 1.1.					
2.082±0.002±0.089	1946k	[1] ABLIKIM	24BT	BES3	$\psi(2S) \to \gamma\chi_{c0}$

[1] Calculated by us. The value given here is derived from the value of $B(\chi_{c0} \to 2(\pi^+\pi^-))$ reported in ABLIKIM 24BT using $B(\psi(2S) \to \gamma\chi_{c0}) = (9.79 \pm 0.20)\%$ [PDG 22].

$\Gamma(\chi_{c0}(1P) \to \pi^+\pi^-K^+K^-)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ — $\Gamma_8/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
1.74±0.15 OUR FIT Error includes scale factor of 1.1.				
1.64±0.05±0.2	ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(\chi_{c0}(1P) \to \pi^+\pi^-K^+K^-)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_8/\Gamma \times \Gamma_{196}^{\psi(2S)}/\Gamma_{12}^{\psi(2S)}$

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
5.0 ±0.4 OUR FIT Error includes scale factor of 1.1.				
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	[1] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

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

$\Gamma(\chi_{c0}(1P) \to K^+K^-\pi^+\pi^-\pi^0)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{21}/\Gamma \times \Gamma_{196}^{\psi(2S)}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
8.6 ±0.8 OUR FIT					
8.33±0.13±0.87	9.0k	[1] ABLIKIM	13B	BES3	$e^+e^- \to \psi(2S) \to \gamma\chi_{c0}$

[1] Calculated by us using B($\psi(2S) \to \chi_{c0}\gamma$) = (9.68 ± 0.10)%.

$\Gamma(\chi_{c0}(1P) \to \pi\pi)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{32}/\Gamma \times \Gamma_{196}^{\psi(2S)}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
8.81±0.10 OUR FIT Error includes scale factor of 1.1.					
8.87±0.10 OUR AVERAGE					
8.88±0.03±0.10		[1] ABLIKIM	25CH	BES3	$\psi(2S) \to \gamma\chi_{c0}$
9.11±0.08±0.65	17k	[2] ABLIKIM	10A	BES3	$e^+e^- \to \psi(2S) \to \gamma\chi_{c0}$
8.81±0.11±0.43	8.9k	[3] ASNER	09	CLEO	$\psi(2S) \to \gamma\pi^+\pi^-$
8.13±0.19±0.89	2.8k	[4] ASNER	09	CLEO	$\psi(2S) \to \gamma\pi^0\pi^0$

[1] Calculated by us. ABLIKIM 25CH reports B($\chi_{c0} \to \pi^+\pi^-$) = (6.06 ± 0.02 ± 0.07) × 10^{-3} using B($\psi(2S) \to \gamma\chi_{c0}$) = (9.77 ± 0.23)%. We have multiplied the $\pi^+\pi^-$ measurement by 3/2 to obtain $\pi\pi$.

[2] Calculated by us. ABLIKIM 10A reports B($\chi_{c0} \to \pi^0\pi^0$) = (3.23 ± 0.03 ± 0.23 ± 0.14) × 10^{-3} using B($\psi(2S) \to \gamma\chi_{c0}$) = (9.4 ± 0.4)%. We have multiplied the $\pi^0\pi^0$ measurement by 3 to obtain $\pi\pi$.

[3] Calculated by us. ASNER 09 reports B($\chi_{c0} \to \pi^+\pi^-$) = (6.37 ± 0.08 ± 0.31 ± 0.32) × 10^{-3} using B($\psi(2S) \to \gamma\chi_{c0}$) = (9.22 ± 0.11 ± 0.46)%. We have multiplied the $\pi^+\pi^-$ measurement by 3/2 to obtain $\pi\pi$.

[4] Calculated by us. ASNER 09 reports B($\chi_{c0} \to \pi^0\pi^0$) = (2.94 ± 0.07 ± 0.32 ± 0.15) × 10^{-3} using B($\psi(2S) \to \gamma\chi_{c0}$) = (9.22 ± 0.11 ± 0.46)%. We have multiplied the $\pi^0\pi^0$ measurement by 3 to obtain $\pi\pi$.

$\Gamma(\chi_{c0}(1P) \to \pi\pi)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{32}/\Gamma \times \Gamma_{196}^{\psi(2S)}/\Gamma_{12}^{\psi(2S)}$

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
25.3±0.4 OUR FIT Error includes scale factor of 1.1.					
20.7±1.7 OUR AVERAGE					
23.9±2.7±4.1	97 ± 11	[1] BAI	03C	BES	$\psi(2S) \to \gamma\chi_{c0} \to \gamma\pi^0\pi^0$
20.2±1.1±1.5	720 ± 32	[2] BAI	98I	BES	$\psi(2S) \to \gamma\chi_{c0} \to \gamma\pi^+\pi^-$

[1] We have multiplied $\pi^0\pi^0$ measurement by 3 to obtain $\pi\pi$.
[2] 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 ± 0.8)% and B($\psi' \to J/\psi\pi^+\pi^-$) = (32.4 ± 2.6)% [BAI 98D]. We have multiplied $\pi^+\pi^-$ measurement by 3/2 to obtain $\pi\pi$.

$\Gamma(\chi_{c0}(1P) \to \eta\eta)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{36}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.96±0.21 OUR FIT Error includes scale factor of 1.2.					
3.12±0.19 OUR AVERAGE					
3.23±0.09±0.23	2132	[1] ABLIKIM	10A	BES3	$e^+e^- \to \psi(2S) \to \gamma\chi_{c0}$
2.93±0.12±0.29	0.9k	[2] ASNER	09	CLEO	$\psi(2S) \to \gamma\eta\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.86±0.46±0.37	48	[3] ADAMS	07	CLEO	$\psi(2S) \to \gamma\chi_{c0}$

[1] Calculated by us. ABLIKIM 10A reports B($\chi_{c0} \to \eta\eta$) = (3.44 ± 0.10 ± 0.24 ± 0.13) × 10^{-3} using B($\psi(2S) \to \gamma\chi_{c0}$) = (9.4 ± 0.4)%.
[2] Calculated by us. ASNER 09 reports B($\chi_{c0} \to \eta\eta$) = (3.18 ± 0.13 ± 0.31 ± 0.16) × 10^{-3} using B($\psi(2S) \to \gamma\chi_{c0}$) = (9.22 ± 0.11 ± 0.46)%.
[3] Superseded by ASNER 09. 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 ± 0.11 ± 0.46)% (ATHAR 04).

$\Gamma(\chi_{c0}(1P) \to \eta\eta)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{36}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}_{12}$

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.85 ±0.06 OUR FIT Error includes scale factor of 1.2.				
0.578±0.241±0.158	BAI	03C	BES	$\psi(2S) \to \gamma\eta\eta$

$\Gamma(\chi_{c0}(1P) \to K^+K^-)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{42}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
6.19±0.08 OUR FIT					
6.20±0.08 OUR AVERAGE					
6.21±0.02±0.08		[1] ABLIKIM	25CH	BES3	$\psi(2S) \to \gamma\chi_{c0}$
5.97±0.07±0.32	8.1k	[2] ASNER	09	CLEO	$\psi(2S) \to \gamma K^+K^-$

[1] Calculated by us. ABLIKIM 25CH reports B($\chi_{c0} \to K^+K^-$) = (6.36 ± 0.02 ± 0.08) × 10^{-3} using B($\psi(2S) \to \gamma\chi_{c0}$) = (9.77 ± 0.23)%.
[2] Calculated by us. ASNER 09 reports B($\chi_{c0} \to K^+K^-$) = (6.47 ± 0.08 ± 0.35 ± 0.32) × 10^{-3} using B($\psi(2S) \to \gamma\chi_{c0}$) = (9.22 ± 0.11 ± 0.46)%.

$\Gamma(\chi_{c0}(1P) \to K^+K^-)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{42}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}_{12}$

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.779±0.028 OUR FIT					
1.63 ±0.10 ±0.15	774 ± 38	[1] BAI	98I	BES	$\psi(2S) \to \gamma K^+K^-$

[1] 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 ± 0.8)% and B($\psi(2S) \to J/\psi\pi^+\pi^-$) = (32.4 ± 2.6)% [BAI 98D].

$\Gamma\big(\chi_{c0}(1P) \to K^0_S K^0_S\big)/\Gamma_{\rm total} \times \Gamma\big(\psi(2S) \to \gamma\chi_{c0}(1P)\big)/\Gamma_{\rm total}$ $\qquad \Gamma_{43}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
3.09±0.16 OUR FIT					
3.18±0.17 OUR AVERAGE					
3.22±0.07±0.17	2.1k	[1] ASNER	09	CLEO	$\psi(2S) \to \gamma K^0_S K^0_S$
3.02±0.19±0.33	322	ABLIKIM	05O	BES2	$\psi(2S) \to \gamma K^0_S K^0_S$

[1] Calculated by us. ASNER 09 reports B($\chi_{c0} \to K^0_S K^0_S$) = $(3.49 \pm 0.08 \pm 0.18 \pm 0.17) \times 10^{-3}$ using B($\psi(2S) \to \gamma\chi_{c0}$) = $(9.22 \pm 0.11 \pm 0.46)$%.

$\Gamma\big(\chi_{c0}(1P) \to K^0_S K^0_S\big)/\Gamma_{\rm total} \times \Gamma\big(\psi(2S) \to \gamma\chi_{c0}(1P)\big)/\Gamma\big(\psi(2S) \to J/\psi(1S)\pi^+\pi^-\big)$ $\qquad \Gamma_{43}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}_{12}$

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
8.9±0.5 OUR FIT				
5.6±0.8±1.3	[1] BAI	99B	BES	$\psi(2S) \to \gamma K^0_S K^0_S$

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

$\Gamma\big(\chi_{c0}(1P) \to 2\pi^+2\pi^-\eta\big)/\Gamma_{\rm total} \times \Gamma\big(\psi(2S) \to \gamma\chi_{c0}(1P)\big)/\Gamma_{\rm total}$ $\qquad \Gamma_{45}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
44.4±0.3±3.7	43k	ABLIKIM	25R	BES3	$e^+e^- \to \psi(2S)$

$\Gamma\big(\chi_{c0}(1P) \to K^+K^-K^+K^-\big)/\Gamma_{\rm total} \times \Gamma\big(\psi(2S) \to \gamma\chi_{c0}(1P)\big)/\Gamma_{\rm total}$ $\qquad \Gamma_{53}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.7 ±0.4 OUR FIT Error includes scale factor of 1.4.					
3.20±0.11±0.41	278	[1] ABLIKIM	06T	BES2	$\psi(2S) \to \gamma 2K^+2K^-$

[1] 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 ± 0.4)%.

$\Gamma\big(\chi_{c0}(1P) \to K^+K^-K^+K^-\big)/\Gamma_{\rm total} \times \Gamma\big(\psi(2S) \to \gamma\chi_{c0}(1P)\big)/\Gamma\big(\psi(2S) \to J/\psi(1S)\pi^+\pi^-\big)$ $\qquad \Gamma_{53}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}_{12}$

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
7.9±1.1 OUR FIT Error includes scale factor of 1.4.				
6.1±0.8±0.9	[1] BAI	99B	BES	$\psi(2S) \to \gamma 2K^+2K^-$

[1] 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 ± 0.8)% and B($\psi(2S) \to J/\psi\pi^+\pi^-$) = (32.4 ± 2.6)% [BAI 98D].

$\Gamma\big(\chi_{c0}(1P) \to K^0_S K^0_S K^0_S K^\pm\pi^\mp\big)/\Gamma_{\rm total} \times \Gamma\big(\psi(2S) \to \gamma\chi_{c0}(1P)\big)/\Gamma_{\rm total}$ $\qquad \Gamma_{57}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
7.78±0.49±0.64	343	[1] ABLIKIM	25AY	BES3	$\psi(3686) \to \gamma\chi_{c0}$

[1] ABLIKIM 24AY reports also a measurement B($\chi_{c0}(1P) \to K^0_S K^0_S K^0_S K^\pm \pi^\mp$) = $(7.95 \pm 0.50 \pm 0.65) \times 10^{-5}$ from this product branching fraction using PDG 24 B($\psi(2S) \to \gamma \chi_{c0}$) value.

$\Gamma(\chi_{c0}(1P) \to 3(K^+K^-))/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{58}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-7})	EVTS	DOCUMENT ID		TECN	COMMENT
10.5±1.8±1.1	37.7 ± 6.2	[1] ABLIKIM	24P	BES3	$e^+e^- \to \psi(2S)$

[1] Systematic error derived by us, based on the text.

$\Gamma(\chi_{c0}(1P) \to \phi\phi)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{60}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
0.838±0.030 OUR FIT					
0.843±0.030 OUR AVERAGE					
0.84 ±0.03 ±0.01	2701	[1] ABLIKIM	23N	BES3	$\psi(2S) \to \gamma 2K^+2K^-$
0.88 ±0.07 ±0.1	179	[2,3] ABLIKIM	11K	BES3	$\psi(2S) \to \gamma K^+K^-\pi^+\pi^-\pi^0$
0.86 ±0.19 ±0.12	26	[4] ABLIKIM	06T	BES2	$\psi(2S) \to \gamma 2K^+2K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.75 ±0.04 ±0.07	433	[2,5,6] ABLIKIM	11K	BES3	$\psi(2S) \to \gamma 2(K^+K^-)$

[1] Calculated by us. The value of B($\chi_{c0} \to \phi\phi$) reported by ABLIKIM 23N was derived using B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = (9.79 ± 0.20)%.

[2] Calculated by us. The value of B($\chi_{c0} \to \phi\phi$) reported by ABLIKIM 11K was derived using B($\psi(2S) \to \gamma\chi_{c0}(1P)$) = (9.62 ± 0.31)%.

[3] Using $\phi\phi \to K^+K^-\pi^+\pi^-\pi^0$.

[4] 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 ± 0.4)%.

[5] Using $\phi\phi \to 2(K^+K^-)$.

[6] Superseded by ABLIKIM 23N.

$\Gamma(\chi_{c0}(1P) \to \phi\phi)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{60}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}_{12}$

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
2.41±0.09 OUR FIT				
2.6 ±1.0 ±1.1	[1] BAI	99B	BES	$\psi(2S) \to \gamma 2K^+2K^-$

[1] 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 ± 0.8)% and B($\psi(2S) \to J/\psi\pi^+\pi^-$) = (32.4 ± 2.6)% [BAI 98D].

$\Gamma(\chi_{c0}(1P) \to p\overline{p})/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{62}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
23.6±1.1 OUR FIT Error includes scale factor of 1.9.					
24.5±0.6 OUR AVERAGE					
24.6±0.2±0.6	31268	[1] ABLIKIM	25H	BES3	$\psi(2S) \to \gamma p\overline{p}$
23.7±1.4±1.4	383 ± 22	[2] NAIK	08	CLEO	$\psi(2S) \to \gamma p\overline{p}$

$23.6^{+3.7}_{-3.4}\pm3.4$	89.5^{+14}_{-13}	BAI	04F	BES	$\psi(2S) \rightarrow \gamma\chi_{c0}(1P) \rightarrow \gamma\overline{p}p$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$23.7\pm0.8\pm0.9$	1222	[3] ABLIKIM	13V	BES3	$\psi(2S) \rightarrow \gamma p\overline{p}$

[1] Calculated by us. ABLIKIM 25H reports $B(\chi_{c0} \rightarrow p\overline{p}) = (2.51 \pm 0.02 \pm 0.08) \times 10^{-4}$ using $B(\psi(2S) \rightarrow \gamma\chi_{c0}) = (9.79 \pm 0.20)\%$.
[2] Calculated by us. NAIK 08 reports $B(\chi_{c0} \rightarrow p\overline{p}) = (25.7 \pm 1.5 \pm 1.5 \pm 1.3) \times 10^{-5}$ using $B(\psi(2S) \rightarrow \gamma\chi_{c0}) = (9.22 \pm 0.11 \pm 0.46)\%$.
[3] Superseded by ABLIKIM 25H

$\Gamma(\chi_{c0}(1P) \rightarrow p\overline{p})/\Gamma_{total} \times \Gamma(\psi(2S) \rightarrow \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \rightarrow J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{62}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}_{12}$

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
6.79±0.32 OUR FIT Error includes scale factor of 1.9.				
4.6 ±1.9	[1] BAI	98I	BES	$\psi(2S) \rightarrow \gamma\chi_{c0} \rightarrow \gamma\overline{p}p$

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

$\Gamma(\chi_{c0}(1P) \rightarrow p\overline{p}K^0_S K^-\pi^+ + \text{c.c.})/\Gamma_{total} \times \Gamma(\psi(2S) \rightarrow \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{76}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
2.55±0.26±0.31	173	ABLIKIM	24BX	BES3	$\psi(2S) \rightarrow \gamma\chi_{c0}$

$\Gamma(\chi_{c0}(1P) \rightarrow \Lambda\overline{\Lambda})/\Gamma_{total} \times \Gamma(\psi(2S) \rightarrow \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{81}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
35.2±1.3 OUR FIT					
35.1±1.4 OUR AVERAGE Error includes scale factor of 1.1.					
$35.6\pm1.0\pm1.0$	1486	ABLIKIM	21L	BES3	$\psi(2S) \rightarrow \gamma p\pi^-\overline{p}\pi^+$
$31.2\pm3.3\pm2.0$	131	[1] NAIK	08	CLEO	$\psi(2S) \rightarrow \gamma\Lambda\overline{\Lambda}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$32.0\pm1.9\pm2.2$	369	[2,3] ABLIKIM	13H	BES3	$\psi(2S) \rightarrow \gamma\Lambda\overline{\Lambda}$

[1] Calculated by us. NAIK 08 reports $B(\chi_{c0} \rightarrow \Lambda\overline{\Lambda}) = (33.8 \pm 3.6 \pm 2.2 \pm 1.7) \times 10^{-5}$ using $B(\psi(2S) \rightarrow \gamma\chi_{c0}) = (9.22 \pm 0.11 \pm 0.46)\%$.
[2] Superseded by ABLIKIM 21L
[3] Calculated by us. ABLIKIM 13H reports $B(\chi_{c0} \rightarrow \Lambda\overline{\Lambda}) = (33.3 \pm 2.0 \pm 2.6) \times 10^{-5}$ from a measurement of $B(\chi_{c0} \rightarrow \Lambda\overline{\Lambda}) \times B(\psi(2S) \rightarrow \gamma\chi_{c0})$ assuming $B(\psi(2S) \rightarrow \gamma\chi_{c0}) = (9.62 \pm 0.31)\%$.

$\Gamma(\chi_{c0}(1P) \rightarrow \Lambda\overline{\Lambda})/\Gamma_{total} \times \Gamma(\psi(2S) \rightarrow \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \rightarrow J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{81}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}_{12}$

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
10.1±0.4 OUR FIT					
$\mathbf{13.0^{+3.6}_{-3.5}\pm2.5}$	$15.2^{+4.2}_{-4.0}$	[1] BAI	03E	BES	$\psi(2S) \rightarrow \gamma\Lambda\overline{\Lambda}$

[1] BAI 03E reports $[B(\chi_{c0} \rightarrow \Lambda\overline{\Lambda})\, B(\psi(2S) \rightarrow \gamma\chi_{c0}) / B(\psi(2S) \rightarrow J/\psi\pi^+\pi^-)] \times [B^2(\Lambda \rightarrow \pi^- p) / B(J/\psi \rightarrow p\overline{p})] = (2.45^{+0.68}_{-0.65} \pm 0.46)\%$. We calculate from this

measurement the presented value using B($\Lambda \to \pi^- p$) = (63.9 ± 0.5)% and B($J/\psi \to p\overline{p}$) = (2.17 ± 0.07) × 10^{-3}.

$\Gamma(\chi_{c0}(1P) \to \Lambda\overline{\Lambda}\eta)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{86}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
2.26±0.30±0.20	67	ABLIKIM	22AO	BES3	$\psi(2S) \to \gamma p \pi^- \overline{p} \pi^+ \gamma\gamma$

$\Gamma(\chi_{c0}(1P) \to \Lambda\overline{\Lambda}\eta')/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{87}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
7.39±1.39±0.86	[1] ABLIKIM	25BX	BES3	$\psi(2S) \to \gamma\chi_{c0}$

[1] Calculated by us. ABLIKIM 25BX reports B($\chi_{c0} \to \Lambda\overline{\Lambda}\eta'$) = (7.56 ± 1.42 ± 0.90) × 10^{-5} from a measurement of B($\chi_{c0} \to \Lambda\overline{\Lambda}\eta'$) × B($\psi(2S) \to \gamma\chi_{c0}$) assuming B($\psi(2S) \to \gamma\chi_{c0}$) = (9.77 ± 0.23)%.

$\Gamma(\chi_{c0}(1P) \to \Lambda\overline{\Lambda}\omega)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{88}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
23.2±2.2±2.4	316 ± 30	[1] ABLIKIM	24BE	BES3	$e^+e^- \to \psi(2S) \to \gamma\chi_{c0}$

[1] Calculated by us. The authors report B($\chi_{c0} \to \Lambda\overline{\Lambda}\omega$) obtained from a product using PDG 22 value of B($\psi(2S) \to \gamma\chi_{c0}$).

$\Gamma(\chi_{c0}(1P) \to \Lambda\overline{\Lambda}\phi)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{89}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
2.92±1.22±0.19	7.2	ABLIKIM	24AC	BES3	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(\chi_{c0}(1P) \to \overline{p}\Lambda(1520)K^0_S\pi^+ + \text{c.c.})/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{93}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
$1.57^{+0.66}_{-0.62}$±0.22	27	ABLIKIM	24BX	BES3	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(\chi_{c0}(1P) \to \Sigma^+\overline{p}K^0_S + \text{c.c.})/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{total}$ $\Gamma_{95}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
3.45±0.17±0.19	493	[1] ABLIKIM	19BB	BES3	$\psi(2S) \to \gamma\Sigma^+\overline{p}K^0_S$ + c.c.

[1] Calculated by us. ABLIKIM 19BB reports B($\chi^0_c \to \Sigma^+\overline{p}K^0_S$ + c.c.) = (3.52 ± 0.19 ± 0.21) × 10^{-4} using B($\psi(2S) \to \gamma\chi^0_c$) = (9.79 ± 0.20)% and other branching fractions from PDG 18.

$\Gamma(\chi_{c0}(1P) \to \Sigma^0 \overline{p} K^+ + \text{c.c.})/\Gamma_{\text{total}} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{\text{total}}$ $\Gamma_{96}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
2.97±0.12±0.14	871	[1] ABLIKIM	20AE	BES3	$\psi(2S) \to \gamma\Sigma^0\overline{p}K^+ + \text{c.c.}$

[1] Calculated by us. ABLIKIM 20AE reports B($\chi_c^0 \to \Sigma^0\overline{p}K^+$ + c.c.) = (3.03 ± 0.12 ± 0.15) × 10^{-4} using B($\psi(2S) \to \gamma\chi_c^0$) = (9.79 ± 0.20)% and other branching fractions from PDG 20.

$\Gamma(\chi_{c0}(1P) \to \gamma J/\psi(1S))/\Gamma_{\text{total}} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{\text{total}}$ $\Gamma_{107}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
0.136±0.009 OUR FIT Error includes scale factor of 1.8.					
0.147±0.029 OUR AVERAGE Error includes scale factor of 4.6.					
0.158±0.003±0.006	4.8k	[1] ABLIKIM	17N	BES3	$\psi(2S) \to \gamma\gamma J/\psi$
0.024±0.015±0.205	12k	ABLIKIM	17U	BES3	$e^+e^- \to \gamma X$
0.069±0.018		[2] OREGLIA	82	CBAL	$\psi(2S) \to \gamma\chi_{c0}$
0.4 ±0.3		[3] BRANDELIK	79B	DASP	$\psi(2S) \to \gamma\chi_{c0}$
0.16 ±0.11		[3] BARTEL	78B	CNTR	$\psi(2S) \to \gamma\chi_{c0}$
3.3 ±1.7		[4] BIDDICK	77	CNTR	$e^+e^- \to \gamma X$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.151±0.003±0.010	4.3k	[5] ABLIKIM	12O	BES3	$\psi(2S) \to \gamma\chi_{c0}$
0.125±0.007±0.013	560	[6] MENDEZ	08	CLEO	$\psi(2S) \to \gamma\chi_{c0}$
0.18 ±0.01 ±0.02	172	[7] ADAM	05A	CLEO	$\psi(2S) \to \gamma\chi_{c0}$

[1] Uses B($J/\psi \to e^+e^-$) = (5.971 ± 0.032)% and B($J/\psi \to \mu^+\mu^-$) = (5.961 ± 0.033)%.
[2] Recalculated by us using B($J/\psi(1S) \to \ell^+\ell^-$) = 0.1181 ± 0.0020.
[3] Recalculated by us using B($J/\psi(1S) \to \mu^+\mu^-$) = 0.0588 ± 0.0010.
[4] Assumes isotropic gamma distribution.
[5] Superseded by ABLIKIM 17N.
[6] Not used since the same experimental measurement has been used in another related quantity included elsewhere in the fit.
[7] Superseded by MENDEZ 08.

$\Gamma(\chi_{c0}(1P) \to \gamma J/\psi(1S))/\Gamma_{\text{total}} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{107}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}_{12}$

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
0.392±0.026 OUR FIT Error includes scale factor of 1.7.					
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	[1] ADAM	05A	CLEO	$\psi(2S) \to \gamma\chi_{c0}$

[1] Superseded by MENDEZ 08.

$\Gamma(\chi_{c0}(1P) \to \gamma\gamma)/\Gamma_{\text{total}} \times \Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))/\Gamma_{\text{total}}$ $\Gamma_{111}/\Gamma \times \Gamma^{\psi(2S)}_{196}/\Gamma^{\psi(2S)}$

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
1.97±0.08 OUR FIT Error includes scale factor of 1.1.					
1.95±0.09 OUR AVERAGE					
1.93±0.08±0.05	3.5k	ABLIKIM	17AE	BES3	$\psi(2S) \to \gamma\chi_{c0} \to 3\gamma$

2.17±0.32±0.10	0.2k	ECKLUND	08A	CLEO	$\psi(2S) \to \gamma\chi_{c0} \to 3\gamma$
3.7 ±1.8 ±1.0		LEE	85	CBAL	$\psi(2S) \to \gamma\chi_{c0}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.17±0.17±0.12	0.8k	[1] ABLIKIM	12A	BES3	$\psi(2S) \to \gamma\chi_{c0} \to 3\gamma$

[1] Superseded by ABLIKIM 17AE.

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

ABLIKIM	25AY	PR D112 012007	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	25BX	PR D112 112015	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	25CE	JHEP 2510 090	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	25CH	CP C49 091001	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	25CJ	CP C49 123001	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	25H	PR D111 012003	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	25K	PR D111 032001	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	25L	PR D111 032008	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	25R	PR D111 052013	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	25V	PR D111 072001	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	24AC	PR D110 032016	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	24AY	PR D109 L071103	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	24BE	PR D110 032022	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	24BT	PR D110 072009	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	24BX	PR D110 112009	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	24CA	PR D110 112013	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	24P	PR D109 072016	M. Ablikim et al.	(BESIII Collab.)
PDG	24	PR D110 030001	S. Navas et al.	(PDG Collab.)
ABLIKIM	23N	JHEP 2305 069	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	23T	PR D107 092004	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	22AO	PR D106 072004	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	22O	JHEP 2206 074	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	22Q	PR D106 032014	M. Ablikim et al.	(BESIII Collab.)
PDG	22	PTEP 2022 083C01	R.L. Workman et al.	(PDG Collab.)
ABLIKIM	21AV	JHEP 2111 217	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	21L	PR D103 112004	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	20AE	PR D102 092006	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	20B	PR D101 012012	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	20I	PR D101 092002	M. Ablikim et al.	(BESIII Collab.)
PDG	20	PTEP 2020 083C01	P.A. Zyla et al.	(PDG Collab.)
ABLIKIM	19AA	PR D99 052008	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	19AU	PR D100 052010	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	19BB	PR D100 092006	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	19J	PR D99 012015	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	19Z	PR D99 051101	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	18V	PR D97 052011	M. Ablikim et al.	(BESIII Collab.)
PDG	18	PR D98 030001	M. Tanabashi et al.	(PDG Collab.)
AAIJ	17BB	EPJ C77 609	R. Aaij et al.	(LHCb Collab.)
ABLIKIM	17AE	PR D96 092007	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	17AI	PR D96 112006	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	17I	PRL 118 221802	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	17N	PR D95 072004	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	17U	PR D96 032001	M. Ablikim et al.	(BESIII Collab.)
PDG	16	CP C40 100001	C. Patrignani et al.	(PDG Collab.)
ABLIKIM	15I	PR D91 092006	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	15M	PR D91 112008	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	15N	PR D91 112018	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	13B	PR D87 012002	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	13D	PR D87 012007	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	13H	PR D87 032007	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	13V	PR D88 112001	M. Ablikim et al.	(BESIII Collab.)
UEHARA	13	PTEP 2013 123C01	S. Uehara et al.	(BELLE Collab.)
ABLIKIM	12A	PR D85 112008	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	12I	PR D86 052004	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	12J	PR D86 052011	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	12O	PRL 109 172002	M. Ablikim et al.	(BESIII Collab.)
LIU	12B	PRL 108 232001	Z.Q. Liu et al.	(BELLE Collab.)
ABLIKIM	11A	PR D83 012006	M. Ablikim et al.	(BESIII Collab.)
ABLIKIM	11E	PR D83 112005	M. Ablikim et al.	(BESIII Collab.)

ABLIKIM	11F	PR D83 112009	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	11K	PRL 107 092001	M. Ablikim *et al.*	(BESIII Collab.)
DEL-AMO-SA...	11M	PR D84 012004	P. del Amo Sanchez *et al.*	(BABAR Collab.)
ABLIKIM	10A	PR D81 052005	M. Ablikim *et al.*	(BESIII Collab.)
ONYISI	10	PR D82 011103	P.U.E. Onyisi *et al.*	(CLEO Collab.)
UEHARA	10A	PR D82 114031	S. Uehara *et al.*	(BELLE Collab.)
ASNER	09	PR D79 072007	D.M. Asner *et al.*	(CLEO Collab.)
UEHARA	09	PR D79 052009	S. Uehara *et al.*	(BELLE Collab.)
BENNETT	08A	PRL 101 151801	J.V. Bennett *et al.*	(CLEO Collab.)
ECKLUND	08A	PR D78 091501	K.M. Ecklund *et al.*	(CLEO Collab.)
HE	08B	PR D78 092004	Q. He *et al.*	(CLEO Collab.)
MENDEZ	08	PR D78 011102	H. Mendez *et al.*	(CLEO Collab.)
NAIK	08	PR D78 031101	P. Naik *et al.*	(CLEO Collab.)
UEHARA	08	EPJ C53 1	S. Uehara *et al.*	(BELLE Collab.)
ABE	07	PRL 98 082001	K. Abe *et al.*	(BELLE Collab.)
ADAMS	07	PR D75 071101	G.S. Adams *et al.*	(CLEO Collab.)
ATHAR	07	PR D75 032002	S.B. Athar *et al.*	(CLEO Collab.)
CHEN	07B	PL B651 15	W.T. Chen *et al.*	(BELLE Collab.)
ABLIKIM	06D	PR D73 052006	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06I	PR D74 012004	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06R	PR D74 072001	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06T	PL B642 197	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05G	PR D71 092002	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05N	PL B630 7	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05O	PL B630 21	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05Q	PR D72 092002	M. Ablikim *et al.*	(BES Collab.)
ADAM	05A	PRL 94 232002	N.E. Adam *et al.*	(CLEO Collab.)
ANDREOTTI	05A	NP B717 34	M. Andreotti *et al.*	(FNAL E835 Collab.)
ANDREOTTI	05C	PR D72 112002	M. Andreotti *et al.*	(FNAL E835 Collab.)
NAKAZAWA	05	PL B615 39	H. Nakazawa *et al.*	(BELLE Collab.)
ABE	04G	PR D70 071102	K. Abe *et al.*	(BELLE Collab.)
ABLIKIM	04G	PR D70 092002	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	04H	PR D70 092003	M. Ablikim *et al.*	(BES Collab.)
ANDREOTTI	04	PL B584 16	M. Andreotti *et al.*	(E835 Collab.)
ATHAR	04	PR D70 112002	S.B. Athar *et al.*	(CLEO Collab.)
BAI	04F	PR D69 092001	J.Z. Bai *et al.*	(BES Collab.)
ANDREOTTI	03	PRL 91 091801	M. Andreotti *et al.*	(FNAL E835 Collab.)
AULCHENKO	03	PL B573 63	V.M. Aulchenko *et al.*	(KEDR Collab.)
BAI	03C	PR D67 032004	J.Z. Bai *et al.*	(BES Collab.)
BAI	03E	PR D67 112001	J.Z. Bai *et al.*	(BES Collab.)
ABE,K	02	PRL 89 142001	K. Abe *et al.*	(BELLE Collab.)
BAGNASCO	02	PL B533 237	S. Bagnasco *et al.*	(FNAL E835 Collab.)
EISENSTEIN	01	PRL 87 061801	B.I. Eisenstein *et al.*	(CLEO Collab.)
AMBROGIANI	00B	PR D62 052002	M. Ambrogiani *et al.*	(FNAL E835 Collab.)
AMBROGIANI	99B	PRL 83 2902	M. Ambrogiani *et al.*	(FNAL E835 Collab.)
BAI	99B	PR D60 072001	J.Z. Bai *et al.*	(BES Collab.)
BAI	98D	PR D58 092006	J.Z. Bai *et al.*	(BES Collab.)
BAI	98I	PRL 81 3091	J.Z. Bai *et al.*	(BES Collab.)
GAISER	86	PR D34 711	J. Gaiser *et al.*	(Crystal Ball Collab.)
LEE	85	SLAC 282	R.A. Lee	(SLAC)
OREGLIA	82	PR D25 2259	M.J. Oreglia *et al.*	(SLAC, CIT, HARV+)
BRANDELIK	79B	NP B160 426	R. Brandelik *et al.*	(DASP Collab.)
BARTEL	78B	PL 79B 492	W. Bartel *et al.*	(DESY, HEIDP)
TANENBAUM	78	PR D17 1731	W.M. Tanenbaum *et al.*	(SLAC, LBL)
Also		Private Comm.	G. Trilling	(LBL, UCB)
BIDDICK	77	PRL 38 1324	C.J. Biddick *et al.*	(UCSD, UMD, PAVI+)