$\chi_{c0}(1P)$

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

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

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
3415.16± 0.35 OUR AVERAGE					
3414.7 $^{+0.7}_{-0.6}$ ±0.2		[1] ANDREOTTI	03	E835	$\overline{p}p \rightarrow \chi_{c0} \rightarrow \pi^0\pi^0$
3415.4 ± 0.4 ±0.2	392	[1] BAGNASCO	02	E835	$\overline{p}p \rightarrow \chi_{c0} \rightarrow J/\psi\gamma$
3417.4 $^{+1.8}_{-1.9}$ ±0.2		[1] AMBROGIANI	99B	E835	$\overline{p}p \rightarrow e^+e^-\gamma$
3414.1 ± 0.6 ±0.8		BAI	99B	BES	$\psi(2S) \rightarrow \gamma X$
3417.8 ± 0.4 ±4		[1] GAISER	86	CBAL	$\psi(2S) \rightarrow \gamma X$
3416 ± 3 ±4		[2] TANENBAUM	78	MRK1	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3407 ±11	89	[3] ABE	04G	BELL	10.6 $e^+e^- \rightarrow J/\psi(c\overline{c})$
3416.5 ± 3.0		EISENSTEIN	01	CLE2	$e^+e^- \rightarrow e^+e^-\chi_{c0}$
3422 ±10		[2] BARTEL	78B	CNTR	$e^+e^- \rightarrow J/\psi 2\gamma$
3415 ± 9		[2] BIDDICK	77	CNTR	$e^+e^- \rightarrow \gamma X$

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

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

[3] From a fit of the J/ψ recoil mass spectrum. Systematic errors not estimated.

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

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
10.2±0.8 OUR FIT					
10.2±0.9 OUR AVERAGE Error includes scale factor of 1.2.					
8.6 $^{+1.7}_{-1.3}$ ±0.1		ANDREOTTI	03	E835	$\overline{p}p \rightarrow \chi_{c0} \rightarrow \pi^0\pi^0$
9.8±1.0±0.1	392	BAGNASCO	02	E835	$\overline{p}p \rightarrow \chi_{c0} \rightarrow J/\psi\gamma$
16.6 $^{+5.2}_{-3.7}$ ±0.1		AMBROGIANI	99B	E835	$\overline{p}p \rightarrow e^+e^-\gamma$
14.3±2.0±3.0		BAI	98I	BES	$\psi(2S) \rightarrow \gamma\pi^+\pi^-$
13.5±3.3±4.2		GAISER	86	CBAL	$\psi(2S) \rightarrow \gamma X, \gamma\pi^0\pi^0$

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

Mode	Fraction (Γ_i/Γ)	Confidence level

Hadronic decays

Γ_1	$2(\pi^+\pi^-)$	(2.47 ± 0.25) %	
Γ_2	$f_0(980) f_0(980) \to 2\pi^+ 2\pi^-$	$(7.2 \pm2.3) \times 10^{-4}$	
Γ_3	$\pi^+\pi^- K^+ K^-$	(2.1 ± 0.5) %	
Γ_4	$\rho^0\pi^+\pi^-$	(1.6 ± 0.5) %	
Γ_5	$3(\pi^+\pi^-)$	(1.27 ± 0.22) %	
Γ_6	$K^+\overline{K}^*(892)^0\pi^- +$ c.c.	(1.2 ± 0.4) %	
Γ_7	$K^*(892)^0\overline{K}^*(892)^0$	$(1.7 \pm0.4) \times 10^{-3}$	
Γ_8	K^+K^-	$(6.0 \pm0.9) \times 10^{-3}$	
Γ_9	$\pi\pi$	$(7.1 \pm0.6) \times 10^{-3}$	
Γ_{10}	$\eta\eta$	$(2.1 \pm1.1) \times 10^{-3}$	
Γ_{11}	$K^+K^-K^+K^-$	$(2.3 \pm0.5) \times 10^{-3}$	
Γ_{12}	$K^0_S K^0_S$	$(2.1 \pm0.6) \times 10^{-3}$	
Γ_{13}	$\pi^+\pi^- p\overline{p}$	$(2.2 \pm0.8) \times 10^{-3}$	
Γ_{14}	$\phi\phi$	$(1.0 \pm0.6) \times 10^{-3}$	
Γ_{15}	$p\overline{p}$	$(2.24\pm0.27) \times 10^{-4}$	
Γ_{16}	$\Lambda\overline{\Lambda}$	$(4.7 \pm1.6) \times 10^{-4}$	
Γ_{17}	$K^0_S K^+\pi^- +$ c.c.	$< 8 \times 10^{-4}$	90%

Radiative decays

Γ_{18}	$\gamma J/\psi(1S)$	(1.13 ± 0.11) %	
Γ_{19}	$\gamma\gamma$	$(2.5 \pm0.4) \times 10^{-4}$	

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

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

$\Gamma(p\overline{p}) \times \Gamma(\gamma J/\psi(1S))/\Gamma_{\text{total}}$ $\Gamma_{15}\Gamma_{18}/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
27.0± 2.8 OUR FIT					
• • • We do not use the following data for averages, fits, limits, etc. • • •					
26.6± 2.6±1.4	392	[4,5] BAGNASCO	02	E835	$\overline{p}p \to \chi_{c0} \to J/\psi\gamma$
$48.7^{+11.3}_{-8.9}\pm2.4$		[4,5] AMBROGIANI	99B	E835	$\overline{p}p \to \gamma J/\psi$

$\Gamma(\gamma\gamma) \times \Gamma(2(\pi^+\pi^-))/\Gamma_{\text{total}}$ $\Gamma_{19}\Gamma_1/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
64±11 OUR FIT				
75±13±8	EISENSTEIN	01	CLE2	$e^+e^- \to e^+e^-\chi_{c0}$

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

[5] Values in $(\Gamma(p\overline{p}) \times \Gamma(\gamma J/\psi(1S))/\Gamma_{\text{total}})$ and $(\Gamma(p\overline{p}) \times \Gamma(\gamma J/\psi(1S))/\Gamma^2_{\text{total}})$ are not independent. The latter is used in the fit since it is less correlated to the total width.

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

HADRONIC DECAYS

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

VALUE	DOCUMENT ID
0.0247±0.0025 OUR FIT	

$\Gamma(f_0(980) f_0(980) \to 2\pi^+ 2\pi^-)/\Gamma_{total}$ — Γ_2/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
7.2±2.3±0.3	36 ± 9	[6] ABLIKIM	04G	BES	$\psi(2S) \to \gamma 2\pi^+ 2\pi^-$

$\Gamma(\pi^+\pi^- K^+ K^-)/\Gamma_{total}$ — Γ_3/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
21 ±5 OUR EVALUATION Treating systematic error as correlated.				
21 ±6 OUR AVERAGE Error includes scale factor of 1.9.				
15.6±0.7±3.9	[7] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c0}$
27.4±3.7±2.7	[7] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(\rho^0\pi^+\pi^-)/\Gamma_{total}$ — Γ_4/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.016±0.005	[8] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(3(\pi^+\pi^-))/\Gamma_{total}$ — Γ_5/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
12.7±2.2 OUR EVALUATION Treating systematic error as correlated.				
12.7±2.0 OUR AVERAGE				
12.4±1.1±2.3	[7] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c0}$
13.3±3.0±1.3	[7] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(K^+\overline{K}^*(892)^0\pi^- + c.c.)/\Gamma_{total}$ — Γ_6/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.012±0.004	[8] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(K^*(892)^0\overline{K}^*(892)^0)/\Gamma_{total}$ — Γ_7/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.7±0.4±0.1	30.1 ± 5.7	[9,10] ABLIKIM	04H	BES	$\psi(2S) \to \gamma K^+ K^- \pi^+ \pi^-$

$\Gamma(K^+K^-)/\Gamma_{total}$ — Γ_8/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
6.0±0.4±0.8	774± 38	[7] BAI	98I	BES	$\psi(2S) \to \gamma\chi_{c0}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
6 ±3		[8] BRANDELIK	79B	DASP	$\psi(2S) \to \gamma\chi_{c0}$
9 ±4		[8] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(K^0_S K^0_S)/\Gamma_{total}$ — Γ_{12}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
2.08±0.30±0.54	[7] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(\pi\pi)/\Gamma_{total}$ — Γ_9/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*
7.1±0.6 OUR FIT	

$\Gamma(K^+K^-K^+K^-)/\Gamma_{total}$ — Γ_{11}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.27±0.28±0.40	[7] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(\pi^+\pi^- p\overline{p})/\Gamma_{total}$ — Γ_{13}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.2 ±0.8 OUR EVALUATION Treating systematic error as correlated.				
2.2 ±1.1 OUR AVERAGE Error includes scale factor of 1.9.				
1.66±0.22±0.58	[7] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c0}$
4.4 ±1.2 ±0.4	[7] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(\phi\phi)/\Gamma_{total}$ — Γ_{14}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.0±0.4±0.4	[7] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(\eta\eta)/\Gamma_{total}$ — Γ_{10}/Γ

VALUE (units 10^{-3})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.1±0.9±0.6	12.7±5.3	[7] BAI	03C	BES	$\psi(2S) \to \gamma\eta\eta \to 5\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.5±0.8±0.8		[11] LEE	85	CBAL	$\psi' \to$ photons

$\Gamma(\eta\eta)/\Gamma(\pi\pi)$ — Γ_{10}/Γ_9

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.24±0.10±0.08	[12] BAI	03C	BES	$\psi(2S) \to 5\gamma$

$\Gamma(K^0_S K^+\pi^- + \text{c.c.})/\Gamma_{total}$ — Γ_{17}/Γ

VALUE (units 10^{-3})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.8	90	[7] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c0}$

$\Gamma(p\overline{p})/\Gamma_{total}$ — Γ_{15}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*
2.36±0.23 OUR FIT	

$\Gamma(\Lambda\overline{\Lambda})/\Gamma_{total}$ — Γ_{16}/Γ

VALUE (units 10^{-4})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
4.7±1.3±1.0	$15.2^{+4.2}_{-4.0}$	[7] BAI	03E	BES	$\psi(2S) \to \gamma\chi_{c0} \to \gamma\Lambda\overline{\Lambda}$

$\Gamma(p\overline{p}) \times \Gamma(\pi\pi)/\Gamma^2_{total}$ — $\Gamma_{15}\Gamma_9/\Gamma^2$

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
16.7±1.8 OUR FIT				
15.3±2.4±0.8	[13] ANDREOTTI	03	E835	$\overline{p}p \rightarrow \chi_{c0} \rightarrow \pi^0\pi^0$

[6] ABLIKIM 04G reports $[B(\chi_{c0}(1P) \rightarrow f_0(980) f_0(980) \rightarrow 2\pi^+ 2\pi^-) \times B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P))] = (6.5 \pm 1.6 \pm 1.3) \times 10^{-5}$. We divide by our best value $B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P)) = (9.0 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[7] Rescaled by us using $B(\psi(2S) \rightarrow \gamma\chi_{c0}) = (8.6 \pm 0.7)\%$ and $B(\psi(2S) \rightarrow J/\psi(1S)\pi^+\pi^-) = 0.317 \pm 0.011$.

[8] Calculated using $B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P)) = 0.094$; the errors do not contain the uncertainty in the $\psi(2S)$ decay.

[9] ABLIKIM 04H reports $[B(\chi_{c0}(1P) \rightarrow K^*(892)^0 \overline{K}^*(892)^0) \times B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P))] = (1.53 \pm 0.29 \pm 0.26) \times 10^{-4}$. We divide by our best value $B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P)) = (9.0 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

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

[11] Calculated using $B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P)) = 0.093 \pm 0.008$.

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

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

RADIATIVE DECAYS

$\Gamma(\gamma J/\psi(1S))/\Gamma_{total}$ — Γ_{18}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*
113±11 OUR FIT	

$\Gamma(\gamma\gamma)/\Gamma_{total}$ — Γ_{19}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*
2.5±0.4 OUR FIT	

$\Gamma(\gamma\gamma)/\Gamma(\gamma J/\psi(1S))$ — Γ_{19}/Γ_{18}

VALUE (units 10^{-2})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.3 ±0.5 OUR FIT				
2.0 ±0.4 OUR AVERAGE				
$2.2 \pm 0.4 ^{+0.1}_{-0.2}$	[14] ANDREOTTI	04	E835	$p\overline{p} \rightarrow \chi_{c0} \rightarrow \gamma\gamma$
1.45 ± 0.74	[15] AMBROGIANI	00B	E835	$\overline{p}p \rightarrow \chi_{c2} \rightarrow \gamma\gamma$, $\gamma J/\psi$

$\Gamma(p\overline{p}) \times \Gamma(\gamma J/\psi(1S))/\Gamma^2_{total}$ — $\Gamma_{15}\Gamma_{18}/\Gamma^2$

VALUE (units 10^{-7})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
26.6±2.0 OUR FIT					
27.5±2.1 OUR AVERAGE					
$27.2 \pm 1.9 \pm 1.3$	392	[15,16] BAGNASCO	02	E835	$\overline{p}p \rightarrow \chi_{c0} \rightarrow J/\psi\gamma$
$29.3 ^{+5.7}_{-4.7} \pm 1.5$	89	[15,16] AMBROGIANI	99B		$\overline{p}p \rightarrow \chi_{c0} \rightarrow J/\psi\gamma$

$\Gamma(p\overline{p}) \times \Gamma(\gamma\gamma)/\Gamma^2_{total}$ — $\Gamma_{15}\Gamma_{19}/\Gamma^2$

VALUE (units 10^{-8})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$6.52\pm1.18^{+0.48}_{-0.72}$	[14] ANDREOTTI	04	E835	$p\overline{p} \to \chi_{c0} \to \gamma\gamma$

[14] 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.

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

[16] Values in $(\Gamma(p\overline{p}) \times \Gamma(\gamma J/\psi(1S))/\Gamma_{total})$ and $(\Gamma(p\overline{p}) \times \Gamma(\gamma J/\psi(1S))/\Gamma^2_{total})$ are not independent. The latter is used in the fit since it is less correlated to the total width.

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

$B(\chi_{c0}(1P) \to p\overline{p}) \times \frac{\Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))}{\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)}$

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
6.7±0.8 OUR FIT				
4.6±1.9	[17] BAI	98I	BES	$\psi(2S) \to \gamma\chi_{c0} \to \gamma\overline{p}p$

$B(\chi_{c0}(1P) \to p\overline{p}) \times B(\psi(2S) \to \gamma\chi_{c0}(1P))$

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
21.3±2.4 OUR FIT					
$23.6^{+3.7}_{-3.4}\pm3.4$	89.5^{+14}_{-13}	BAI	04F	BES	$\psi(2S) \to \gamma\chi_{c0}(1P) \to \gamma\overline{p}p$

$B(\chi_{c0}(1P) \to \gamma J/\psi(1S)) \times B(\psi(2S) \to \gamma\chi_{c0}(1P))$

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
0.102±0.011 OUR FIT				
0.073±0.018 OUR AVERAGE				
0.069±0.018	[18] OREGLIA	82	CBAL	$\psi(2S) \to \gamma\chi_{c0}$
0.4 ±0.3	[19] BRANDELIK	79B	DASP	$\psi(2S) \to \gamma\chi_{c0}$
0.16 ±0.11	[19] BARTEL	78B	CNTR	$\psi(2S) \to \gamma\chi_{c0}$
3.3 ±1.7	[20] BIDDICK	77	CNTR	$e^+e^- \to \gamma X$

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

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
2.3±0.4 OUR FIT				
3.7±1.8±1.0	LEE	85	CBAL	$\psi(2S) \to \gamma\chi_{c0}$

$B(\chi_{c0}(1P) \to \pi\pi) \times \frac{\Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))}{\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)}$

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
20.1±2.0 OUR FIT					
20.7±1.7 OUR AVERAGE					
23.9±2.7±4.1	96.9± 11.1	[21] BAI	03C	BES	$\psi(2S) \to \gamma\chi_{c0} \to \gamma\pi^0\pi^0$
20.2±1.1±1.5	720± 32	[22] BAI	98I	BES	$\psi(2S) \to \gamma\chi_{c0} \to \gamma\pi^+\pi^-$

$B(\chi_{c0}(1P) \to 2(\pi^+\pi^-)) \times \frac{\Gamma(\psi(2S) \to \gamma\chi_{c0}(1P))}{\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)}$

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
7.0±0.8 OUR FIT				
6.9±2.4 OUR AVERAGE Error includes scale factor of 3.8.				
4.4±0.1±0.9	[23] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c0}$
9.3±0.9	[24] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c0}$

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

[18] Recalculated by us using $B(J/\psi(1S) \to \ell^+\ell^-) = 0.1181 \pm 0.0020$.

[19] Recalculated by us using $B(J/\psi(1S) \to \mu^+\mu^-) = 0.0588 \pm 0.0010$.

[20] Assumes isotropic gamma distribution.

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

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

[23] 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].

[24] 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 ± 0.7)%. Calculated by us using $B(J/\psi(1S) \to \ell^+\ell^-) = 0.1181 \pm 0.0020$.

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

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.)
BAI	04F	PR D69 092001	J.Z. Bai et al.	(BES Collab.)
ANDREOTTI	03	PRL 91 091801	M. Andreotti et al.	(FNAL E835 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.)
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	82	Private Comm.	G. Trilling	(LBL, UCB)
BIDDICK	77	PRL 38 1324	C.J. Biddick *et al.*	(UCSD, UMD, PAVI+)

OTHER RELATED PAPERS

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Also Erratum.	75C	PRL 35 1189	G.J. Feldman	
TANENBAUM	75	PRL 35 1323	W.M. Tanenbaum *et al.*	(LBL, SLAC)