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

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

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT	
3414.75± 0.35 OUR A	VERAGE	Error includes sca	ale fa	ctor of 1	2.	
$3406 \pm \ 7 \pm 6$	230	¹ ABE	07	BELL	$e^+e^- \rightarrow J/\psi(c\overline{c})$	
$3414.21 \pm \ 0.39 \pm 0.27$		ABLIKIM	05 G	BES2	$\psi(2S) \rightarrow \gamma \chi_{c0}$	
$3414.7 \ \begin{array}{c} + & 0.7 \\ - & 0.6 \end{array} \ \pm 0.2$		² ANDREOTTI	03	E835	$\overline{p}p \rightarrow \chi_{c0} \rightarrow \pi^0 \pi^0$	
$3415.5~\pm~0.4~\pm0.4$	392	³ BAGNASCO	02	E835	$\overline{p}p \rightarrow \chi_{c0} \rightarrow J/\psi\gamma$	
$3417.4 \ \begin{array}{c} + \ 1.8 \\ - \ 1.9 \end{array} \pm 0.2$		² AMBROGIANI	99 B	E835	$\overline{p}p ightarrow e^+ e^- \gamma$	
$3414.1~\pm~0.6~\pm0.8$		BAI	99 B	BES	$\psi(2S) ightarrow \gamma X$	
$3417.8~\pm~0.4~\pm4$		² GAISER	86	CBAL	$\psi(2S) ightarrow \gamma X$	
$3416 \pm \ 3 \pm 4$		⁴ TANENBAUM	78	MRK1	e ⁺ e ⁻	
\bullet \bullet \bullet We do not use th	e following	g data for average	s, fits	, limits,	etc. • • •	
$3416.5~\pm~3.0$		EISENSTEIN	01	CLE2	$e^+e^- \rightarrow e^+e^-\chi_{c0}$	
3422 ± 10		⁴ BARTEL	78 B	CNTR	$e^+e^- \rightarrow J/\psi 2\gamma$	
3415 \pm 9		⁴ BIDDICK	77	CNTR	$e^+e^- \rightarrow \gamma X$	
¹ From a fit of the J/ψ recoil mass spectrum. Supersedes ABE,K 02 and ABE 04G.						
² Using mass of $\psi(2S)$) = 3686.	0 MeV.			_	
³ Recalculated by ANI	, DREOTTI	05A, using the valu	ie of y	b(2 <i>S</i>) ma	ass from AULCHENKO 03.	
⁴ Mass value shifted	by us by	amount appropria	ate fo	$\dot{v}(2S)$	mass $=$ 3686 MeV and	

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

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
10.4 \pm 0.7 OUR FIT					
10.5 ± 0.9 OUR AVERA	GE Error	includes scale fact	or of:	1.2.	
$12.6^{+1.5}_{-1.6}{}^{+0.9}_{-1.1}$		ABLIKIM	05 G	BES2	$\psi(2S) \rightarrow \gamma \chi_{c0}$
$8.6^{+1.7}_{-1.3}{\pm}0.1$		ANDREOTTI	03	E835	$\overline{p}p \rightarrow \chi_{c0} \rightarrow \pi^0 \pi^0$
9.7 ± 1.0	392	⁵ BAGNASCO	02	E835	$\overline{p}p \rightarrow \chi_{c0} \rightarrow J/\psi\gamma$
$16.6^{+5.2}_{-3.7}{\pm}0.1$		AMBROGIANI	99 B	E835	$\overline{p} p \rightarrow e^+ e^- \gamma$
$14.3\!\pm\!2.0\!\pm\!3.0$		BAI	981	BES	$\psi(2S) \rightarrow \gamma \pi^+ \pi^-$
$13.5\!\pm\!3.3\!\pm\!4.2$		GAISER	86	CBAL	$\psi(2S) \rightarrow \gamma X, \gamma \pi^0 \pi^0$
-					

⁵ Recalculated by ANDREOTTI 05A.

 $J/\psi(1S)$ mass = 3097 MeV.

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

Mode $Fraction (\Gamma_i/\Gamma)$ Confidence leve			Scale factor/
	Mode	Fraction (Γ_i/Γ)	Confidence level

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 $\chi_{c0}(1P$

Hadronic decays

Γ_1	$2(\pi^+\pi^-)$	(2.43 ± 0)	.23) %	
Г ₂	$f_0(980) f_0(980) \rightarrow 2\pi^+ 2\pi^-$	(7.0 ± 2)	$(2) \times 10^{-4}$	
I 3	$\pi^+\pi^-K^+K^-$	(2.0 ± 0)	.4)%	S=1.6
Г ₄	$f_0(980) f_0(980) \rightarrow \pi^+ \pi^- K^+ K^-$	$(1.7 \ \begin{array}{c} +1 \\ -0 \end{array})$	$(\frac{1}{9}) \times 10^{-4}$	
Γ ₅	$f_0(980) f_0(2200) \rightarrow \ \pi^+ \pi^- \kappa^+ \kappa^-$	$(8.3 \ +2)$	$(\frac{1}{7}) imes 10^{-4}$	
Г ₆	$f_0(1370) f_0(1370) \rightarrow \pi^+ \pi^- \kappa^+ \kappa^-$	< 2.9	imes 10 ⁻⁴	CL=90%
Г ₇	$f_0(1370) f_0(1500) \rightarrow \pi^+ \pi^- K^+ K^-$	< 1.8	imes 10 ⁻⁴	CL=90%
Г ₈	$f_0(1370) f_0(1710) ightarrow \pi^+ \pi^- \kappa^+ \kappa^-$	$(7.1 \ \begin{array}{c} +3 \\ -2 \end{array})$	$^{7}_{5}$) $ imes$ 10 ⁻⁴	
Г ₉	$f_0(1500) f_0(1370) \rightarrow \pi^+ \pi^- \kappa^+ \kappa^-$	< 1.4	imes 10 ⁻⁴	CL=90%
Γ ₁₀	$f_0(1500) f_0(1500) \rightarrow -+ \kappa^+ \kappa^-$	< 5	$ imes 10^{-5}$	CL=90%
Γ_{11}	$f_0(1500) f_0(1710) \rightarrow + - \kappa + \kappa -$	< 7	imes 10 ⁻⁵	CL=90%
Γ12	$a^0 \pi^+ \pi^- \kappa^+ \kappa$	(1.6 + 0)	.5)%	
Γ ₁₂	$3(\pi^{+}\pi^{-})$	(1.20+0)	.18) %	
Γ_{14}	$K^+ \overline{K}^* (892)^0 \pi^- + \text{c.c.}$	(1.2 ± 0)	.4)%	
Γ_{15}^{14}	$K_1(1270)^+ K^- + \text{c.c.} \rightarrow \pi^+ \pi^- K^+ K^-$	(6.6 ±2	$.0) \times 10^{-3}$	
Г ₁₆	$K_1(1400)^+K^-$ + c.c. \rightarrow $\pi^+\pi^-K^+K^-$	< 2.8	imes 10 ⁻³	CL=90%
Γ ₁₇	$K^{*}(892)^{0}\frac{K}{K}^{*}(892)^{0}$	(1.8 ±0	.6) $ imes$ 10 $^{-3}$	
Γ ₁₈	${K_0^*(1430)^0} \overline{K}_0^*(1430)^0 ightarrow \pi^+ \pi^- K^+ K^-$	(1.04^{+0}_{-0})	$(38)_{30} \times 10^{-3}$	
Γ ₁₉	$\mathcal{K}_{0}^{*}(1430)^{0}\overline{\mathcal{K}}_{2}^{*}(1430)^{0}+\text{ c.c.} \rightarrow$	$(8.4 \ +2)$	$1 \atop 6$) $ imes$ 10 $^{-4}$	
Γ ₂₀	$\pi'\pi\kappa'\kappa$ $\pi\pi$	(7.3 ±0	.6) $ imes$ 10 $^{-3}$	
I 21	$\pi^{\circ}\eta$			
г 22 Г	$\pi^{-\eta}$		4) > 10-3	
г ₂₃	$\eta \eta$ $\pi \pi^+ \pi^-$	(2.4 ±0)	$(4) \times 10^{-3}$	
¹ 24 Г	$\eta \eta' \eta'$	< 1.1	× 10 ⁻⁴	CL = 90%
г <u>25</u> Гас	n'n'	< 5 (17 ± 0	$\times 10^{-3}$	CL—9070
126 Год		(1.7 ± 0.0)	$(7) \times 10^{-3}$	
Γ ₂₀	$K^+ K^-$	(2.5 ± 0)	$(6) \times 10^{-3}$	
· 20	$K_{0}^{0}K_{0}^{0}$	(2.77+0)	$(.34) \times 10^{-3}$	
29 [20	$3^{-5}\pi^{+}\pi^{-}n$	< 2.1	× 10 ⁻⁴	
Γ ₂₁	$\pi^+\pi^-\eta'$	< 4	$\times 10^{-4}$	
Γ_{32}	$K^0 K^+ \pi^- + \text{c.c.}$	< 9.9	$\times 10^{-5}$	

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Г ₃₃	$K^+ K^- \pi^0$	$< 6 \times 10^{-5}$	
Г ₃₄	$K^+ K^- \eta$	$< 2.4 imes 10^{-4}$	
Γ ₃₅	$K^{+}K^{-}K^{0}_{S}K^{0}_{S}$	(1.5 \pm 0.5) $ imes$ 10 $^{-3}$	
Г ₃₆	$K^+ K^- K^+ K^-$	$(2.74\pm0.33) imes10^{-3}$	
Γ ₃₇	$K^+ K^- \phi$	$(1.02\pm0.26) imes10^{-3}$	
Г ₃₈	$K^{0}_{S}K^{0}_{S}\pi^{+}\pi^{-}$	(6.0 ± 1.1) $ imes 10^{-3}$	
Г ₃₉	$\phi \phi$	(9.3 ± 2.2) $ imes 10^{-4}$	
Γ ₄₀	р <u></u> р	$(2.10\pm0.19) imes10^{-4}$	
Γ_{41}	$p\overline{p}\pi^0$	(5.8 ± 1.3) $ imes 10^{-4}$	
Γ ₄₂	ρ <u></u> <i>μ</i>	(3.9 ± 1.2) $ imes 10^{-4}$	
Г ₄₃	$\pi^+\pi^-p\overline{p}$	(2.1 \pm 0.7) $ imes$ 10 $^{-3}$	S=1.4
Γ ₄₄	К _S К _S р <u>р</u>	$< 8.8 \times 10^{-4}$	CL=90%
Γ ₄₅	<i>pπ</i> π ⁻	$(1.18\pm0.33) imes10^{-3}$	
Г ₄₆	$\overline{\Lambda \Lambda}$	(4.4 ± 1.5) $ imes 10^{-4}$	
Γ ₄₇	$\Lambda\overline{\Lambda}\pi^{+}\pi^{-}$	$< 4.0 imes 10^{-3}$	CL=90%
Г ₄₈	<i>К</i> + <u></u> <i>р∧</i> + с.с.	$(1.06\pm0.20) imes10^{-3}$	
Γ ₄₉	<u>=-</u> <u>=</u> +	$< 1.03 \times 10^{-3}$	CL=90%
		Radiative decays	
Γ ₅₀	$\gamma J/\psi(1S)$	(1.32 ± 0.11) %	
Γ ₅₁	$\gamma \gamma$	$(2.76\!\pm\!0.33)\times10^{-4}$	

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

$\Gamma(\rho \overline{\rho}) \times \Gamma(\gamma J/\psi(1S))/\Gamma_{\text{total}}$ $\Gamma_{40}\Gamma_{50}/\Gamma$							
VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT			
28.8± 2.7 OUR FIT							
ullet $ullet$ $ullet$ We do not use the following data for averages, fits, limits, etc. $ullet$ $ullet$							
$26.6\pm~2.6\pm1.4$	392	6,7 BAGNASCO 02	E835	$\overline{p}p \rightarrow \chi_{c0}$	$\rightarrow J/\psi \gamma$		
$48.7^{+11.3}_{-8.9}{\pm}2.4$		^{6,7} AMBROGIANI 99	B E835	$\overline{p} p \rightarrow \gamma J/$	ψ		
⁶ Calculated by us 7 Values in (Γ($p\overline{p}$) not independent.	⁶ Calculated by us using $B(J/\psi(1S) \rightarrow e^+e^-) = 0.0593 \pm 0.0010$. ⁷ Values in $(\Gamma(p\overline{p}) \times \Gamma(\gamma J/\psi(1S)))/\Gamma_{total})$ and $(\Gamma(p\overline{p}) \times \Gamma(\gamma J/\psi(1S)))/\Gamma_{total}^2)$ are not independent. The latter is used in the fit since it is less correlated to the total width.						
	χ _c	$_{0}(1P)$ Γ(i)Γ($\gamma\gamma$)/Γ(t	otal) —				
$\Gamma(\pi\pi) \times \Gamma(\gamma\gamma)/$	F_{total}				Г ₂₀ Г ₅₁ /Г		
VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT			
20.9 ± 3.0 OUR FIT							
$22.7 \pm 3.2 \pm 3.5$	129 ± 18	⁸ NAKAZAWA 0	5 BELL	$e^+e^- \rightarrow$	$e^+e^-\chi_{c0}$		
$\Gamma(K^+K^-) \times \Gamma(\gamma)$	$(\gamma)/\Gamma_{\text{total}}$	DOCUMENT ID	TECN	COMMENT	Г ₂₈ Г ₅₁ /Г		
15 7+2 2 OUR FIT		DOCOMENT ID		COMMENT			
$14.3 \pm 1.6 \pm 2.3$	153 ± 17	NAKAZAWA 0	5 BELL	$e^+e^- \rightarrow$	$e^+e^-\chi_{c0}$		
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$\Gamma(2(\pi^+\pi^-)) \times \Gamma($	$\gamma\gamma)/\Gamma_{total}$	DOCUMENT ID	TECN		₅₁ /Г
70± 9 OUR FIT 75±13±8		EISENSTEIN	01 CLE2	$e^+e^- \rightarrow e^+e^-\chi$	éc0
⁸ We have multiplied	$1 \pi^+ \pi^-$ meas	surement by 3/	2 to obtain π	τ.	00
	χ _{c0} (1P)) BRANCHIN	G RATIOS		
-	—— НА	DRONIC DE	CAYS —		
$\Gamma(2(\pi^+\pi^-))/\Gamma_{\text{total}}$ <u>VALUE</u> 0.0243±0.0023 OUR I	- -TT	DOCUMENT ID		Г	Γ ₁ /Γ
$\Gamma(f_0(980) f_0(980) -$	$\rightarrow 2\pi^+ 2\pi^-)$	/Γ _{total}		Г	² /Г
VALUE (units 10 ⁻⁴) 7 0+2 2+0 3	EVTS 36 + 9	9 ARLIKIM	046 BES	$\frac{COMMENT}{\psi(2S)} \rightarrow \chi^2 \pi^+ 2\pi$	
r(+ - u + u -) u	50 ± 9	ADEIM	040 DES	$\psi(23) \rightarrow \gamma 2\pi 2\pi$	· · /=
$I(\pi^+\pi^-K^+K^-)/I$	total		TECN CO		3/1
$\frac{VALUE (units 10^{\circ})}{20 \pm 4}$ OUR EVALU	JATION Err	or includes scal	e factor of 1.6	. Treating systematic	:
17.6±2.2±0.8 14.7±0.7±3.4 25.8±3.5±1.1 WEIGHTED / 18.7±2.8 (Err	AVERAGE or scaled by 1	SLIKIM 05 I 99 NENBAUM 78	Q BES2 ψ(B BES ψ(MRK1 ψ($25) \rightarrow \gamma \pi^+ \pi^- K^+$ $25) \rightarrow \gamma \chi_{c0}$ $25) \rightarrow \gamma \chi_{c0}$	κ-
0 10	20	AB ABA ABA ABA ABA ABA ABA ABA ABA ABA	LIKIM 0 I 9 NENBAUM 7 (Confi 0 50	$ \begin{array}{r} \chi^{2} \\ 5Q & BES2 & 0.2 \\ 9B & BES & 1.3 \\ 8 & MRK1 & 3.7 \\ 5.3 \\ dence Level = 0.071) \end{array} $	
$\Gamma(\pi^+\pi^-K)$	$+\kappa^{-})/\Gamma_{tota}$	al		Г	⁻ 3/Г

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$\Gamma(f_0(980) f_0(980)$	$) \rightarrow \pi^+$	$\pi^{-} \kappa^{+} \kappa^{-}) / \Gamma_{ta}$	otal		Γ ₄ /Γ
VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
17. ^{+11.} +1.	28	¹² ABLIKIM	05Q	BES2	$\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$
Γ(f ₀ (980)f ₀ (220	0) → π	⁺ π ⁻ K ⁺ K ⁻)/Γ	total		Г ₅ /Г
VALUE (units 10^{-4})	<i>EVTS</i>	DOCUMENT ID		TECN	COMMENT
$8.3^{+2.1}_{-2.6}\pm0.4$	77	¹³ ABLIKIM	05Q	BES2	$\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$
Γ(f ₀ (1370)f ₀ (13	70) →	$\pi^+\pi^-K^+K^-)/$	Γ _{total}		Г ₆ /Г
VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<2.9	90	¹⁴ ABLIKIM	05Q	BES2	$\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$
Γ(f ₀ (1370)f ₀ (15	00) →	$\pi^+\pi^-K^+K^-)/$	Γ _{total}		Γ ₇ /Γ
VALUE (units 10^{-4})	<u>CL%</u>	DOCUMENT ID		TECN	COMMENT
<1.8	90	¹⁵ ABLIKIM	05Q	BES2	$\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$
Γ(f ₀ (1370)f ₀ (17	10) →	$\pi^{+}\pi^{-}K^{+}K^{-})/$	Γ _{total}		Г ₈ /Г
VALUE (units 10 ⁻⁴)	EVTS	DOCUMENT ID)	TECN	COMMENT
$7.1^{+3.7}_{-2.5}\pm0.3$	61	¹⁶ ABLIKIM	05Q	BES2	$\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$
$\Gamma(f_0(1500) f_0(13))$	70) →	$\pi^{+}\pi^{-}K^{+}K^{-})/$	Γ _{total}		Г9/Г
		· · ·			
VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
VALUE (units 10 ⁻⁴) <1.4	<u>CL%</u> 90	DOCUMENT ID 17 ABLIKIM	05Q	<i>tecn</i> BES2	$\frac{COMMENT}{\psi(2S) \to \gamma \pi^+ \pi^- K^+ K^-}$
<u>VALUE (units 10⁻⁴)</u> <1.4 Γ(f ₀ (1500) f ₀ (15	_ <u>CL%</u> 90 00) →	^{DOCUMENT ID} ¹⁷ ABLIKIM π⁺ π⁻ K⁺ K⁻)/	05Q T _{total}	<u>TECN</u> BES2	$\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{10}/Γ
<u>VALUE (units 10⁻⁴)</u> <1.4 Г(f₀(1500) f₀(15 <u>VALUE (units 10⁻⁴)</u>	<u>CL%</u> 90 00) →	$\frac{DOCUMENT ID}{17}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{10}$	୦୨୦ ୮ _{total}	TECN BES2 TECN	$\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{10}/Γ $COMMENT$
<u>VALUE (units 10⁻⁴)</u> <1.4 Г(f₀(1500) f₀(15 <u>VALUE (units 10⁻⁴)</u> <0.5	$\begin{array}{c} \underline{CL\%}\\ 90 \end{array}$	$\frac{DOCUMENT ID}{17 \text{ ABLIKIM}}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{18 \text{ ABLIKIM}}$	05Q (F_{total} 05Q	TECN BES2 <u>TECN</u> BES2	$\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} K^{+} K^{-}}$ Γ_{10}/Γ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} K^{+} K^{-}}$
$\frac{VALUE (units 10^{-4})}{<1.4}$ $\Gamma(f_0(1500) f_0(15))$ $\frac{VALUE (units 10^{-4})}{<0.5}$ $\Gamma(f_0(1500) f_0(17))$	$\begin{array}{c} \frac{CL\%}{90} \\ 00) \rightarrow \\ \frac{CL\%}{90} \\ 10) \rightarrow \end{array}$	$\frac{DOCUMENT ID}{17}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $18\frac{DOCUMENT ID}{ABLIKIM}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$	05Q (F _{total} 05Q (F _{total}	TECN BES2 TECN BES2	$\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{10}/Γ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{11}/Γ
<u>VALUE (units 10⁻⁴)</u> <1.4 Г(f_0(1500) f_0(15) <u>VALUE (units 10⁻⁴)</u> <0.5 Г(f_0(1500) f_0(17) <u>VALUE (units 10⁻⁴)</u>	$\begin{array}{c} \underline{CL\%}\\ 90 \\ 00) \rightarrow 0 \\ \underline{CL\%}\\ 90 \\ 10) \rightarrow 0 \\ \underline{CL\%}\\ \underline{CL\%} \end{array}$	$\frac{DOCUMENT ID}{17 \text{ ABLIKIM}}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{18 \text{ ABLIKIM}}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{10 \text{ ADCUMENT ID}}$	05Q (F _{total} 05Q (F _{total}	TECN BES2 TECN BES2	$\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{10}/Γ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{11}/Γ $COMMENT$
$\frac{VALUE \text{ (units } 10^{-4})}{<1.4}$ $\Gamma(f_0(1500) f_0(15))$ $\frac{VALUE \text{ (units } 10^{-4})}{<0.5}$ $\Gamma(f_0(1500) f_0(17))$ $\frac{VALUE \text{ (units } 10^{-4})}{<0.7}$	$\begin{array}{c} \frac{CL\%}{90} \\ 00) \rightarrow \\ \frac{CL\%}{90} \\ 10) \rightarrow \\ \frac{CL\%}{90} \\ \end{array}$	$\frac{DOCUMENT ID}{17 \text{ ABLIKIM}}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{18 \text{ ABLIKIM}}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{19 \text{ ABLIKIM}}$	05Q (F_{total 05Q (F_{total} 05Q}	TECN BES2 TECN BES2 TECN BES2	$\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{10}/Γ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{11}/Γ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$
$\frac{VALUE \text{ (units } 10^{-4})}{<1.4}$ $\Gamma(f_0(1500) f_0(15))$ $\frac{VALUE \text{ (units } 10^{-4})}{<0.5}$ $\Gamma(f_0(1500) f_0(17))$ $\frac{VALUE \text{ (units } 10^{-4})}{<0.7}$ $\Gamma(\rho^0 \pi^+ \pi^-)/\Gamma_{tc}$	$\begin{array}{c} \underline{CL\%}\\ 90 \\ 00) \rightarrow \\ \underline{CL\%}\\ 90 \\ 10) \rightarrow \\ \underline{CL\%}\\ 90 \\ \end{array}$	$\frac{DOCUMENT ID}{17 \text{ ABLIKIM}}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{18 \text{ ABLIKIM}}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{19 \text{ ABLIKIM}}$	05Q (F_{total} 05Q (F_{total} 05Q	TECN BES2 TECN BES2 TECN BES2	$\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{10}/Γ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{11}/Γ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{12}/Γ
<u>VALUE (units 10⁻⁴)</u> <1.4 $\Gamma(f_0(1500) f_0(15)$ <u>VALUE (units 10⁻⁴)</u> <0.5 $\Gamma(f_0(1500) f_0(17)$ <u>VALUE (units 10⁻⁴)</u> <0.7 $\Gamma(\rho^0 \pi^+ \pi^-)/\Gamma_{to}$ <u>VALUE</u> 0.015 + 0.005	$\frac{CL\%}{90}$ $00) \rightarrow \frac{CL\%}{90}$ $10) \rightarrow \frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$	$\frac{DOCUMENT ID}{17}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $18 \frac{DOCUMENT ID}{ABLIKIM}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $19 \frac{DOCUMENT ID}{ABLIKIM}$ $\frac{DOCUMENT ID}{20 TANISNIB}$	05Q (F_{total} 05Q (F_{total} 05Q <u>T ID</u>	TECN BES2 TECN BES2 TECN BES2	$\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{10}/Γ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{11}/Γ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{12}/Γ Γ_{12}/Γ
$\frac{VALUE (units 10^{-4})}{<1.4}$ $\Gamma(f_0(1500) f_0(15))$ $\frac{VALUE (units 10^{-4})}{<0.5}$ $\Gamma(f_0(1500) f_0(17))$ $\frac{VALUE (units 10^{-4})}{<0.7}$ $\Gamma(\rho^0 \pi^+ \pi^-)/\Gamma_{tc}$ $\frac{VALUE}{0.016 \pm 0.005}$	$\begin{array}{c} \underline{CL\%} \\ 90 \\ \hline 00) \rightarrow \\ \underline{CL\%} \\ 90 \\ \hline 10) \rightarrow \\ \underline{CL\%} \\ 90 \\ \hline 10) \rightarrow \\ \underline{CL\%} \\ 90 \\ \hline 0 \\ \hline 0$	$\frac{DOCUMENT ID}{17 \text{ ABLIKIM}}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{18 \text{ ABLIKIM}}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{19 \text{ ABLIKIM}}$ $\frac{DOCUMENT ID}{20 \text{ TANENB}}$	05Q (F total 05Q (F total 05Q <u>T ID</u> AUM	TECN BES2 <u>TECN</u> BES2 <u>TECN</u> BES2 78 MF	$\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} K^{+} K^{-}}$ $\frac{\Gamma_{10}/\Gamma}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} K^{+} K^{-}}$ $\frac{\Gamma_{11}/\Gamma}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} K^{+} K^{-}}$ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} K^{+} K^{-}}$ Γ_{12}/Γ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \chi_{c0}}$
$\frac{VALUE (units 10^{-4})}{<1.4}$ $\Gamma(f_0(1500) f_0(15))$ $\frac{VALUE (units 10^{-4})}{<0.5}$ $\Gamma(f_0(1500) f_0(17))$ $\frac{VALUE (units 10^{-4})}{<0.7}$ $\Gamma(\rho^0 \pi^+ \pi^-)/\Gamma_{tx}$ $\frac{VALUE}{0.016 \pm 0.005}$ $\Gamma(3(\pi^+ \pi^-))/\Gamma_{ty}$	$\frac{CL\%}{90}$ $00) \rightarrow \frac{CL\%}{90}$ $\frac{CL\%}{90}$ $10) \rightarrow \frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$	$\frac{DOCUMENT ID}{17 \text{ ABLIKIM}}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{18 \text{ ABLIKIM}}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{19 \text{ ABLIKIM}}$ $\frac{DOCUMENT ID}{20 \text{ TANENB}}$	05Q F_{total} 05Q F_{total} 05Q <u>T ID</u> AUM	<u>TECN</u> BES2 <u>TECN</u> BES2 <u>TECN</u> BES2 78 MF	$\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} K^{+} K^{-}}$ $\frac{\Gamma_{10}/\Gamma}{\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} K^{+} K^{-}}}$ $\frac{\Gamma_{11}/\Gamma}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} K^{+} K^{-}}$ $\frac{\Gamma_{12}/\Gamma}{\Gamma_{12}/\Gamma}$ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \chi_{c0}}$ Γ_{13}/Γ
<u>VALUE (units 10⁻⁴)</u> <1.4 $\Gamma(f_0(1500) f_0(15)$ <u>VALUE (units 10⁻⁴)</u> <0.5 $\Gamma(f_0(1500) f_0(17)$ <u>VALUE (units 10⁻⁴)</u> <0.7 $\Gamma(\rho^0 \pi^+ \pi^-)/\Gamma_{tc}$ <u>VALUE</u> 0.016±0.005 $\Gamma(3(\pi^+ \pi^-))/\Gamma_{t}$ <u>VALUE (units 10⁻³)</u>	$\frac{CL\%}{90}$ $\frac{00) \rightarrow}{90}$ $\frac{CL\%}{90}$ $\frac{10) \rightarrow}{90}$ $\frac{CL\%}{90}$ $\frac{0}{2}$ $\frac{10}{2}$	$\frac{DOCUMENT ID}{17}$ $\frac{DOCUMENT ID}{17}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{18}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{19}$ $\frac{DOCUMEN}{20}$ $\frac{DOCUMEN}{TANENB}$	05Q F total 05Q T total 05Q <u>T</u> ID AUM <u>T</u> ID	<u>TECN</u> BES2 <u>TECN</u> BES2 <u>TECN</u> BES2 78 MF	$\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ $\frac{\Gamma_{10}/\Gamma}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ $\frac{\Gamma_{11}/\Gamma}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{12}/Γ $\frac{CN}{RK1} \frac{COMMENT}{\psi(2S) \rightarrow \gamma \chi_{c0}}$ Γ_{13}/Γ ECN COMMENT
<u>VALUE (units 10⁻⁴)</u> <1.4 $\Gamma(f_0(1500) f_0(15)$ <u>VALUE (units 10⁻⁴)</u> <0.5 $\Gamma(f_0(1500) f_0(17)$ <u>VALUE (units 10⁻⁴)</u> <0.7 $\Gamma(\rho^0 \pi^+ \pi^-)/\Gamma_{tc}$ <u>VALUE</u> 0.016±0.005 $\Gamma(3(\pi^+ \pi^-))/\Gamma_{t}$ <u>VALUE (units 10⁻³)</u> 12.0±1.8 OUR EVA 12.0±1.7 OUR AVA	$\frac{CL\%}{90}$ $00) \rightarrow \frac{CL\%}{90}$ $10) \rightarrow \frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$	$\frac{DOCUMENT ID}{17 \text{ ABLIKIM}}$ $\pi^+ \pi^- K^+ K^-)/$ $\frac{DOCUMENT ID}{18 \text{ ABLIKIM}}$ $\pi^+ \pi^- K^+ K^-)/$ $\frac{DOCUMENT ID}{19 \text{ ABLIKIM}}$ $\frac{DOCUMENT ID}{20 \text{ TANENB}}$ $\overline{DN} \text{ Treating system}$	05Q F total 05Q F total 05Q <u>T ID</u> AUM <u>T ID</u> matic	TECN BES2 TECN BES2 TECN BES2 78 MF	$\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ $\frac{\Gamma_{10}/\Gamma}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ $\frac{\Gamma_{11}/\Gamma}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ $\frac{\Gamma_{12}/\Gamma}{\Gamma_{12}/\Gamma}$ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \chi_{c0}}$ Γ_{13}/Γ $\frac{ECN}{S} COMMENT}$
VALUE (units 10^{-4}) <1.4 $\Gamma(f_0(1500) f_0(15)$ VALUE (units 10^{-4}) <0.5 $\Gamma(f_0(1500) f_0(17)$ VALUE (units 10^{-4}) <0.7 $\Gamma(\rho^0 \pi^+ \pi^-)/\Gamma_{tc}$ VALUE 0.016±0.005 $\Gamma(3(\pi^+ \pi^-))/\Gamma_{t}$ VALUE (units 10^{-3}) 12.0±1.8 OUR EVA 12.0±1.7 OUR AVA 11.7±1.0±1.9	$\frac{CL\%}{90}$ $\frac{00) \rightarrow}{90}$ $\frac{CL\%}{90}$ $\frac{10) \rightarrow}{90}$ $\frac{CL\%}{90}$ $\frac{0}{10}$ $\frac{10}{90}$ $\frac{10}{90}$ $\frac{10}{90}$ $\frac{10}{90}$ $\frac{10}{90}$	$\frac{DOCUMENT ID}{17 \text{ ABLIKIM}}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{18 \text{ ABLIKIM}}$ $\pi^{+}\pi^{-}K^{+}K^{-})/$ $\frac{DOCUMENT ID}{19 \text{ ABLIKIM}}$ $\frac{DOCUMENT ID}{20 \text{ TANENB}}$ $\overline{\text{ON}} \text{ Treating system}$ $\frac{11 \text{ BAI}}{11 \text{ BAI}}$	05Q F total 05Q T total 05Q <u>T</u> ID AUM <u>T</u> ID matic	TECN BES2 <u>TECN</u> BES2 <u>TECN</u> BES2 78 MF 78 MF error as	$\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{10}/Γ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{11}/Γ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ Γ_{12}/Γ $\frac{CN}{RK1} \frac{COMMENT}{\psi(2S) \rightarrow \gamma \chi_{c0}}$ Γ_{13}/Γ $ECN = COMMENT$ $COMMENT$ $COMMENT = COMMENT$ $COMMENT $
$\frac{VALUE (units 10^{-4})}{<1.4}$ $\Gamma(f_0(1500) f_0(15))$ $\frac{VALUE (units 10^{-4})}{<0.5}$ $\Gamma(f_0(1500) f_0(17))$ $\frac{VALUE (units 10^{-4})}{<0.7}$ $\Gamma(\rho^0 \pi^+ \pi^-)/\Gamma_{tc}$ $\frac{VALUE}{0.016 \pm 0.005}$ $\Gamma(3(\pi^+ \pi^-))/\Gamma_{t}$ $\frac{VALUE (units 10^{-3})}{12.0 \pm 1.8 \text{ OUR EV}}$ $12.0 \pm 1.7 \text{ OUR AV}$ $11.7 \pm 1.0 \pm 1.9$ $12.6 \pm 2.9 \pm 0.6$	$\frac{CL\%}{90}$ $\frac{00) \rightarrow}{90}$ $\frac{CL\%}{90}$ $\frac{10) \rightarrow}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$ $\frac{CL\%}{90}$	$\frac{DOCUMENT ID}{17 \text{ ABLIKIM}}$ $\pi^+ \pi^- K^+ K^-)/$ $\frac{DOCUMENT ID}{18 \text{ ABLIKIM}}$ $\pi^+ \pi^- K^+ K^-)/$ $\frac{DOCUMENT ID}{19 \text{ ABLIKIM}}$ $\frac{DOCUMENT ID}{19 \text{ ABLIKIM}}$ $\frac{DOCUMEN}{20 \text{ TANENB}}$ $\overline{\text{DN}} \text{ Treating system}$ $\frac{11 \text{ BAI}}{11 \text{ TANENB}}$	05Q F total 05Q F total 05Q <u>T ID</u> AUM matic AUM	TECN BES2 TECN TECN BES2 TECN BES2 TECN BES2 TECN BES2 TECN BES2 TECN BES2 BES2	$\frac{COMMENT}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ $\frac{\Gamma_{10}/\Gamma}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ $\frac{\Gamma_{11}/\Gamma}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ $\frac{\Gamma_{12}/\Gamma}{\psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} \kappa^{+} \kappa^{-}}$ $\frac{\Gamma_{12}/\Gamma}{\Gamma_{13}/\Gamma}$ $\frac{COMMENT}{\psi(2S) \rightarrow \gamma \chi_{c0}}$ Γ_{13}/Γ $ES \psi(2S) \rightarrow \gamma \chi_{c0}$ $RK1 \psi(2S) \rightarrow \gamma \chi_{c0}$

VALUE	<i>n</i> 0	C.)/I _{total} I ₁	4/1
0.012±0.004		$\frac{20}{\text{TANENBAUM 78}} \xrightarrow{\text{REN}} \frac{120}{\text{WRK1}} \xrightarrow{\text{Comment}} \gamma \chi_{c0}$	
Γ(<i>K</i> 1(1270)+ <i>K</i>	⁻ + c.c.	$\rightarrow \pi^+ \pi^- K^+ K^-) / \Gamma_{\text{total}}$	5/ſ
VALUE (units 10^{-3})	FVTS	DOCUMENT ID TECN COMMENT	
$6.6 \pm 2.0 \pm 0.3$	<u></u> 68	$21 \text{ ABLIKIM} \qquad 050 \text{ BES2} \psi(25) \rightarrow $	
		$\gamma \pi^+ \pi^- \kappa^+ \kappa^-$	
Г(<i>K</i> 1(1400) ⁺ <i>K</i>	⁻ + c.c.	$\rightarrow \pi^+ \pi^- K^+ K^-) / \Gamma_{\text{total}}$ Γ_1	₆ /Г
VALUE (units 10^{-3})	CL%	DOCUMENT ID TECN COMMENT	
<2.8	90	²² ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K$	K-
Г(<i>K</i> *(892) ⁰ <i>К</i> *((892) ⁰)/	/Γ _{total} Γ ₁	7/F
VALUE (units 10^{-3})	EVTS	DOCUMENT ID TECN COMMENT	
$1.8 {\pm} 0.6 {\pm} 0.1$	64	4 23 ABLIKIM 05Q BES2 $\psi(2S) ightarrow \gamma \pi^+ \pi^- K^+$	K ⁻
• • • We do not ι	ise the fol	llowing data for averages, fits, limits, etc. $ullet$ $ullet$ $ullet$	
$1.6 \pm 0.4 \pm 0.1$	30.1 ± 5.7	⁷ ^{24,25} ABLIKIM 04H BES Repl. by ABLIKIM 05Q	
Г(<i>К</i> *(1430) ⁰ <i>К</i> *	5(1430) ⁰	$\Gamma \to \pi^+ \pi^- K^+ K^-) / \Gamma_{\text{total}}$ Γ_1	₈ /Г
VALUE (units 10^{-4})	EVTS	DOCUMENT ID TECN COMMENT	
$10.4^{+3.8}_{-3.0}{\pm}0.4$	83	²⁶ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$	
$10.4^{+3.8}_{-3.0}\pm 0.4$ $\Gamma(K^*_0(1430)^0\overline{K}_2)$	⁸³ 5(1430) ⁰	²⁶ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \\ \gamma \pi^+ \pi^- K^+ K^-$ D +c.c. $\rightarrow \pi^+ \pi^- K^+ K^-$)/ Γ_{total} Г 1	٦/و
$10.4^{+3.8}_{-3.0} \pm 0.4$ $\Gamma(K^*_0(1430)^0 \overline{K}^*_2)$ VALUE (units 10 ⁻⁴)	83 5(1430) 0 EVTS	²⁶ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \\ \gamma \pi^+ \pi^- K^+ K^-$ D+ c.c. $\rightarrow \pi^+ \pi^- K^+ K^-$)/ Γ_{total} Γ_1 DOCUMENT ID TECN COMMENT	٦/و
$10.4^{+3.8}_{-3.0} \pm 0.4$ $\Gamma(K_0^*(1430)^0 \overline{K}_2^*)$ $\frac{VALUE (units 10^{-4})}{8.4^{+2.1}_{-2.5} \pm 0.4}$	83 [(1430)⁰ <u>EVTS</u> 62	²⁶ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \\ \gamma \pi^+ \pi^- K^+ K^-$ ⁰ +c.c. $\rightarrow \pi^+ \pi^- K^+ K^-$)/ Γ_{total} Γ_1 <u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u> ²⁷ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \\ \gamma \pi^+ \pi^- K^+ K^-$	٦/و
$10.4^{+3.8}_{-3.0} \pm 0.4$ $\Gamma(K_0^*(1430)^0 \overline{K}_2^*)$ $\frac{VALUE \text{ (units } 10^{-4})}{8.4^{+2.1}_{-2.5} \pm 0.4}$ $\Gamma(\pi\pi)/\Gamma_{\text{total}}$	83 [(1430)⁰ <u>EVTS</u> 62	²⁶ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- \kappa^+ \kappa^-$ $p + c.c. \rightarrow \pi^+ \pi^- \kappa^+ \kappa^-) / \Gamma_{total}$ Γ_1 $\frac{DOCUMENT ID}{27} \frac{TECN}{ABLIKIM}$ 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- \kappa^+ \kappa^-$ Γ_2	9/Г 0/Г
$10.4 + 3.8 \pm 0.4$ $\Gamma(K_0^*(1430)^0 \overline{K}_2^2)$ <u>VALUE (units 10^{-4})</u> 8.4 + 2.1 \pm 0.4 $\Gamma(\pi \pi) / \Gamma_{\text{total}}$ <u>VALUE (units 10^{-3})</u>	83 5(1430)⁰ <u>EVTS</u> 62	²⁶ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ $p + c.c. \rightarrow \pi^+ \pi^- K^+ K^-) / \Gamma_{total}$ Γ_1 $\frac{DOCUMENT ID}{27} \frac{TECN}{ABLIKIM}$ 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ DOCUMENT ID	9/Г 0/Г
$10.4 + 3.8 \pm 0.4$ $\Gamma(K_0^*(1430)^0 \overline{K}_2^*$ <u>VALUE (units 10^{-4})</u> 8.4 + 2.1 \pm 0.4 $\Gamma(\pi \pi)/\Gamma_{\text{total}}$ <u>VALUE (units 10^{-3})</u> 7.3 \pm 0.6 OUR FIT	83 (1430)⁰ <u>EVTS</u> 62	²⁶ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ $p + c.c. \rightarrow \pi^+ \pi^- K^+ K^-) / \Gamma_{total}$ Γ_1 $\frac{DOCUMENT ID}{27} \frac{TECN}{05Q} \frac{COMMENT}{\psi(2S)} \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ $\frac{DOCUMENT ID}{27} \frac{DOCUMENT ID}{27}$	9/Г 0/Г
10.4 $^{+3.8}_{-3.0}\pm$ 0.4 $\Gamma(K_0^*(1430)^0\overline{K}_2^*)^{-4}$ $VALUE (units 10^{-4})^{-4}$ 8.4 $^{+2.1}_{-2.5}\pm$ 0.4 $\Gamma(\pi\pi)/\Gamma_{total}^{-3}$ $VALUE (units 10^{-3})^{-3}$ 7.3 \pm 0.6 OUR FIT $\Gamma(\eta\eta)/\Gamma_{total}^{-3}$	83 (1430)⁰ <u>EVTS</u> 62	²⁶ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ $p + c.c. \rightarrow \pi^+ \pi^- K^+ K^-) / \Gamma_{total}$ Γ_1 $\frac{DOCUMENT ID}{27} \frac{TECN}{05Q} EES2 \psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ $p = \frac{DOCUMENT ID}{27}$]/و 0/1 3/آ
10.4 $+3.8 \pm 0.4$ $\Gamma(K_0^*(1430)^0\overline{K}_2^*)$ $\frac{VALUE (units 10^{-4})}{8.4+2.1 \pm 0.4}$ $\Gamma(\pi\pi)/\Gamma_{total}$ $\frac{VALUE (units 10^{-3})}{7.3 \pm 0.6 \text{ OUR FIT}}$ $\Gamma(\eta\eta)/\Gamma_{total}$ $VALUE (units 10^{-3})$	83 5(1430)⁰ 62	²⁶ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ $p + c.c. \rightarrow \pi^+ \pi^- K^+ K^-) / \Gamma_{total}$ Γ_1 pocument iD TECN COMMENT ²⁷ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ $pocument iD$ Γ_2 $pocument iD$ Γ_2	9/۲ 0/۲ 3/۲
10.4 $+3.8 \pm 0.4$ $\Gamma(K_0^*(1430)^0\overline{K}_2^*$ <u>VALUE (units 10^{-4})</u> 8.4 $+2.1 \pm 0.4$ $\Gamma(\pi\pi)/\Gamma_{total}$ <u>VALUE (units 10^{-3})</u> 7.3 ± 0.6 OUR FIT $\Gamma(\eta\eta)/\Gamma_{total}$ <u>VALUE (units 10^{-3})</u> 2.4 ± 0.4 OUR FIT	83 5(1430) <u>EVTS</u> 62	²⁶ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ $p + c.c. \rightarrow \pi^+ \pi^- K^+ K^-) / \Gamma_{total}$ Γ_1 pocument iD TECN COMMENT ²⁷ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ $pocument iD$ Γ_2 $pocument iD$ Γ_2	9/Г 0/Г 3/Г
10.4 $+3.8 \pm 0.4$ $\Gamma(K_0^*(1430)^0\overline{K}_2^3)^{-1}$ $VALUE (units 10^{-4})^{-4}$ 8.4 $+2.1 \pm 0.4$ $\Gamma(\pi \pi)/\Gamma_{total}^{-3}$ $VALUE (units 10^{-3})^{-3}$ 7.3 ± 0.6 OUR FIT $\Gamma(\eta \eta)/\Gamma_{total}^{-3}$ 2.4 ± 0.4 OUR FIT $\Gamma(\eta \eta)/\Gamma(\pi \pi)^{-1}$	83 5(1430) <u>EVTS</u> 62	²⁶ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ $p + c.c. \rightarrow \pi^+ \pi^- K^+ K^-) / \Gamma_{total}$ Γ_1 pocument iD TECN COMMENT ²⁷ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ $pocument iD$ Γ_2 $pocument iD$ Γ_2	9/Г 0/Г 3/Г
10.4 $+3.8 \pm 0.4$ $\Gamma(K_0^*(1430)^0 \overline{K}_2^*)$ $\frac{VALUE (units 10^{-4})}{8.4+2.1 \pm 0.4}$ $\Gamma(\pi\pi)/\Gamma_{total}$ $\frac{VALUE (units 10^{-3})}{7.3 \pm 0.6 \text{ OUR FIT}}$ $\Gamma(\eta\eta)/\Gamma_{total}$ $\frac{VALUE (units 10^{-3})}{2.4 \pm 0.4 \text{ OUR FIT}}$ $\Gamma(\eta\eta)/\Gamma(\pi\pi)$ VALUE	83 5(1430) <u>EVTS</u> 62	$26 \text{ ABLIKIM} 05Q \text{ BES2} \psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} K^{+} K^{-}$ $D + \text{c.c.} \rightarrow \pi^{+} \pi^{-} K^{+} K^{-}) / \Gamma_{\text{total}} \Gamma_{1}$ $\frac{DOCUMENT ID}{27} \text{ ABLIKIM} 05Q \text{ BES2} \psi(2S) \rightarrow \gamma \pi^{+} \pi^{-} K^{+} K^{-}$ Γ_{2} $\frac{DOCUMENT ID}{27} \Gamma_{2}$ Γ_{2}	9/「 0/「 3/「
10.4 $+3.8 \pm 0.4$ $\Gamma(K_0^*(1430)^0\overline{K}_2^*)$ $VALUE (units 10^{-4})$ 8.4 $+2.1 \pm 0.4$ $\Gamma(\pi \pi)/\Gamma_{total}$ $VALUE (units 10^{-3})$ 7.3 ± 0.6 OUR FIT $\Gamma(\eta \eta)/\Gamma_{total}$ $VALUE (units 10^{-3})$ 2.4 ± 0.4 OUR FIT $\Gamma(\eta \eta)/\Gamma(\pi \pi)$ VALUE 0.33 ± 0.07 OUR F	83 5 (1430) ⁰ <u>EVTS</u> 62 IT	²⁶ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ $p + c.c. \rightarrow \pi^+ \pi^- K^+ K^-) / \Gamma_{total}$ Γ_1 pocument iD TECN COMMENT ²⁷ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ $pocument iD$ Γ_2 $pocument iD$ Γ_2 $pocument iD$ Γ_2	9/Г 0/Г 3/Г
10.4 $+3.8 \pm 0.4$ $\Gamma(K_0^*(1430)^0\overline{K_2^*})^{-4}$ $\frac{VALUE (units 10^{-4})}{8.4+2.1 \pm 0.4}$ $\Gamma(\pi\pi)/\Gamma_{total}$ $\frac{VALUE (units 10^{-3})}{7.3 \pm 0.6 \text{ OUR FIT}}$ $\Gamma(\eta\eta)/\Gamma_{total}$ $\frac{VALUE (units 10^{-3})}{2.4 \pm 0.4 \text{ OUR FIT}}$ $\Gamma(\eta\eta)/\Gamma(\pi\pi)$ $\frac{VALUE}{VALUE}$ 0.33 $\pm 0.07 \text{ OUR F}}$ • • • We do not u	83 5 (1430) ⁰ <u>EVTS</u> 62 62 IT use the fol	²⁶ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ $p + c.c. \rightarrow \pi^+ \pi^- K^+ K^-) / \Gamma_{total}$ Γ_1 pocument iD TECN COMMENT ²⁷ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ $pocument iD$ Γ_2 $pocument iD$ Γ_2 $pocument iD$ Γ_2 $pocument iD$ Γ_2 $pocument iD$ Γ_2 Γ_2 $Pocument iD$ Γ_2 Γ_2 Γ_3	9/「
10.4 $+3.8 \pm 0.4$ $\Gamma(K_0^*(1430)^0\overline{K}_2^*$ <u>VALUE (units 10^{-4})</u> 8.4 $+2.1 \pm 0.4$ $\Gamma(\pi\pi)/\Gamma_{total}$ <u>VALUE (units 10^{-3})</u> 7.3 ± 0.6 OUR FIT $\Gamma(\eta\eta)/\Gamma_{total}$ <u>VALUE (units 10^{-3})</u> 2.4 ± 0.4 OUR FIT $\Gamma(\eta\eta)/\Gamma(\pi\pi)$ <u>VALUE</u> 0.33 ± 0.07 OUR F • • • We do not u 0.26 $\pm 0.09 + 0.03$ -0.02	83 5(1430) <u>EVTS</u> 62 IT Ise the fol	²⁶ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ D + c.c. $\rightarrow \pi^+ \pi^- K^+ K^-$)/ Γ_{total} Г 1 <u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u> ²⁷ ABLIKIM 05Q BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$ <u>DOCUMENT ID</u> <u>DOCUMENT ID</u> <u>DOCUMENT ID</u> <u>C23/</u> <u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u> Howing data for averages, fits, limits, etc. ••• ²⁸ ANDREOTTI 05C E835 $\overline{p}p \rightarrow 2$ mesons	9/「 0/「 3/「

$\Gamma(\eta\pi^+\pi^-)/\Gamma_{ m total}$						Г ₂₄ /Г
VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT	
<1.1	90	²⁹ ABLIKIM	06 R	BES2	ψ (25) $ ightarrow$	γχ _{c0}
$\Gamma(nn')/\Gamma_{total}$						Г25/Г
$(111)^{-1}$ (unite 10^{-3})	CI %	DOCUMENT ID		TECN	COMMENT	- 25/ -
	<u> </u>	30 ADAMS	07			
~ 0.5	90	ADAIVIS	07	CLEU	$\psi(23) \rightarrow$	γ <i>X</i> c0
$\Gamma(\eta'\eta')/\Gamma_{total}$						Г ₂₆ /Г
VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT	
$1.7\pm0.4\pm0.1$	23	³¹ ADAMS	07	CLEO	$\psi(2S) \rightarrow$	$\gamma \chi_{c0}$
			•••		τ ()	1 ~ 20
$\Gamma(\omega\omega)/\Gamma_{ ext{total}}$						Г ₂₇ /Г
VALUE (units 10 ⁻³)	<i>EVTS</i>	DOCUMENT ID		TECN	COMMENT	
2.3±0.7±0.1 38.1	1 ± 9.6	³² ABLIKIM	05n E	BES2	$\psi(2S) \rightarrow \gamma$	$\chi_{c0} \rightarrow \gamma 6\pi$
$\Gamma(K^+K^-)/\Gamma_{total}$						Г20/Г
$VALUE (units 10^{-3})$		DOCUMENT ID				- 20/ -
5.5±0.6 OUR FIT		DOCOMENT ID				
$\Gamma(K_S^0 K_S^0) / \Gamma_{\text{total}}$						Г ₂₉ /Г
VALUE (units 10^{-3})		DOCUMENT ID				
2.77 ± 0.34 OUR FIT						
						F /F
$(\pi'\pi \eta)/total$						1 30/1
VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT	
<0.21	90	³³ ATHAR	07	CLEO	$\psi(2S) ightarrow$	$\gamma h^+ h^- h^0$
$\Gamma(\pi^+\pi^-\eta')/\Gamma_{\rm total}$						Г ₃₁ /Г
VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT	
<0.4	90	³⁴ ATHAR	07	CLEO	$\psi(2S) \rightarrow$	$\gamma h^+ h^- h^0$
	_					,
$\Gamma(K^{\vee}K^{+}\pi^{-}+\mathrm{c.c.})$	/Γ _{total}					Г ₃₂ /Г
VALUE (units 10^{-3}) CL%	EVTS	DOCUMENT ID		TECN	COMMENT	
<0.10	90	³⁵ ATHAR	07	CLEO	$\psi(2S) ightarrow$	$\gamma h^+ h^- h^0$
• • • We do not use t	he follow	ing data for average	s, fits,	limits,	etc. • • •	
<0.35 90		³⁶ ABLIKIM	06 R	BES2	$\psi(2S) ightarrow$	$\gamma \chi_{c0}$
<1.4 90		^{11,37} BAI	99 B	BES	ψ (2 S) $ ightarrow$	$\gamma \chi_{c0}$
$\Gamma(K^+K^-\pi^0)/\Gamma_{tota}$	a l					Г ₃₃ /Г
VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT	
<0.06	90	³⁸ ATHAR	07	CLEO	$\psi(2S) \rightarrow$	$\gamma h^+ h^- h^0$
					τ ()	
$\Gamma(K^+K^-\eta)/\Gamma_{total}$						Г ₃₄ /Г
VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT	
<0.24	90	³⁹ ATHAR	07	CLEO	$\psi(2S) \rightarrow$	$\gamma h^+ h^- h^0$
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$\Gamma(K^+ K^- K^0_S K^0_S) / \Gamma$	total						I	Г ₃₅ /Г
VALUE (units 10^{-3})	EVTS		DOCUMENT I	D	TECN	COMMEN	Т	
$1.5 \pm 0.5 \pm 0.1$	$16.8~\pm$ 4.8		⁴⁰ ABLIKIM	05	50 BES2	ψ (25) –	$\rightarrow \gamma \chi_{c}$)
$\Gamma(\kappa^+\kappa^-\kappa^+\kappa^-)/\Gamma$	total						I	Г ₃₆ /Г
VALUE (units 10^{-3})			DOCUMENT ID					
2.74±0.33 OUR FIT								
$\Gamma(K^+K^-\phi)/\Gamma_{total}$							l	Г ₃₇ /Г
VALUE (units 10 ⁻³)	EVTS		DOCUMENT ID		TECN	COMMENT		
$1.02 {\pm} 0.26 {\pm} 0.04$	38	41	ABLIKIM	06⊤	BES2	ψ (2 S) $ ightarrow$	$\gamma 2K^+$	2K
$\Gamma(K_S^0 K_S^0 \pi^+ \pi^-) / \Gamma_{ta}$	otal						I	Г ₃₈ /Г
VALUE (units 10 ⁻³)	EVTS		DOCUMENT I	D	TECN	COMMEN	Т	
6.0±1.1±0.3	152 ± 14		⁴² ABLIKIM	05	50 BES2	$\psi(2S)$ –	$\rightarrow \gamma \chi_{c}$)
$\Gamma(\phi\phi)/\Gamma_{ m total}$							I	Г39/Г
VALUE (units 10^{-3})			DOCUMENT ID					
0.93±0.22 OUR FIT								
$\Gamma(\overline{\rho}\overline{\rho})/\Gamma_{\text{total}}$							I	Г ₄₀ /Г
VALUE (units 10^{-4})			DOCUMENT ID					
2.10 \pm 0.19 OUR FIT								
$\Gamma(p\overline{p}\pi^0)/\Gamma_{\rm total}$							l	Г ₄₁ /Г
VALUE (units 10^{-3})			DOCUMENT ID		TECN	COMMENT		
$0.58 {\pm} 0.12 {\pm} 0.03$		43	ATHAR	07	CLEO	ψ (2 S) $ ightarrow$	$\gamma h^+ h$	- h ⁰
$\Gamma(p\overline{p}\eta)/\Gamma_{\text{total}}$							I	Г ₄₂ /Г
VALUE (units 10^{-3})			DOCUMENT ID		TECN	COMMENT		
$0.39 {\pm} 0.11 {\pm} 0.02$		44	ATHAR	07	CLEO	$\psi(2S) \rightarrow$	$\gamma h^+ h$	⁻ h ⁰
$\Gamma(\pi^+\pi^-\rho\overline{\rho})/\Gamma_{\text{total}}$							I	Г ₄₃ /Г
VALUE (units 10^{-3})		_	DOCUMENT ID		TECN	COMMENT		<u> </u>
2.1 \pm 0.7 OUR EVALU error as correlated.	ATION	Er	ror includes scal	e fact	or of 1.4	. Treating	systema	atic
2.1 ±1.0 OUR AVERA	GE Err	or i	ncludes scale fac	ctor o	f 2.0.			
$1.57\!\pm\!0.21\!\pm\!0.53$		11	BAI	99 B	BES	$\psi(2S) \rightarrow$	$\gamma \chi_{c0}$	
$4.19\!\pm\!1.15\!\pm\!0.18$		11	TANENBAUM	78	MRK1	ψ (2 S) $ ightarrow$	$\gamma \chi_{c0}$	
$\Gamma(K_{S}^{0}K_{S}^{0}p\overline{p})/\Gamma_{\text{total}}$							I	Г <u>44</u> /Г
VALUE (units 10 ⁻⁴)	<u>CL%</u>	4 -	DOCUMENT ID		TECN	COMMENT		
<8.8	90	45	ABLIKIM	06 D	BES2	$\psi(2S) \rightarrow$	$\chi_{c0}\gamma$	
$\Gamma(p\overline{n}\pi^{-})/\Gamma_{total}$							I	Г ₄₅ /Г
VALUE (units 10 ⁻⁴)		10	DOCUMENT ID		TECN	COMMENT		
$11.8 \pm 3.2 \pm 0.5$		40	ABLIKIM	061	BES2	$\psi(2S) \rightarrow$	$\gamma p \pi^-$	Х
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Γ(ΛĀ)/Γ		Γ.ε./Γ
$\frac{1}{\sqrt{14}} \frac{10^{-4}}{10^{-4}} = 5\sqrt{75}$		• 40/ •
$4.4 \pm 1.2 \pm 0.9 \qquad 15.2^{+4.2}$	¹¹ BAI 03E E	$\frac{2CN}{\psi(2S)} \rightarrow \gamma \gamma_{-0} \rightarrow \gamma \Lambda \overline{\Lambda}$
-4.0		<i>()</i>
$\Gamma(\Lambda\overline{\Lambda}\pi^+\pi^-)/\Gamma_{total}$		Г ₄₇ /Г
VALUE (units 10^{-3}) CL%	<u>DOCUMENT ID</u>	TECN COMMENT
<4.0 90	45 ABLIKIM 06D	BES2 $\psi(2S) \rightarrow \chi_{c0} \gamma$
$\Gamma(K^+\overline{p}\Lambda + \text{c.c.})/\Gamma_{\text{total}}$		Г ₄₈ /Г
VALUE (units 10^{-3})	DOCUMENT ID	TECN COMMENT
$1.06 \pm 0.20 \pm 0.05$	⁴⁷ ATHAR 07	CLEO $\psi(2S) \rightarrow \gamma h^+ h^- h^0$
$\Gamma(\Xi^-\overline{\Xi}^+)/\Gamma_{total}$		Г ₄₉ /Г
VALUE (units 10^{-4}) CL%	DOCUMENT ID	TECN COMMENT
<10.3 90	45 ABLIKIM 06D	BES2 $\psi(2S) \rightarrow \chi_{c0} \gamma$
$\Gamma(p\overline{p}) \times \Gamma(\pi\pi)/\Gamma_{\text{total}}^2$		Γ ₄₀ Γ ₂₀ /Γ ²
VALUE (units 10^{-7})	DOCUMENT ID	TECN COMMENT
15.3±1.6 OUR FIT		
$15.3 \pm 2.4 \pm 0.8$	⁴⁸ ANDREOTTI 03	E835 $\overline{p}p \rightarrow \chi_{c0} \rightarrow \pi^0 \pi^0$
$\Gamma(\rho \overline{\rho}) \times \Gamma(\pi^0 \eta) / \Gamma_{\text{total}}^2$		$\Gamma_{40}\Gamma_{21}/\Gamma^2$
VALUE (units 10^{-7})	DOCUMENT ID	TECN COMMENT
<0.4	ANDREOTTI 05c	E835 $\overline{p}p \rightarrow \pi^0 \eta$
$\Gamma(ho \overline{ ho}) imes \Gamma(\pi^0 \eta') / \Gamma_{ m total}^2$		Γ ₄₀ Γ ₂₂ /Γ ²
VALUE (units 10^{-7})	DOCUMENT ID	TECN COMMENT
<2.5	ANDREOTTI 05C	E835 $\overline{p}p \rightarrow \pi^0 \eta$
$\Gamma(p\overline{p}) \times \Gamma(\eta\eta) / \Gamma_{\text{total}}^2$		Γ ₄₀ Γ ₂₃ /Γ ²
VALUE (units 10^{-7})	DOCUMENT ID	TECN COMMENT
5.0±0.9 OUR FIT		
$4.0 \pm 1.2^{+0.5}_{-0.3}$	ANDREOTTI 05c	E835 $\overline{p}p \rightarrow \eta\eta$
$\Gamma(p\overline{p}) \times \Gamma(\eta\eta')/\Gamma_{total}^2$		Γ ₄₀ Γ ₂₅ /Γ ²
VALUE (units 10^{-6})	DOCUMENT ID	TECN COMMENT
• • • We do not use the follo	owing data for averages, fits	, limits, etc. ● ● ●
$2.1^{+2.3}_{-1.5}$	ANDREOTTI 05c	E835 $\overline{p}p \rightarrow \pi^0 \eta$
⁹ ABLIKIM 04G reports [B	$(\chi_{c0}(1P) \rightarrow f_0(980) f_0(980))$	$B(0) \rightarrow 2\pi^+ 2\pi^-) \times B(\psi(2S) \rightarrow$
$\gamma \chi_{c0}(1P))] = (6.5 \pm 1.5)$	6 \pm 1.3) $ imes$ 10 ^{-5} . We divi	de by our best value $B(\psi(2S) o$
$\gamma \chi_{c0}(1P)) = (9.3 \pm 0.4)$) $ imes$ 10 ⁻² . Our first error i	s their experiment's error and our
second error is the system ¹⁰ ABLIKIM 05Q reports [B(hat is error from using our be $\pi \chi_{c0}(1P) \rightarrow \pi^+ \pi^- K^+ K^-$	est value. $(\psi(2S) \rightarrow \gamma \chi_{c0}(1P))] = 0$

 $(1.64 \pm 0.05 \pm 0.20) \times 10^{-3}$. We divide by our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) =

 $(9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

- ¹¹ Rescaled by us using $B(\psi(2S) \rightarrow \gamma \chi_{c0}) = (9.3 \pm 0.4)\%$ and $B(\psi(2S) \rightarrow J/\psi(1S)\pi^+\pi^-) = (32.3 \pm 0.5)\%$. ¹² ABLIKIM 05Q reports $[B(\chi_{c0}(1P) \rightarrow f_0(980)f_0(980) \rightarrow \pi^+\pi^-K^+K^-) \times B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P))] = (1.59 \pm 0.50^{+0.89}_{-0.72}) \times 10^{-5}$. We divide by our best value $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. One of the $f_0(980)$ mesons is identified via decay to $\pi^+\pi^-$ while the other via K^+K^- decay. ¹³ ABLIKIM 05Q reports $(8.42 \pm 1.42^{+1.65}_{-2.29}) \times 10^{-4}$ for $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) =$
- $(9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. The f_0 mesons are identified via $f_0(980) \rightarrow \pi^+\pi^-$ and $f_0(2200) \rightarrow K^+K^-$ decays.
- ¹⁴ ABLIKIM 05Q reports $< 2.9 \times 10^{-4}$ for B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = (9.22 ± 0.11 ± 0.46) $\times 10^{-2}$. We rescale to our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = 0.093. One of the $f_0(1370)$ mesons is identified via decay to $\pi^+\pi^-$ while the other via K^+K^- decay. ¹⁵ ABLIKIM 05Q reports $< 1.8 \times 10^{-4}$ for B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = (9.22 ± 0.11 ± 0.46) $\times 10^{-2}$. We rescale to our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = 0.093. The f_0 mesons are identified via $f_0(1370) \rightarrow \pi^+\pi^-$ and $f_0(1500) \rightarrow K^+K^-$ decays.
- ¹⁶ ABLIKIM 05Q reports $(7.12 \pm 1.85^{+3.28}_{-1.68}) \times 10^{-4}$ for $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. The f_0 mesons are identified via $f_0(1370) \rightarrow \pi^+\pi^-$ and $f_0(1710) \rightarrow K^+K^-$ decays.
- ¹⁷ ABLIKIM 05Q reports $< 1.4 \times 10^{-4}$ for $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = 0.093$. The f_0 mesons are identified via $f_0(1500) \rightarrow \pi^+\pi^-$ and $f_0(1370) \rightarrow K^+K^-$ decays.
- ¹⁸ ABLIKIM 05Q reports $< 0.55 \times 10^{-4}$ for B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = (9.22 $\pm 0.11 \pm 0.46$) $\times 10^{-2}$. We rescale to our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = 0.093. One of the $f_0(1500)$ is identified via decay to $\pi^+ \pi^-$ while the other via $K^+ K^-$ decay.
- ¹⁹ ABLIKIM 05Q reports $< 0.73 \times 10^{-4}$ for B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = (9.22 ± 0.11 ± 0.46) × 10⁻². We rescale to our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = 0.093. The f_0 mesons are identified via $f_0(1500) \rightarrow \pi^+\pi^-$ and $f_0(1710) \rightarrow K^+K^-$ decays.
- ²⁰ Calculated using $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = 0.094$; the errors do not contain the uncertainty in the $\psi(2S)$ decay.
- ²¹ ABLIKIM 05Q reports $(6.66 \pm 1.31^{+1.60}_{-1.51}) \times 10^{-3}$ for $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. The measurement assumes $B(K_1(1270) \rightarrow K\rho(770)) = 42 \pm 6\%$.
- ²² ABLIKIM 05Q reports < 2.85×10^{-3} for B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = ($9.22 \pm 0.11 \pm 0.46$) $\times 10^{-2}$. We rescale to our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = 0.093. The measurement assumes B($K_1(1400) \rightarrow K^*(892)\pi$) = 94 $\pm 6\%$.
- ²³ ABLIKIM 05Q reports $[B(\chi_{c0}(1P) \rightarrow K^*(892)^0 \overline{K}^*(892)^0) \times B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P))]$ = $(0.168 \pm 0.035^{+0.047}_{-0.040}) \times 10^{-3}$. We divide by our best value $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P))$

 $= (9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

²⁴ Assumes B($K^*(892)^0 \rightarrow K^- \pi^+$) = 2/3.

²⁵ 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($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) $= (9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

²⁶ ABLIKIM 05Q reports $(10.44 \pm 2.37 \substack{+3.05 \\ -1.90}) \times 10^{-4}$ for B $(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) =$ $(9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = $(9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

²⁷ ABLIKIM 05Q reports (8.49 \pm 1.66 $^{+1.32}_{-1.99}$) × 10⁻⁴ for B(ψ (2S) $\rightarrow \gamma \chi_{c0}$ (1P)) = $(9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) =$ $(9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

²⁸We have multiplied $\pi^0 \pi^0$ measurement by 3 to obtain $\pi \pi$.

- ²⁹ ABLIKIM 06R reports $< 1.1 \times 10^{-3}$ for B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = (9.2 ± 0.4) × 10⁻² We rescale to our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = 0.093.
- ³⁰ ADAMS 07 reports $< 0.5 \times 10^{-3}$ for B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = 0.0922 ± 0.0011 ± 0.0046. We rescale to our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = 0.093.
- ³¹ ADAMS 07 reports $(1.7 \pm 0.4 \pm 0.2) \times 10^{-3}$ for $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = 0.0922 \pm 0.0011 \pm 0.0046$. We rescale to our best value $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.3 \pm 0.4) \times 10^{-3}$ 10^{-2} . Our first error is their experiment's error and our second error is the systematic error from using our best value.
- ³²ABLIKIM 05N reports [B($\chi_{c0}(1P) \rightarrow \omega\omega$) × B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$)] = (0.212 ± 0.053 \pm 0.037) \times 10⁻³. We divide by our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = $(9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

³³ ATHAR 07 reports $< 0.21 \times 10^{-3}$ for B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = (9.22 ± 0.11 ± 0.46) × 10^{-2} . We rescale to our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = 0.093.

- ³⁴ ATHAR 07 reports $< 0.38 \times 10^{-3}$ for B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = (9.22 ± 0.11 ± 0.46) × 10^{-2} . We rescale to our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = 0.093.
- ³⁵ ATHAR 07 reports $< 0.10 \times 10^{-3}$ for B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = (9.22 ± 0.11 ± 0.46) × 10^{-2} . We rescale to our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = 0.093.
- ³⁶ ABLIKIM 06R reports $< 0.35 \times 10^{-3}$ for B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = (9.2 ± 0.4)×10⁻². We rescale to our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = 0.093.
- ³⁷ Multiplied by a factor of 2 to convert from $K_{S}^{0}K^{+}\pi^{-}$ to $K^{0}K^{+}\pi^{-}$ decay.

³⁸ ATHAR 07 reports
$$< 0.06 \times 10^{-3}$$
 for B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = (9.22 ± 0.11 ± 0.46) × 10^{-2} . We rescale to our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = 0.093.

³⁹ ATHAR 07 reports $< 0.24 \times 10^{-3}$ for B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = (9.22 ± 0.11 ± 0.46) ×

 10^{-2} . We rescale to our best value $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = 0.093$. 40 ABLIKIM 050 reports $[B(\chi_{c0}(1P) \rightarrow \kappa^+ \kappa^- \kappa^0_S \kappa^0_S) \times B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P))] = 0.093$. $(0.138 \pm 0.039 \pm 0.025) \times 10^{-3}$. We divide by our best value B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) $= (9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

⁴¹ABLIKIM 06T reports (1.03 \pm 0.22 \pm 0.15) \times 10⁻³ for B(ψ (2S) $\rightarrow \gamma \chi_{c0}(1P)$) = (9.2 \pm 0.4) imes 10⁻². We rescale to our best value B(ψ (25) $\rightarrow \gamma \chi_{c0}(1P)$) = (9.3 \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.

⁴² ABLIKIM 050 reports $[B(\chi_{c0}(1P) \rightarrow K_S^0 K_S^0 \pi^+ \pi^-) \times B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P))] = (0.558 \pm 0.051 \pm 0.089) \times 10^{-3}$. We divide by our best value $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

⁴³ ATHAR 07 reports $(0.59 \pm 0.10 \pm 0.08) \times 10^{-3}$ for $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

⁴⁴ ATHAR 07 reports $(0.39 \pm 0.11 \pm 0.04) \times 10^{-3}$ for $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

⁴⁵Using B($\psi(2S) \rightarrow \chi_{c0}\gamma) = (9.2 \pm 0.5)\%$

⁴⁶ ABLIKIM 06I reports $[B(\chi_{c0}(1P) \rightarrow p \overline{n} \pi^{-}) \times B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P))] = (1.10 \pm 0.24 \pm 0.18) \times 10^{-4}$. We divide by our best value $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

⁴⁷ ATHAR 07 reports $(1.07 \pm 0.17 \pm 0.12) \times 10^{-3}$ for $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46) \times 10^{-2}$. We rescale to our best value $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.3 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

⁴⁸We 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 —

$\Gamma(\gamma J/\psi(1S))/\Gamma_{total}$			Г ₅₀ /Г
VALUE (units 10^{-4})	DOCUMENT ID	TECN	COMMENT
132±11 OUR FIT			
\bullet \bullet \bullet We do not use the fo	llowing data for avera	ages, fits, lim	its, etc. • • •
$200 \pm 20 \pm 20$	⁴⁹ ADAM	05A CLEO	$e^+e^- \rightarrow \psi(2S) \rightarrow \gamma \chi_{c0}$
$\Gamma(\gamma\gamma)/\Gamma_{total}$			Г ₅₁ /Г
VALUE (units 10 ⁻⁴)	DOCUMENT	ID	
2.76±0.33 OUR FIT			
$\Gamma(\gamma\gamma)/\Gamma(\gamma J/\psi(1S))$			Γ ₅₁ /Γ ₅₀
VALUE (units 10^{-2})	DOCUMENT ID	TECN	COMMENT
2.09±0.34 OUR FIT 2.0 +0.4 OUR AVERAGE			
$2.2 \pm 0.4 + 0.1 + 0.2$	⁵⁰ ANDREOTTI	04 E835	$p\overline{p} \rightarrow \chi_{c0} \rightarrow \gamma\gamma$
-0.2 1.45±0.74	⁵¹ AMBROGIANI	00B E835	$\overline{p}p \rightarrow \chi_{c2} \rightarrow \gamma \gamma, \gamma J/\psi$
$\Gamma(p\overline{p}) \times \Gamma(\gamma J/\psi(1S))$	$/\Gamma_{total}^2$		Γ ₄₀ Γ ₅₀ /Γ ²
VALUE (units 10^{-7}) EV7	S DOCUMEN	T ID TI	ECN COMMENT
27.8±1.9 OUR FIT			
28.2 ± 2.1 OUR AVERAGE	51 50 50		
$28.0 \pm 1.9 \pm 1.3$ 39	2 51,52,53 BAGNAS	CO 02 E8	$335 \overline{p}p \to \chi_{c0} \to J/\psi\gamma$
$29.3^{+5.7}_{-4.7}\pm 1.5$ 8	9 ^{51,52} AMBROG	GIANI 99B	$\overline{p}p \rightarrow \chi_{c0} \rightarrow J/\psi\gamma$
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$(PP) \land ((1)) \land t$	otal		• 40• 51/•
	DOCUMENT ID	TECN	COMMENT
• • • We do not use th	e following data for averages, fi	s, limits,	etc. • • •
$6.52 \pm 1.18 \substack{+0.48 \\ -0.72}$	⁵⁰ ANDREOTTI 04	E835	$p \overline{p} \rightarrow \chi_{c0} \rightarrow \gamma \gamma$
⁵⁰ The values of $B(p\overline{p})$ independent. The la ⁵¹ Calculated by us usi	$(B(\gamma \gamma))$ and $B(\gamma \gamma)B(\gamma J/\psi)$ metter is used in the fit because of ng $B(J/\psi(1S) \rightarrow e^+e^-) = 0$.	asured by smaller s 0593 ± 0	ANDREOTTI 04 are no systematics. $D(0010, \Gamma(x, 1/x)) (\Gamma^2 = x)$ as
52 Values in $(\Gamma(p \overline{p}) >$ not independent. Th 53 Recalculated by AN	$\subset \Gamma(\gamma J/\psi(1S))/\Gamma_{total})$ and (Γ ne latter is used in the fit since it DREOTTI 05A.	(<i>pp</i>) × is less co	rrelated to the total width
⁵² Values in $(\Gamma(p\overline{p}) >$ not independent. Th ⁵³ Recalculated by AN $\chi_{c0}(1P)$	$\subset \Gamma(\gamma J/\psi(1S))/\Gamma_{total})$ and (Γ ne latter is used in the fit since it DREOTTI 05A.) CROSS-PARTICLE BRAI	is less co	rrelated to the total width RATIOS
⁵² Values in $(\Gamma(p\overline{p}) >$ not independent. TI ⁵³ Recalculated by AN $\chi_{c0}(1P$ $B(\chi_{c0}(1P))$	$(\Gamma (\gamma J/\psi(1S))/\Gamma_{total}) \text{ and } (\Gamma)$ The latter is used in the fit since it DREOTTI 05A. CROSS-PARTICLE BRAI (P) $\rightarrow p\overline{p} \times \frac{\Gamma(\psi(2S))}{\Gamma(\psi(2S))}$	$\frac{(pp)}{\text{is less co}}$	rrelated to the total width RATIOS $r_{0}(1P))$ $s)\pi^{+}\pi^{-})$
⁵² Values in $(\Gamma(p\overline{p}) >$ not independent. Th ⁵³ Recalculated by AN $\chi_{c0}(1P)$ $B(\chi_{c0}(1))$	$(r \cap \gamma J/\psi(1S))/\Gamma_{total}) \text{ and } (\Gamma)$ ne latter is used in the fit since it DREOTTI 05A. (P) $\rightarrow \rho \overline{p} \times \frac{\Gamma(\psi(2S))}{\Gamma(\psi(2S))}$	$\frac{(pp) \times}{\text{is less co}}$ NCHING $\frac{(p,p)}{(p,q)} \rightarrow \gamma \chi_{c}$ $\frac{(p,p)}{(p,q)} \rightarrow J/\psi(1,q)$	rrelated to the total width RATIOS $\frac{10(1P)}{5}\pi^{+}\pi^{-}$ COMMENT
⁵² Values in $(\Gamma(p\overline{p}) >$ not independent. TI ⁵³ Recalculated by AN $\chi_{c0}(1P)$ $B(\chi_{c0}(1))$ <u>74LUE (units 10⁻⁵)</u> 5.0±0.8 OUR FIT 1.6±1.9	$(r \cap \gamma J/\psi(1S))/\Gamma_{total}) \text{ and } (\Gamma_{total}) \text$	$\frac{(pp) \times}{\text{is less co}}$ NCHING $\frac{\rightarrow \gamma \chi_{c}}{\rightarrow J/\psi(1, \frac{TECN}{c})}$ BES	rrelated to the total width GRATIOS (1P)) $S)\pi^{+}\pi^{-})$ COMMENT
⁵² Values in $(\Gamma(p\overline{p}) >$ not independent. Th ⁵³ Recalculated by AN $\chi_{c0}(1P)$ $B(\chi_{c0}(1P))$ $B(\chi_{c$	$(\Gamma(\gamma J/\psi(1S))/\Gamma_{total}) \text{ and } (\Gamma_{total}) $	$\frac{(pp)}{\text{is less co}}$ NCHING $\frac{\rightarrow \gamma \chi_{c}}{\rightarrow J/\psi(1, \frac{TECN}{2})}$ BES	rrelated to the total width RATIOS (0(1P)) $S)\pi^{+}\pi^{-})$ COMMENT $\psi(2S) \rightarrow \gamma \chi_{c0} \rightarrow \gamma \overline{\rho}\mu$ μ BAL 98L is derived usin

VALUE (units 10^{-6})	EVTS	DOCUME	NT ID	TECN	COMMENT	
19.5 \pm 2.0 OUR I	=IT					
$23.6^{+3.7}_{-3.4}\pm3.4$	89.5^{+14}_{-13}	BAI	04F	BES	$\psi(2S) \rightarrow \gamma \chi_{c0}(1P) \rightarrow \gamma \overline{p} p$	

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

0.122±0.010 OUR FIT 0.073±0.018 OUR AVERAGE	
0.073±0.018 OUR AVERAGE	
55 OPECLIA $32 OPAL (25)$	
0.009 ± 0.018	
0.4 \pm 0.3 ⁵⁶ BRANDELIK 79B DASP $\psi(2S) \rightarrow \gamma \chi_{c0}$	
0.16 \pm 0.11 ⁵⁶ BARTEL 78B CNTR $\psi(2S) \rightarrow \gamma \chi_{c0}$	
3.3 ± 1.7 57 BIDDICK 77 CNTR $e^+e^- \rightarrow \gamma X$	
\bullet \bullet We do not use the following data for averages, fits, limits, etc. \bullet \bullet	
0.18 \pm 0.01 \pm 0.02 172 ⁵⁸ ADAM 05A CLEO $\psi(2S) \rightarrow J/\psi \gamma \gamma$	
⁵⁵ Recalculated by us using $B(J/\psi(1S) \rightarrow \ell^+ \ell^-) = 0.1181 \pm 0.0020$. ⁵⁶ Recalculated by us using $B(J/\psi(1S) \rightarrow \mu^+ \mu^-) = 0.0588 \pm 0.0010$. ⁵⁷ Assumes isotropic gamma distribution. ⁵⁸ Not independent from other values reported by ADAM 05A.	

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 $\mathsf{B}(\chi_{c0}(1P) \to \gamma J/\psi) \times \frac{\Gamma(\psi(2S) \to \gamma \chi_{c0}(1P))}{\Gamma(\psi(2S) \to J/\psi(1S) anuthing)}$ VALUE (units 10^{-2}) EVTS DOCUMENT ID TECN COMMENT 0.2151±0.0035 OUR FIT 05A CLEO $\psi(2S) \rightarrow J/\psi \gamma \gamma$ $0.31 \pm 0.02 \pm 0.03$ 172 ADAM $\mathsf{B}(\chi_{c0}(1P) \to \gamma J/\psi) \times \frac{\Gamma(\psi(2S) \to \gamma \chi_{c0}(1P))}{\Gamma(\psi(2S) \to J/\psi(1S)\pi^{+}\pi^{-})}$ <u>EVTS</u> 0.379±0.032 OUR FIT DOCUMENT ID TECN COMMENT • • • We do not use the following data for averages, fits, limits, etc. • • • 172 ⁵⁹ ADAM $0.55 \pm 0.04 \pm 0.06$ 05A CLEO $\psi(2S) \rightarrow J/\psi \gamma \gamma$ ⁵⁹Not independent from other values reported by ADAM 05A. $B(\chi_{c0}(1P) \rightarrow \gamma \gamma) \times B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P))$ DOCUMENT ID TECN COMMENT VALUE (units 10^{-5}) 2.56±0.33 OUR FIT 85 CBAL $\psi(2S) \rightarrow \gamma \chi_{c0}$ 3.7 ±1.8 ±1.0 LEE $\mathsf{B}(\chi_{c0}(1P) \to \pi\pi) \times \frac{\Gamma(\psi(2S) \to \gamma \chi_{c0}(1P))}{\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)}$ VALUE (units 10^{-4}) EVTS DOCUMENT ID TECN COMMENT 20.9±1.7 OUR FIT 20.7±1.7 OUR AVERAGE 03C BES $\psi(2S) \rightarrow \gamma \chi_{c0} \rightarrow \gamma \pi^0 \pi^0$ 98I BES $\psi(2S) \rightarrow \gamma \chi_{c0} \rightarrow \gamma \pi^+ \pi^-$ ⁶⁰ BAI $23.9 \pm 2.7 \pm 4.1$ 97 ± 11 ⁶¹ BAI 720 ± 32 $20.2 \pm 1.1 \pm 1.5$ ⁶⁰We have multiplied $\pi^0 \pi^0$ measurement by 3 to obtain $\pi \pi$. 61 Calculated by us. The value for B($\chi_{c0}
ightarrow \pi^+\pi^-$) reported in BAI 981 is derived using $B(\psi' \rightarrow \gamma \chi_{c0}) = (9.3 \pm 0.8)\%$ and $B(\psi' \rightarrow J/\psi \pi^+ \pi^-) = (32.4 \pm 2.6)\%$ [BAI 98D]. We have multiplied $\pi^+\pi^-$ measurement by 3/2 to obtain $\pi\pi$. $B(\chi_{c0}(1P) \rightarrow \eta \eta) \times B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P))$ DOCUMENT ID TECN COMMENT VALUE (units 10^{-4}) EVTS 2.2 \pm 0.4 OUR FIT 62 ADAMS 07 CLEO $\psi(2S) \rightarrow \gamma \chi_{c0}$ $2.86 \pm 0.46 \pm 0.37$ 48 ⁶² Calculated by us. The value of $B(\chi_{c0}(1P) \rightarrow \eta \eta)$ reported by ADAMS 07 was derived using $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.22 \pm 0.11 \pm 0.46)\%$ (ATHAR 04). $\mathsf{B}(\chi_{c0}(1P) \to \eta \eta) \times \frac{\Gamma(\psi(2S) \to \gamma \chi_{c0}(1P))}{\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)}$ DOCUMENT ID TECN COMMENT VALUE (units 10^{-3}) 0.68 ±0.12 OUR FIT 03C BES $\psi(2S) \rightarrow \gamma \eta \eta$ $0.578 \pm 0.241 \pm 0.158$ BAI HTTP://PDG.LBL.GOV Page 14 Created: 6/7/2007 11:28

$B(\chi_{c0}(1R))$?) → K+	$(K^-) \times \frac{\Gamma}{\Gamma(ab)}$	$(\psi(25))$	$\dot{S} \rightarrow \gamma$	$\chi_{c0}(1P))$
$VALUE (units 10^{-3})$	EVTS		(2 5) '	→ J /ψ(
1.57±0.17 OUR FIT	<u>EV13</u>	DOCOMENT	ID		COMMENT
$1.63 \pm 0.10 \pm 0.15$	774 ± 38	⁶³ BAI	9	81 BES	$\psi(2S) \rightarrow \gamma K^+ K^-$
⁶³ Calculated by us. 1	The value for	$B(\chi_{c0} \rightarrow K^+)$	<i>К</i> [—]) ге	eported	by BAI 981 is derived using
$B(\psi(2S) \to \gamma \chi_{C}(S))$	$_{0}) = (9.3 \pm$	0.8)% and B(ψ	(25) -	$\rightarrow J/\psi$	$(\pi^+ \pi^-) = (32.4 \pm 2.6)\%$
Β(χ _{c0}	$(1P) \rightarrow k$	$(^0_S K^0_S) \times B(\eta)$	¢(25)	$\rightarrow \gamma$	χ _{c0} (1P))
VALUE (units 10^{-4})	EVTS	DOCUMENT ID	1	TECN	COMMENT
2.57±0.30 OUR FIT 3.02±0.19±0.33	322	ABLIKIM	05 0	BES2	$\psi(2S) \rightarrow \gamma \kappa^0_S \kappa^0_S$
B(v_a(1)	$P) \rightarrow K_{2}^{0}$	К ⁰) × <u>Г(</u>	(ψ(2 <i>S</i>) →γ ;	(c0(1P))
-(\lambda co() ' ''S'	$\Gamma(\psi)$	(2 <i>S</i>) -	$\rightarrow J/\psi$	$(1S)\pi^+\pi^-)$
VALUE (units 10^{-4})		DOCUMENT ID	1	TECN	COMMENT
7.9±1.0 OUR FIT	F	M			
5.6±0.8±1.3	L	⁷⁴ BAI	99B	BES	$\psi(2S) \rightarrow \gamma K^0_S K^0_S$
⁶⁴ Calculated by us. 1	he value of E	$R(\chi_{c0} \to K^0_S K)$	$\binom{0}{S}$ repo	orted by	BAI 99B was derived using
$B(\psi(2S) \rightarrow \gamma \chi_{c0})$ [BAI 98D].	(1P)) = (9.3)	\pm 0.8)% and B	$(\psi(2S)$	$\rightarrow J/\psi$	$(2\pi^+\pi^-) = (32.4 \pm 2.6)\%$
$B(\chi_{c0}(1P))$	$) \rightarrow 2(\pi^+)$	π^{-})) × $\frac{1}{\pi^{-}}$	Γ (ψ(2	<u>S) →γ</u>	$(\chi_{c0}(1P))$
	, x	Γ Γ(ψ	6(25)	$\rightarrow J/\psi$	$\psi(1S)\pi^{+}\pi^{-})$
VALUE (units 10^{-3})		DOCUMENT ID)	TECN	COMMENT
7.0±0.6 OUR FIT					
0.9\pm2.4 OUR AVERA	GE Error in 6	cludes scale fac	tor of .	3.8. RES	
9.3 ± 0.9	6	⁶ TANENBAUN	995 N 78	MRK1	$\psi(2S) \rightarrow \gamma \chi_{c0}$ $\psi(2S) \rightarrow \gamma \chi_{c0}$
⁶⁵ Calculated by us. T	he value for l	$B(\chi_{c0} \rightarrow 2\pi^+)$	$2\pi^{-}$)r	eported	in BAI 99B 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].					
66 The value B($\psi(1S)$	$) \rightarrow \gamma \chi_{c0}$	$\times B(\chi_{c0} \rightarrow 2\pi)$	$+_{2\pi}$) report	ed in TANENBAUM 78 is
derived using $B(\psi(2S) \rightarrow J/\psi(1S)\pi^+\pi^-) \times B(J/\psi(1S) \rightarrow \ell^+\ell^-) = (4.6 \pm 0.7)\%$.					
Calculated by us us	sing B $(J/\psi(1$	$(LS) \rightarrow \ell^+ \ell^-)$	= 0.11	$181 \pm 0.$	0020.
$B(\chi_{c0}(1P) \rightarrow \ K^+ K^- K^+ K^-) \times B(\psi(2S) \rightarrow \ \gamma \chi_{c0}(1P))$					
VALUE (units 10^{-4})	EVTS	DOCUMENT ID		<u>TE</u> CN	COMMENT
2.53±0.29 OUR FIT					
3.20±0.11±0.41	278 6	⁰⁷ ABLIKIM	06T	BES2	$\psi(2S) \rightarrow \gamma 2K^+ 2K^-$
67 Calculated by us. derived using B($\psi($	The value of $(2S) \rightarrow \gamma \chi_c$	$F B(\chi_{c0} \rightarrow 2K)$ $H_{c0}(1P)) = (9.2)$	$^{+}2K^{-}$ \pm 0.4)	⁻) repor %.	ted by ABLIKIM 06⊤ was

$\mathsf{B}(\chi_{c0}(1P) \to K^+ K^- K^+ K^-) \times \frac{\Gamma(\psi(2S) \to \gamma \chi_{c0}(1P))}{\Gamma(\psi(2S) \to J/\psi(1S) \pi^+ \pi^-)}$ *VALUE* (units 10^{-4}) DOCUMENT ID TECN COMMENT 7.8±0.9 OUR FIT 68 _{BAI} 99B BES $\psi(2S) \rightarrow \gamma 2K^+ 2K^ 6.1 \pm 0.8 \pm 0.9$ 68 Calculated by us. The value of B($\chi_{c0} \rightarrow 2K^+2K^-$) reported by BAI 99B was derived using B($\psi(2S) \rightarrow \gamma \chi_{c0}(1P)$) = (9.3 ± 0.8)% and B($\psi(2S) \rightarrow J/\psi \pi^+ \pi^-$) = (32.4 ± 2.6)% [BAI 98D]. $B(\chi_{c0}(1P) \rightarrow \phi \phi) \times B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P))$ VALUE (units 10^{-4}) DOCUMENT ID TECN COMMENT EVTS 0.86±0.20 OUR FIT ⁶⁹ ABLIKIM 06T BES2 $\psi(2S) \rightarrow \gamma 2K^+ 2K^ 0.86 \pm 0.19 \pm 0.12$ 26 ⁶⁹ Calculated by us. The value of $B(\chi_{c0} \rightarrow \phi \phi)$ reported by ABLIKIM 06T was derived using $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.2 \pm 0.4)\%$. $\mathsf{B}(\chi_{c0}(1P) \to \phi\phi) \times \frac{\Gamma(\psi(2S) \to \gamma \chi_{c0}(1P))}{\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)}$ DOCUMENT ID TECN COMMENT VALUE (units 10^{-4}) 2.7±0.6 OUR FIT ⁷⁰ BAI $2.6 \pm 1.0 \pm 1.1$ 99B BES $\psi(2S) \rightarrow \gamma 2K^+ 2K^-$ ⁷⁰Calculated by us. The value of B($\chi_{c0} \rightarrow \phi \phi$) reported by BAI 99B was derived using $B(\psi(2S) \rightarrow \gamma \chi_{c0}(1P)) = (9.3 \pm 0.8)\%$ and $B(\psi(2S) \rightarrow J/\psi \pi^+ \pi^-) = (32.4 \pm 2.6)\%$ [BAI 98D].

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

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ANDREOTTI	04⊢ 03	PR D69 092001 PRI 91 091801	J.Z. Bai <i>et al.</i> M. Andreotti <i>et al</i>	(BES) (FNAL F835)	Collab.) Collab
AULCHENKO	03	PL B573 63	V.M. Aulchenko <i>et al.</i>	(KEDR	Collab.)
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