NODE=M057

$\chi_{c2}(1P)$

$I^G(J^{PC}) = 0^+(2^{++})$

See the Review on "Branching Ratios of $\psi(2S)$, $\chi_{c0,1,2}$ and $\eta_c(1S)$" before the $\chi_{c0}(1P)$ Listings. NODE=M057

$\chi_{c2}(1P)$ MASS

NODE=M057M

VALUE (MeV)			*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
3556.17 ± 0.07 OUR AVERAGE							
3557.3 ± 1.7	±0.7		611	[1] AAIJ	17BB	LHCB	$pp \to b\bar{b}X \to 2(K^+K^-)X$
3556.10 ± 0.06	±0.11		4.0k	[2] AAIJ	17BI	LHCB	$\chi_{c2} \to J/\psi\mu^+\mu^-$
3555.3 ± 0.6	±2.2		2.5k	UEHARA	08	BELL	$\gamma\gamma \to$ hadrons
3555.70 ± 0.59	±0.39			ABLIKIM	05G	BES2	$\psi(2S) \to \gamma\chi_{c2}$
3556.173 ± 0.123	±0.020			ANDREOTTI	05A	E835	$p\bar{p} \to e^+e^-\gamma$
3559.9 ± 2.9				EISENSTEIN	01	CLE2	$e^+e^- \to e^+e^-\chi_{c2}$
3556.4 ± 0.7				BAI	99B	BES	$\psi(2S) \to \gamma$X
3556.22 ± 0.131	±0.020		585	[3] ARMSTRONG	92	E760	$\bar{p}p \to e^+e^-\gamma$
3556.9 ± 0.4	±0.5		50	BAGLIN	86B	SPEC	$\bar{p}p \to e^+e^-$X
3557.8 ± 0.2	±4			[4] GAISER	86	CBAL	$\psi(2S) \to \gamma$X
3553.4 ± 2.2			66	[5] LEMOIGNE	82	GOLI	185 π^-Be $\to \gamma\mu^+\mu^-$A
3555.9 ± 0.7				[6] OREGLIA	82	CBAL	$e^+e^- \to J/\psi 2\gamma$
3557 ± 1.5			69	[7] HIMEL	80	MRK2	$e^+e^- \to J/\psi 2\gamma$
3551 ±11			15	BRANDELIK	79B	DASP	$e^+e^- \to J/\psi 2\gamma$
3553 ± 4				[7] BARTEL	78B	CNTR	$e^+e^- \to J/\psi 2\gamma$
3553 ± 4	±4			[7,8] TANENBAUM	78	MRK1	e^+e^-
3563 ± 7			360	[7] BIDDICK	77	CNTR	$e^+e^- \to \gamma$X
• • • We do not use the following data for averages, fits, limits, etc. • • •							
3555.4 ± 1.3			53	UEHARA	13	BELL	$\gamma\gamma \to K^0_S K^0_S$
3543 ±10			4	WHITAKER	76	MRK1	$e^+e^- \to J/\psi 2\gamma$

[1] From a fit of the $\phi\phi$ invariant mass with the width of $\chi_{c2}(1P)$ fixed to the PDG 16 value. NODE=M057M;LINKAGE=A

[2] AAIJ 17BI reports also $m(\chi_{c2}) - m(\chi_{c1}) = 45.39 \pm 0.07 \pm 0.03$ MeV. NODE=M057M;LINKAGE=B

[3] Recalculated by ANDREOTTI 05A, using the value of $\psi(2S)$ mass from AULCHENKO 03. NODE=M057M;LINKAGE=NW

[4] Using mass of $\psi(2S) = 3686.0$ MeV. NODE=M057M;LINKAGE=C

[5] $J/\psi(1S)$ mass constrained to 3097 MeV. NODE=M057M;LINKAGE=P

[6] Assuming $\psi(2S)$ mass = 3686 MeV and $J/\psi(1S)$ mass = 3097 MeV. NODE=M057M;LINKAGE=E

[7] Mass value shifted by us by amount appropriate for $\psi(2S)$ mass = 3686 MeV and $J/\psi(1S)$ mass = 3097 MeV. NODE=M057M;LINKAGE=D

[8] From a simultaneous fit to radiative and hadronic decay channels. NODE=M057M;LINKAGE=M

$\chi_{c2}(1P)$ WIDTH

NODE=M057W

VALUE (MeV)		*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.97 ±0.09 OUR FIT Error includes scale factor of 1.1.						
2.00 ±0.11 OUR AVERAGE						
2.10 ±0.20	±0.02	4.0k	AAIJ	17BI	LHCB	$\chi_{c2} \to J/\psi\mu^+\mu^-$
1.915 ±0.188	±0.013		ANDREOTTI	05A	E835	$p\bar{p} \to e^+e^-\gamma$
1.96 ±0.17	±0.07	585	[1] ARMSTRONG	92	E760	$\bar{p}p \to e^+e^-\gamma$
2.6 $^{+1.4}_{-1.0}$		50	BAGLIN	86B	SPEC	$\bar{p}p \to e^+e^-$X
2.8 $^{+2.1}_{-2.0}$			[2] GAISER	86	CBAL	$\psi(2S) \to \gamma$X

[1] Recalculated by ANDREOTTI 05A. NODE=M057W;LINKAGE=AN

[2] Errors correspond to 90% confidence level; authors give only width range. NODE=M057W;LINKAGE=E

$\chi_{c2}(1P)$ DECAY MODES

NODE=M057215;NODE=M057

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

Hadronic decays

NODE=M057;CLUMP=A

Γ_1	$2(\pi^+\pi^-)$	(1.12±0.08) %	S=1.5	DESIG=3
Γ_2	$\rho\rho$			DESIG=43
Γ_3	$\pi^+\pi^-\pi^0\pi^0$	(1.86±0.24) %		DESIG=50
Γ_4	$\rho^+\pi^-\pi^0$ + c.c.	(2.22±0.35) %		DESIG=51
Γ_5	$4\pi^0$	(1.13±0.15) $\times 10^{-3}$		DESIG=62
Γ_6	$K^+K^-\pi^0\pi^0$	(2.1 ±0.4) $\times 10^{-3}$		DESIG=52
Γ_7	$K^+\pi^-\overline{K}^0\pi^0$ + c.c.	(1.40±0.20) %		DESIG=54
Γ_8	$\rho^- K^+\overline{K}^0$ + c.c.	(4.2 ±1.3) $\times 10^{-3}$		DESIG=55
Γ_9	$K^*(892)^0 K^-\pi^+ \to K^-\pi^+ K^0\pi^0$ + c.c.	(3.0 ±0.8) $\times 10^{-3}$		DESIG=60
Γ_{10}	$K^*(892)^0\overline{K}^0\pi^0 \to K^+\pi^-\overline{K}^0\pi^0$ + c.c.	(3.9 ±0.9) $\times 10^{-3}$		DESIG=56
Γ_{11}	$K^*(892)^- K^+\pi^0 \to K^+\pi^-\overline{K}^0\pi^0$ + c.c.	(3.8 ±0.8) $\times 10^{-3}$		DESIG=57
Γ_{12}	$K^*(892)^+\overline{K}^0\pi^- \to K^+\pi^-\overline{K}^0\pi^0$ + c.c.	(3.0 ±0.8) $\times 10^{-3}$		DESIG=58
Γ_{13}	$K^+K^-\eta\pi^0$	(1.3 ±0.4) $\times 10^{-3}$		DESIG=59
Γ_{14}	$K^+K^-\pi^+\pi^-$	(8.4 ±1.1) $\times 10^{-3}$	S=1.2	DESIG=5
Γ_{15}	$K^+K^-\pi^+\pi^-\pi^0$	(1.17±0.13) %		DESIG=67
Γ_{16}	$K^0_S K^\pm\pi^\mp\pi^+\pi^-$	(7.3 ±0.8) $\times 10^{-3}$		DESIG=78
Γ_{17}	$K^+\overline{K}^*(892)^0\pi^-$ + c.c.	(2.1 ±1.0) $\times 10^{-3}$		DESIG=10
Γ_{18}	$K^*(892)^0\overline{K}^*(892)^0$	(2.2 ±0.9) $\times 10^{-3}$	S=2.2	DESIG=21
Γ_{19}	$3(\pi^+\pi^-)$	(1.53±0.19) %	S=3.8	DESIG=4
Γ_{20}	$\phi\phi$	(1.23±0.07) $\times 10^{-3}$	S=1.9	DESIG=16
Γ_{21}	$\phi\phi\eta$	(5.4 ±0.7) $\times 10^{-4}$		DESIG=99
Γ_{22}	$\omega\omega$	(8.6 ±1.0) $\times 10^{-4}$		DESIG=25
Γ_{23}	ωK^+K^-	(7.3 ±0.9) $\times 10^{-4}$		DESIG=79
Γ_{24}	$\omega\phi$	(9.7 ±2.8) $\times 10^{-6}$		DESIG=68
Γ_{25}	$\pi\pi$	(2.26±0.10) $\times 10^{-3}$		DESIG=22
Γ_{26}	$\rho^0\pi^+\pi^-$	(4.0 ±1.7) $\times 10^{-3}$		DESIG=9
Γ_{27}	$\pi^+\pi^-\pi^0$ (non-resonant)	(2.0 ±0.4) $\times 10^{-5}$		DESIG=95
Γ_{28}	$\rho(770)^\pm\pi^\mp$	(6 ±4) $\times 10^{-6}$		DESIG=96
Γ_{29}	$\pi^+\pi^-\eta$	(4.9 ±1.3) $\times 10^{-4}$		DESIG=39
Γ_{30}	$\pi^+\pi^-\eta'$	(5.1 ±1.9) $\times 10^{-4}$		DESIG=42
Γ_{31}	$\eta\eta$	(5.5 ±0.4) $\times 10^{-4}$		DESIG=14
Γ_{32}	K^+K^-	(1.02±0.15) $\times 10^{-3}$	S=2.2	DESIG=2
Γ_{33}	$K^0_S K^0_S$	(5.3 ±0.4) $\times 10^{-4}$		DESIG=15
Γ_{34}	$K^*(892)^\pm K^\mp$	(1.46±0.21) $\times 10^{-4}$		DESIG=87
Γ_{35}	$K^*(892)^0\overline{K}^0$ + c.c.	(1.26±0.27) $\times 10^{-4}$		DESIG=88
Γ_{36}	$K^*_2(1430)^\pm K^\mp$	(1.51±0.13) $\times 10^{-3}$		DESIG=89
Γ_{37}	$K^*_2(1430)^0\overline{K}^0$ + c.c.	(1.26±0.17) $\times 10^{-3}$		DESIG=90
Γ_{38}	$K^*_3(1780)^\pm K^\mp$	(5.2 ±0.8) $\times 10^{-4}$		DESIG=91
Γ_{39}	$K^*_3(1780)^0\overline{K}^0$ + c.c.	(5.7 ±2.1) $\times 10^{-4}$		DESIG=92
Γ_{40}	$a_2(1320)^0\pi^0$	(1.31±0.35) $\times 10^{-3}$		DESIG=93
Γ_{41}	$a_2(1320)^\pm\pi^\mp$	(1.8 ±0.6) $\times 10^{-3}$		DESIG=94
Γ_{42}	$\overline{K}^0 K^+\pi^-$ + c.c.	(1.30±0.19) $\times 10^{-3}$		DESIG=17
Γ_{43}	$K^+K^-\pi^0$	(3.1 ±0.8) $\times 10^{-4}$		DESIG=36
Γ_{44}	$K^+K^-\eta$	$< 3.3 \times 10^{-4}$	CL=90%	DESIG=40
Γ_{45}	$K^+K^-\eta'(958)$	(1.94±0.34) $\times 10^{-4}$		DESIG=82
Γ_{46}	$\eta\eta'$	(2.2 ±0.5) $\times 10^{-5}$		DESIG=34
Γ_{47}	$\eta'\eta'$	(4.6 ±0.6) $\times 10^{-5}$		DESIG=35
Γ_{48}	$\pi^+\pi^- K^0_S K^0_S$	(2.2 ±0.5) $\times 10^{-3}$		DESIG=29
Γ_{49}	$K^+K^- K^0_S K^0_S$	$< 4 \times 10^{-4}$	CL=90%	DESIG=30
Γ_{50}	$K^0_S K^0_S K^0_S K^0_S$	(1.15±0.18) $\times 10^{-4}$		DESIG=97
Γ_{51}	$K^+K^-K^+K^-$	(1.67±0.22) $\times 10^{-3}$	S=1.1	DESIG=24
Γ_{52}	$K^+K^-\phi$	(1.44±0.30) $\times 10^{-3}$		DESIG=32
Γ_{53}	$\overline{K}^0 K^+\pi^-\phi$ + c.c.	(4.8 ±0.7) $\times 10^{-3}$		DESIG=83
Γ_{54}	$K^+K^-\pi^0\phi$	(2.7 ±0.5) $\times 10^{-3}$		DESIG=84

Γ_{55}	$3(K^+K^-)$	(7.2 ±1.5)	$\times 10^{-6}$		DESIG=109
Γ_{56}	$\phi\pi^+\pi^-\pi^0$	(9.3 ±1.2)	$\times 10^{-4}$		DESIG=80
Γ_{57}	$p\overline{p}$	(7.3 ±0.4)	$\times 10^{-5}$	S=1.1	DESIG=11
Γ_{58}	$p\overline{p}\pi^0$	(4.7 ±0.4)	$\times 10^{-4}$		DESIG=37
Γ_{59}	$p\overline{p}\eta$	(1.77±0.25)	$\times 10^{-4}$		DESIG=41
Γ_{60}	$p\overline{p}\omega$	(3.7 ±0.4)	$\times 10^{-4}$		DESIG=61
Γ_{61}	$p\overline{p}\phi$	(2.8 ±0.9)	$\times 10^{-5}$		DESIG=66
Γ_{62}	$p\overline{p}\pi^+\pi^-$	(1.32±0.34)	$\times 10^{-3}$		DESIG=8
Γ_{63}	$p\overline{p}\pi^0\pi^0$	(8.0 ±2.4)	$\times 10^{-4}$		DESIG=53
Γ_{64}	$p\overline{p}K^+K^-$ (non-resonant)	(1.94±0.32)	$\times 10^{-4}$		DESIG=63
Γ_{65}	$p\overline{p}K^0_SK^0_S$	< 7.9	$\times 10^{-4}$	CL=90%	DESIG=28
Γ_{66}	$p\overline{p}K^0_SK^-\pi^+$ + c.c.	(5.7 ±0.6)	$\times 10^{-5}$		DESIG=110
Γ_{67}	$p\overline{n}\pi^-$	(8.7 ±1.0)	$\times 10^{-4}$		DESIG=31
Γ_{68}	$\overline{p}n\pi^+$	(9.1 ±0.8)	$\times 10^{-4}$		DESIG=75
Γ_{69}	$p\overline{n}\pi^-\pi^0$	(2.21±0.18)	$\times 10^{-3}$		DESIG=76
Γ_{70}	$\overline{p}n\pi^+\pi^0$	(2.14±0.19)	$\times 10^{-3}$		DESIG=77
Γ_{71}	$\Lambda\overline{\Lambda}$	(1.86±0.16)	$\times 10^{-4}$		DESIG=19
Γ_{72}	$\Lambda\overline{\Lambda}\pi^+\pi^-$	(1.27±0.16)	$\times 10^{-3}$		DESIG=27
Γ_{73}	$\Lambda\overline{\Lambda}\pi^+\pi^-$ (non-resonant)	(6.7 ±1.5)	$\times 10^{-4}$		DESIG=70
Γ_{74}	$\Sigma(1385)^+\overline{\Lambda}\pi^-$ + c.c.	< 4	$\times 10^{-4}$	CL=90%	DESIG=71
Γ_{75}	$\Sigma(1385)^-\overline{\Lambda}\pi^+$ + c.c.	< 6	$\times 10^{-4}$	CL=90%	DESIG=72
Γ_{76}	$\Lambda\overline{\Lambda}\eta$	(1.07±0.26)	$\times 10^{-4}$		DESIG=105
Γ_{77}	$\Lambda\overline{\Lambda}\omega$	(1.42±0.22)	$\times 10^{-4}$		DESIG=108
Γ_{78}	$\Lambda\overline{\Lambda}\phi$	(7.2 ±0.9)	$\times 10^{-5}$		DESIG=107
Γ_{79}	$K^+\overline{p}\Lambda$ + c.c.	(7.9 ±0.5)	$\times 10^{-4}$		DESIG=38
Γ_{80}	$nK^0_S\overline{\Lambda}$ + c.c.	(3.63±0.29)	$\times 10^{-4}$		DESIG=104
Γ_{81}	$K^*(892)^+\overline{p}\Lambda$ + c.c.	(8.3 ±1.2)	$\times 10^{-4}$		DESIG=101
Γ_{82}	$K^+\overline{p}\Lambda(1520)$ + c.c.	(2.9 ±0.7)	$\times 10^{-4}$		DESIG=64
Γ_{83}	$\overline{p}\Lambda(1520)K^0_S\pi^+$ + c.c.	(4.1 ±1.0)	$\times 10^{-5}$		DESIG=111
Γ_{84}	$\Lambda(1520)\overline{\Lambda}(1520)$	(4.7 ±1.5)	$\times 10^{-4}$		DESIG=65
Γ_{85}	$\Sigma^0\overline{\Sigma}^0$	(3.7 ±0.6)	$\times 10^{-5}$		DESIG=47
Γ_{86}	$\Sigma^+\overline{p}K^0_S$ + c.c.	(8.4 ±1.0)	$\times 10^{-5}$		DESIG=100
Γ_{87}	$\Sigma^0\overline{p}K^+$ + c.c.	(9.3 ±0.8)	$\times 10^{-5}$		DESIG=103
Γ_{88}	$\Sigma^+\overline{\Sigma}^-$	(3.4 ±0.7)	$\times 10^{-5}$		DESIG=48
Γ_{89}	$\Sigma^+\overline{\Sigma}^-\eta$	(5.5 ±1.3)	$\times 10^{-5}$		DESIG=112
Γ_{90}	$\Sigma^-\overline{\Sigma}^+$	(4.5 ±1.8)	$\times 10^{-5}$		DESIG=102
Γ_{91}	$\Sigma(1385)^+\overline{\Sigma}(1385)^-$	< 1.6	$\times 10^{-4}$	CL=90%	DESIG=73
Γ_{92}	$\Sigma(1385)^-\overline{\Sigma}(1385)^+$	< 8	$\times 10^{-5}$	CL=90%	DESIG=74
Γ_{93}	$K^-\Lambda\overline{\Xi}^+$ + c.c.	(1.79±0.32)	$\times 10^{-4}$		DESIG=85
Γ_{94}	$\Xi^0\overline{\Xi}^0$	(1.86±0.22)	$\times 10^{-4}$		DESIG=49
Γ_{95}	$\Xi^-\overline{\Xi}^+$	(1.46±0.12)	$\times 10^{-4}$		DESIG=26
Γ_{96}	$\Omega^-\overline{\Omega}^+$	(4.52±0.30)	$\times 10^{-5}$		DESIG=106
Γ_{97}	$J/\psi(1S)\pi^+\pi^-\pi^0$	< 1.5	%	CL=90%	DESIG=12
Γ_{98}	$\pi^0\eta_c$	< 3.2	$\times 10^{-3}$	CL=90%	DESIG=81
Γ_{99}	$\eta_c(1S)\pi^+\pi^-$	< 5.4	$\times 10^{-3}$	CL=90%	DESIG=69

Radiative decays

NODE=M057;CLUMP=B

Γ_{100}	$\gamma J/\psi(1S)$	(19.5 ±0.7)	%	S=1.5	DESIG=6
Γ_{101}	$\gamma\rho^0$	< 1.9	$\times 10^{-5}$	CL=90%	DESIG=44
Γ_{102}	$\gamma\omega$	< 6	$\times 10^{-6}$	CL=90%	DESIG=45
Γ_{103}	$\gamma\phi$	< 8	$\times 10^{-6}$	CL=90%	DESIG=46
Γ_{104}	$\gamma\gamma$	(2.91±0.12)	$\times 10^{-4}$	S=1.3	DESIG=7
Γ_{105}	$e^+e^-J/\psi(1S)$	(2.20±0.15)	$\times 10^{-3}$		DESIG=86
Γ_{106}	$\mu^+\mu^-J/\psi(1S)$	(2.07±0.34)	$\times 10^{-4}$		DESIG=98

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, 25 combinations of partial widths obtained from integrated cross section, and 88 branching ratios uses 255 measurements to determine 49 parameters. The overall fit has a $\chi^2 = 393.1$ for 206 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, $x_i \equiv \Gamma_i/\Gamma_{\text{total}}$.

x_{14}	5									
x_{17}	1	26								
x_{18}	2	2	0							
x_{20}	4	5	1	1						
x_{25}	16	4	1	2	6					
x_{26}	13	1	0	0	1	2				
x_{31}	8	2	0	1	3	15	1			
x_{32}	4	3	1	1	2	7	1	3		
x_{33}	9	3	1	1	4	16	1	8	4	
x_{42}	5	1	0	1	2	8	1	4	2	5
x_{51}	5	3	1	1	3	8	1	4	3	5
x_{57}	8	6	1	2	5	12	2	6	4	7
x_{71}	8	2	0	1	3	15	1	8	3	8
x_{100}	16	11	3	3	9	25	3	13	8	15
x_{104}	6	−10	−3	−2	−4	18	0	11	0	8
Γ	−19	−17	−4	−5	−13	−26	−4	−13	−10	−16
	x_1	x_{14}	x_{17}	x_{18}	x_{20}	x_{25}	x_{26}	x_{31}	x_{32}	x_{33}

x_{51}	2					
x_{57}	4	5				
x_{71}	4	4	6			
x_{100}	7	10	−12	12		
x_{104}	5	2	26	10	12	
Γ	−8	−11	−42	−13	−47	−48
	x_{42}	x_{51}	x_{57}	x_{71}	x_{100}	x_{104}

$\chi_{c2}(1P)$ PARTIAL WIDTHS

NODE=M057220

$\chi_{c2}(1P)$ Γ(i)$\Gamma(\gamma J/\psi(1S))/\Gamma$(total)

NODE=M057223

$\Gamma(p\overline{p}) \times \Gamma(\gamma J/\psi(1S))/\Gamma_{\text{total}}$ $\Gamma_{57}\Gamma_{100}/\Gamma$

NODE=M057G1
NODE=M057G1

VALUE (eV)		DOCUMENT ID		TECN	COMMENT
27.9±1.3 OUR FIT Error includes scale factor of 1.1.					
27.5±1.5 OUR AVERAGE					
27.0±1.5±1.1	[1]	ANDREOTTI	05A	E835	$p\overline{p} \to e^+e^-\gamma$
27.7±1.5±2.0	[1,2]	ARMSTRONG	92	E760	$\overline{p}p \to e^+e^-\gamma$
36 ±8	[1]	BAGLIN	86B	SPEC	$\overline{p}p \to e^+e^-$X

[1] Calculated by us using B($J/\psi(1S) \to e^+e^-$) = 0.0593 ± 0.0010.
[2] Recalculated by ANDREOTTI 05A.

NODE=M057G;LINKAGE=7A
NODE=M057G;LINKAGE=AN

$\Gamma(\gamma\gamma) \times \Gamma(\gamma J/\psi(1S))/\Gamma_{\text{total}}$ $\Gamma_{104}\Gamma_{100}/\Gamma$

NODE=M057G2
NODE=M057G2

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
111 ± 5 OUR FIT Error includes scale factor of 1.3.					
123 ± 6 OUR AVERAGE					
124.1± 2.5± 5.9	4960	[1] SEINO	23	BELL	$e^+e^- \to e^+e^-\chi_{c2}$
111 ± 12 ± 9	147	[2] DOBBS	06	CLE3	$e^+e^- \to e^+e^-\chi_{c2}$
139 ± 55 ± 21		[2,3] ACCIARRI	99E	L3	$e^+e^- \to e^+e^-\chi_{c2}$

242 ± 65 ± 51		[2,4] ACKER..,K...	98	OPAL	$e^+e^- \to e^+e^-\chi_{c2}$	
150 ± 42 ± 36		[2,5] DOMINICK	94	CLE2	$e^+e^- \to e^+e^-\chi_{c2}$	
470 ±240 ±120		[2,6] BAUER	93	TPC	$e^+e^- \to e^+e^-\chi_{c2}$	

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

114 ± 11 ± 9	136	[2,7] ABE	02T	BELL	$e^+e^- \to e^+e^-\chi_{c2}$	

[1] Calculated from the measured $\Gamma_{\gamma\gamma} \times B(\chi_{c2}(1S) \to \gamma J/\psi(1S)) \times B(J/\psi(1S) \to \ell^+\ell^-) = 14.8 \pm 0.3 \pm 0.7$ eV, using $B(J/\psi(1S) \to \ell^+\ell^-) = 11.93 \pm 0.05\%$. NODE=M057G2;LINKAGE=A

[2] Calculated by us using $B(J/\psi \to \ell^+\ell^-) = 0.1187 \pm 0.0008$. NODE=M057G;LINKAGE=LL

[3] The value for $\Gamma(\chi_{c2} \to \gamma\gamma)$ reported in ACCIARRI 99E is derived using $B(\chi_{c2} \to \gamma J/\psi(1S)) \times B(J/\psi(1S) \to \ell^+\ell^-) = 0.0162 \pm 0.0014$. NODE=M057G;LINKAGE=J4

[4] The value for $\Gamma(\chi_{c2} \to \gamma\gamma)$ reported in ACKERSTAFF,K 98 is derived using $B(\chi_{c2} \to \gamma J/\psi(1S)) = 0.135 \pm 0.011$ and $B(J/\psi(1S) \to \ell^+\ell^-) = 0.1203 \pm 0.0038$. NODE=M057G;LINKAGE=J5

[5] The value for $\Gamma(\chi_{c2} \to \gamma\gamma)$ reported in DOMINICK 94 is derived using $B(\chi_{c2} \to \gamma J/\psi(1S)) = 0.135 \pm 0.011$, $B(J/\psi(1S) \to e^+e^-) = 0.0627 \pm 0.0020$, and $B(J/\psi(1S) \to \mu^+\mu^-) = 0.0597 \pm 0.0025$. NODE=M057G;LINKAGE=J6

[6] The value for $\Gamma(\chi_{c2} \to \gamma\gamma)$ reported in BAUER 93 is derived using $B(\chi_{c2} \to \gamma J/\psi(1S)) = 0.135 \pm 0.011$, $B(J/\psi(1S) \to e^+e^-) = 0.0627 \pm 0.0020$, and $B(J/\psi(1S) \to \mu^+\mu^-) = 0.0597 \pm 0.0025$. NODE=M057G;LINKAGE=J7

[7] All systematic errors added in quadrature. Superseded by SEINO 23. NODE=M057G;LINKAGE=GT

$\chi_{c2}(1P)$ Γ(i)Γ(γγ)/Γ(total)

NODE=M057224

$\Gamma(2(\pi^+\pi^-)) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_1\Gamma_{104}/\Gamma$

NODE=M057G3
NODE=M057G3

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
6.4 ±0.5 OUR FIT	Error includes scale factor of 1.5.			
5.2 ±0.7 OUR AVERAGE				
5.01±0.44±0.55	1597±138	UEHARA	08 BELL	$\gamma\gamma \to \chi_{c2} \to 2(\pi^+\pi^-)$
6.4 ±1.8 ±0.8		EISENSTEIN	01 CLE2	$e^+e^- \to e^+e^-\chi_{c2}$

$\Gamma(\rho\rho) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_2\Gamma_{104}/\Gamma$

NODE=M057G08
NODE=M057G08

VALUE (eV)	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<7.8	90	<598	UEHARA	08 BELL	$\gamma\gamma \to \chi_{c2} \to 2(\pi^+\pi^-)$

$\Gamma(K^+K^-\pi^+\pi^-) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{14}\Gamma_{104}/\Gamma$

NODE=M057G09
NODE=M057G09

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
4.8 ±0.6 OUR FIT	Error includes scale factor of 1.2.			
4.42±0.42±0.53	780 ± 74	UEHARA	08 BELL	$\gamma\gamma \to \chi_{c2} \to K^+K^-\pi^+\pi^-$

$\Gamma(K^+K^-\pi^+\pi^-\pi^0) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{15}\Gamma_{104}/\Gamma$

NODE=M057G02
NODE=M057G02

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
6.5±0.9±1.5	1250	DEL-AMO-SA..11M	BABR	$\gamma\gamma \to K^+K^-\pi^+\pi^-\pi^0$

$\Gamma(K^*(892)^0\overline{K}^*(892)^0) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{18}\Gamma_{104}/\Gamma$

NODE=M057G10
NODE=M057G10

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
1.3±0.5 OUR FIT	Error includes scale factor of 2.3.			
0.8±0.17±0.27	151 ± 30	UEHARA	08 BELL	$\gamma\gamma \to \chi_{c2} \to K^+K^-\pi^+\pi^-$

$\Gamma(\phi\phi) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{20}\Gamma_{104}/\Gamma$

NODE=M057G12
NODE=M057G12

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
0.70±0.05 OUR FIT	Error includes scale factor of 1.5.			
0.62±0.07±0.05	89 ± 11	[1] LIU	12B BELL	$\gamma\gamma \to 2(K^+K^-)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.58±0.18±0.16	26.5±8.1	UEHARA	08 BELL	$\gamma\gamma \to \chi_{c2} \to 2(K^+K^-)$

[1] Supersedes UEHARA 08. Using $B(\phi \to K^+K^-) = (48.9 \pm 0.5)\%$. NODE=M057G12;LINKAGE=LI

$\Gamma(\omega\omega) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_{22}\Gamma_{104}/\Gamma$

NODE=M057G03
NODE=M057G03

VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.64	90	[1] LIU	12B BELL	$\gamma\gamma \to 2(\pi^+\pi^-\pi^0)$

[1] Using $B(\omega \to \pi^+\pi^-\pi^0) = (89.2 \pm 0.7)\%$. NODE=M057G03;LINKAGE=LI

$\Gamma(\omega\phi) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ $\Gamma_{24}\Gamma_{104}/\Gamma$

NODE=M057G04
NODE=M057G04

VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.04	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)%.

NODE=M057G04;LINKAGE=LI

$\Gamma(\pi\pi) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ $\Gamma_{25}\Gamma_{104}/\Gamma$

NODE=M057G4
NODE=M057G4

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
1.29±0.08 OUR FIT	Error includes scale factor of 1.2.			
1.18±0.25 OUR AVERAGE				
1.44±0.54±0.47	34 ± 13	[1] UEHARA 09	BELL	10.6 $e^+e^- \to e^+e^-\pi^0\pi^0$
1.14±0.21±0.17	54 ± 10	[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.

NODE=M057G4;LINKAGE=UE

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

NODE=M057G;LINKAGE=NA

$\Gamma(\rho^0\pi^+\pi^-) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ $\Gamma_{26}\Gamma_{104}/\Gamma$

NODE=M057G07
NODE=M057G07

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
2.3±0.9 OUR FIT				
3.2±1.9±0.5	986 ± 578	UEHARA 08	BELL	$\gamma\gamma \to \chi_{c2} \to 2(\pi^+\pi^-)$

$\Gamma(\eta\eta) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ $\Gamma_{31}\Gamma_{104}/\Gamma$

NODE=M057G13
NODE=M057G13

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
0.53±0.22±0.09	8	[1] UEHARA 10A	BELL	10.6 $e^+e^- \to e^+e^-\eta\eta$

[1] Interference with the continuum not included.

NODE=M057G13;LINKAGE=UE

$\Gamma(K^+K^-) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ $\Gamma_{32}\Gamma_{104}/\Gamma$

NODE=M057G5
NODE=M057G5

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
0.58±0.08 OUR FIT	Error includes scale factor of 2.1.			
0.44±0.11±0.07	33 ± 8	NAKAZAWA 05	BELL	10.6 $e^+e^- \to e^+e^-K^+K^-$

$\Gamma(K^0_S K^0_S) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ $\Gamma_{33}\Gamma_{104}/\Gamma$

NODE=M057G6
NODE=M057G6

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
0.303±0.025 OUR FIT				
0.27 $^{+0.07}_{-0.06}$ ±0.03	53	[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. • • •				
0.31 ±0.05 ±0.03	38 ± 7	CHEN 07B	BELL	$e^+e^- \to e^+e^-\chi_{c2}$

[1] Supersedes CHEN 07B.

NODE=M057G6;LINKAGE=UE

$\Gamma(\overline{K}^0K^+\pi^- + \text{c.c.}) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ $\Gamma_{42}\Gamma_{104}/\Gamma$

NODE=M057G01
NODE=M057G01

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
0.74±0.11 OUR FIT				
1.20±0.33±0.13	126	[1] DEL-AMO-SA..11M	BABR	$\gamma\gamma \to K^0_S K^\pm\pi^\mp$

[1] We have multiplied $\overline{K}K\pi$ by 2/3 to obtain $\overline{K}^0K^+\pi^-$ + c.c.

NODE=M057G01;LINKAGE=DE

$\Gamma(K^+K^-K^+K^-) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ $\Gamma_{51}\Gamma_{104}/\Gamma$

NODE=M057G11
NODE=M057G11

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
0.95±0.13 OUR FIT	Error includes scale factor of 1.1.			
1.10±0.21±0.15	126 ± 24	UEHARA 08	BELL	$\gamma\gamma \to \chi_{c2} \to 2(K^+K^-)$

$\Gamma(\eta_c(1S)\pi^+\pi^-) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ $\Gamma_{99}\Gamma_{104}/\Gamma$

NODE=M057G05
NODE=M057G05

VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
<15.7	90	LEES 12AE	BABR	$e^+e^- \to e^+e^-\pi^+\pi^-\eta_c$

$\chi_{c2}(1P)$ BRANCHING RATIOS

NODE=M057225

HADRONIC DECAYS

NODE=M057305

$\Gamma(\rho^0\pi^+\pi^-)/\Gamma(2(\pi^+\pi^-))$ Γ_{26}/Γ_1

NODE=M057R38
NODE=M057R38

VALUE	DOCUMENT ID	TECN	COMMENT
0.35±0.15 OUR FIT			
0.31±0.17	TANENBAUM 78	MRK1	$\psi(2S) \to \gamma\chi_{c2}$

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

NODE=M057P07
NODE=M057P07

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.17\pm0.06\pm0.03$	1042k	[1] ABLIKIM	24BT	BES3	$\psi(2S) \to \gamma\chi_{c2}$

[1] ABLIKIM 24BT reports $1.153 \pm 0.001 \pm 0.063$ % from a measurement of $[\Gamma(\chi_{c2}(1P) \to 2(\pi^+\pi^-))/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.52 \pm 0.20) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057P07;LINKAGE=A

$\Gamma(\pi^+\pi^-\pi^0\pi^0)/\Gamma_{total}$ Γ_3/Γ

NODE=M057R46
NODE=M057R46

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
$1.86\pm0.23\pm0.05$	903.5	[1] HE	08B	CLEO	$e^+e^- \to \gamma h^+h^-h^0h^0$

[1] HE 08B reports $1.87 \pm 0.07 \pm 0.22 \pm 0.13$ % from a measurement of $[\Gamma(\chi_{c2}(1P) \to \pi^+\pi^-\pi^0\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R46;LINKAGE=HE

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

NODE=M057R47
NODE=M057R47

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
$2.22\pm0.34\pm0.05$	1031.9	[1,2] HE	08B	CLEO	$e^+e^- \to \gamma h^+h^-h^0h^0$

[1] HE 08B reports $2.23 \pm 0.11 \pm 0.32 \pm 0.16$ % from a measurement of $[\Gamma(\chi_{c2}(1P) \to \rho^+\pi^-\pi^0 + \text{ c.c.})/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R47;LINKAGE=HE

[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.

NODE=M057R47;LINKAGE=OC

$\Gamma(4\pi^0)/\Gamma_{total}$ Γ_5/Γ

NODE=M057R58
NODE=M057R58

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$1.13\pm0.15\pm0.03$	1164	[1] ABLIKIM	11A	BES3	$e^+e^- \to \psi(2S) \to \gamma\chi_{c2}$

[1] ABLIKIM 11A reports $(1.21 \pm 0.05 \pm 0.16) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to 4\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.74 \pm 0.35) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R58;LINKAGE=AB

$\Gamma(K^+K^-\pi^0\pi^0)/\Gamma_{total}$ Γ_6/Γ

NODE=M057R48
NODE=M057R48

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
$0.21\pm0.04\pm0.01$	76.9	[1] HE	08B	CLEO	$e^+e^- \to \gamma h^+h^-h^0h^0$

[1] HE 08B reports $0.21 \pm 0.03 \pm 0.03 \pm 0.01$ % from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^+K^-\pi^0\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R48;LINKAGE=HE

$\Gamma(K^+\pi^-\overline{K}^0\pi^0 + \text{c.c.})/\Gamma_{total}$ Γ_7/Γ

NODE=M057R50
NODE=M057R50

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
$1.40\pm0.20\pm0.03$	211.6	[1] HE	08B	CLEO	$e^+e^- \to \gamma h^+h^-h^0h^0$

[1] HE 08B reports $1.41 \pm 0.11 \pm 0.16 \pm 0.10$ % from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^+\pi^-\overline{K}^0\pi^0 + \text{ c.c.})/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R50;LINKAGE=HE

$\Gamma(\rho^-K^+\overline{K}^0 + \text{c.c.})/\Gamma_{total}$ Γ_8/Γ

NODE=M057R51
NODE=M057R51

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
$0.42\pm0.13\pm0.01$	62.9	[1] HE	08B	CLEO	$e^+e^- \to \gamma h^+h^-h^0h^0$

[1] HE 08B reports $0.42 \pm 0.11 \pm 0.06 \pm 0.03$ % from a measurement of $[\Gamma(\chi_{c2}(1P) \to \rho^-K^+\overline{K}^0 + \text{ c.c.})/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R51;LINKAGE=HE

$\Gamma(K^*(892)^0 K^- \pi^+ \to K^- \pi^+ K^0 \pi^0 + \text{c.c.})/\Gamma_{\text{total}}$ Γ_9/Γ

NODE=M057R57
NODE=M057R57

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.30±0.08±0.01	38.7	[1] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[1] HE 08B reports 0.30 ± 0.07 ± 0.04 ± 0.02 % from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^*(892)^0 K^- \pi^+ \to K^- \pi^+ K^0 \pi^0 + \text{c.c.})/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R57;LINKAGE=HE

$\Gamma(K^*(892)^0 \overline{K}^0 \pi^0 \to K^+ \pi^- \overline{K}^0 \pi^0 + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{10}/Γ

NODE=M057R52
NODE=M057R52

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.39±0.09±0.01	63.0	[1] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[1] HE 08B reports 0.39 ± 0.07 ± 0.05 ± 0.03 % from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^*(892)^0 \overline{K}^0 \pi^0 \to K^+ \pi^- \overline{K}^0 \pi^0 + \text{c.c.})/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R52;LINKAGE=HE

$\Gamma(K^*(892)^- K^+ \pi^0 \to K^+ \pi^- \overline{K}^0 \pi^0 + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{11}/Γ

NODE=M057R53
NODE=M057R53

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.38±0.08±0.01	51.1	[1] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[1] HE 08B reports 0.38 ± 0.07 ± 0.04 ± 0.03 % from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^*(892)^- K^+ \pi^0 \to K^+ \pi^- \overline{K}^0 \pi^0 + \text{c.c.})/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R53;LINKAGE=HE

$\Gamma(K^*(892)^+ \overline{K}^0 \pi^- \to K^+ \pi^- \overline{K}^0 \pi^0 + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{12}/Γ

NODE=M057R54
NODE=M057R54

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.30±0.08±0.01	39.3	[1] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[1] HE 08B reports 0.30 ± 0.07 ± 0.04 ± 0.02 % from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^*(892)^+ \overline{K}^0 \pi^- \to K^+ \pi^- \overline{K}^0 \pi^0 + \text{c.c.})/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R54;LINKAGE=HE

$\Gamma(K^+ K^- \eta\pi^0)/\Gamma_{\text{total}}$ Γ_{13}/Γ

NODE=M057R55
NODE=M057R55

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.129±0.045±0.003	22.9	[1] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[1] HE 08B reports 0.13 ± 0.04 ± 0.02 ± 0.01 % from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^+ K^- \eta\pi^0)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R55;LINKAGE=HE

$\Gamma(K^+ K^- \pi^+ \pi^- \pi^0)/\Gamma_{\text{total}}$ Γ_{15}/Γ

NODE=M057R00
NODE=M057R00

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
11.69±0.13±1.31	11k	[1] ABLIKIM	13B	BES3	$e^+e^- \to \psi(2S) \to \gamma\chi_{c2}$

[1] Using 1.06×10^8 $\psi(2S)$ mesons and $B(\psi(2S) \to \chi_{c2}\gamma) = (8.72 \pm 0.34)\%$.

NODE=M057R00;LINKAGE=A

$\Gamma(K^0_S K^\pm \pi^\mp \pi^+ \pi^-)/\Gamma_{\text{total}}$ Γ_{16}/Γ

NODE=M057R73
NODE=M057R73

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
7.30±0.11±0.75	4.5k	[1] ABLIKIM	13B	BES3	$e^+e^- \to \psi(2S) \to \gamma\chi_{c2}$

[1] Using 1.06×10^8 $\psi(2S)$ mesons and $B(\psi(2S) \to \chi_{c2}\gamma) = (8.72 \pm 0.34)\%$.

NODE=M057R73;LINKAGE=A

$\Gamma(K^+ \overline{K}^*(892)^0 \pi^- + \text{c.c.})/\Gamma(K^+ K^- \pi^+ \pi^-)$ Γ_{17}/Γ_{14}

NODE=M057R39
NODE=M057R39

VALUE	DOCUMENT ID		TECN	COMMENT
0.25±0.13 OUR FIT				
0.25±0.13	TANENBAUM 78		MRK1	$\psi(2S) \to \gamma\chi_{c2}$

$\Gamma(3(\pi^+\pi^-))/\Gamma_{total}$ Γ_{19}/Γ

NODE=M057R4
NODE=M057R4

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
15.3±1.9 OUR AVERAGE	Error includes scale factor of 3.8.				
15.9±0.4±0.4	112k	[1] ABLIKIM	22Q	BES3	$\psi(2S) \to \gamma 3(\pi^+\pi^-)$
8.6±0.9±1.6		[2] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c2}$
8.7±5.9±0.4		[2] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c2}$

[1] ABLIKIM 22Q reports $(1.565 \pm 0.005 \pm 0.048) \times 10^{-2}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to 3(\pi^+\pi^-))/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.52 \pm 0.20) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R4;LINKAGE=A

[2] Rescaled by us using $B(\psi(2S) \to \gamma\chi_{c2}) = (8.3 \pm 0.4)\%$ and $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (32.6 \pm 0.5)\%$. Multiplied by a factor of 2 to convert from $K^0_S K^+\pi^-$ to $K^0 K^+\pi^-$ decay.

NODE=M057R;LINKAGE=X3

$\Gamma(\phi\phi)/\Gamma_{total}$ Γ_{20}/Γ

NODE=M057R20
NODE=M057R20

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.23 ±0.07 OUR FIT	Error includes scale factor of 1.9.				
1.267±0.028±0.033	4247	[1] ABLIKIM	23N	BES3	$\psi(2S) \to \gamma$ hadrons

[1] Measured using $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.75 \pm 0.24) \times 10^{-2}$ and $B(\phi \to K^+K^-) = (49.2 \pm 0.5) \times 10^{-2}$ from PDG 22.

NODE=M057R20;LINKAGE=A

$\Gamma(\phi\phi\eta)/\Gamma_{total}$ Γ_{21}/Γ

NODE=M057R97
NODE=M057R97

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
5.4±0.6±0.1	143.6	[1] ABLIKIM	20B	BES3	$\psi(2S) \to \gamma\phi\phi\eta$

[1] ABLIKIM 20B reports $(5.33 \pm 0.52 \pm 0.39) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \phi\phi\eta)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.52 \pm 0.20) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R97;LINKAGE=A

$\Gamma(\omega\omega)/\Gamma_{total}$ Γ_{22}/Γ

NODE=M057R28
NODE=M057R28

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.86±0.10 OUR AVERAGE					
0.83±0.10±0.02	762	[1] ABLIKIM	11K	BES3	$\psi(2S) \to \gamma$ hadrons
1.76±0.58±0.04	27.7±7.4	[2] ABLIKIM	05N	BES2	$\psi(2S) \to \gamma\chi_{c2} \to \gamma 6\pi$

[1] ABLIKIM 11K reports $(8.9 \pm 0.3 \pm 1.1) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \omega\omega)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.74 \pm 0.35) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R28;LINKAGE=AL

[2] ABLIKIM 05N reports $[\Gamma(\chi_{c2}(1P) \to \omega\omega)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))] = (0.165 \pm 0.044 \pm 0.032) \times 10^{-3}$ which we divide by our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R28;LINKAGE=AB

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

NODE=M057R74
NODE=M057R74

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.73±0.04±0.08	512	[1] ABLIKIM	13B	BES3	$e^+e^- \to \psi(2S) \to \gamma\chi_{c2}$

[1] Using 1.06×10^8 $\psi(2S)$ mesons and $B(\psi(2S) \to \chi_{c2}\gamma) = (8.72 \pm 0.34)\%$.

NODE=M057R74;LINKAGE=A

$\Gamma(\omega\phi)/\Gamma_{total}$ Γ_{24}/Γ

NODE=M057R63
NODE=M057R63

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
9.7±2.8±0.2		33	[1] ABLIKIM	19J	BES3	$\psi(2S) \to \gamma$ hadrons
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<19	90		[2,3] ABLIKIM	11K	BES3	$\psi(2S) \to \gamma$ hadrons

[1] ABLIKIM 19J reports $[\Gamma(\chi_{c2}(1P) \to \omega\phi)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))] = (0.91 \pm 0.23 \pm 0.12) \times 10^{-6}$ which we divide by our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R63;LINKAGE=A

[2] ABLIKIM 11K reports $< 2 \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \omega\phi)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.74 \pm 0.35) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$.

NODE=M057R63;LINKAGE=AL

[3] Superseded by ABLIKIM 19J.

NODE=M057R63;LINKAGE=B

$\Gamma(\pi^+\pi^-\pi^0(\text{non-resonant}))/\Gamma_{\text{total}}$ Γ_{27}/Γ

NODE=M057R84
NODE=M057R84

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
2.04±0.43±0.05	64	[1] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma\pi^+\pi^-\pi^0$

OCCUR=2

[1] ABLIKIM 17AG reports $(2.1 \pm 0.4 \pm 0.2) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \pi^+\pi^-\pi^0(\text{non-resonant}))/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R84;LINKAGE=B

$\Gamma(\rho(770)^\pm\pi^\mp)/\Gamma_{\text{total}}$ Γ_{28}/Γ

NODE=M057R85
NODE=M057R85

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
0.62±0.38±0.02	15	[1] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma\pi^+\pi^-\pi^0$

[1] ABLIKIM 17AG reports $(0.64 \pm 0.39 \pm 0.07) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \rho(770)^\pm\pi^\mp)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R85;LINKAGE=A

$\Gamma(\pi^+\pi^-\eta)/\Gamma_{\text{total}}$ Γ_{29}/Γ

NODE=M057R08
NODE=M057R08

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
0.49±0.13±0.01		[1] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.5	90	[2] ABLIKIM	06R	BES2	$\psi(2S) \to \gamma\chi_{c2}$

[1] ATHAR 07 reports $(0.49 \pm 0.12 \pm 0.06) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \pi^+\pi^-\eta)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R08;LINKAGE=AT

[2] ABLIKIM 06R reports $< 1.7 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \pi^+\pi^-\eta)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.1 \pm 0.4) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$.

NODE=M057R08;LINKAGE=AB

$\Gamma(\pi^+\pi^-\eta')/\Gamma_{\text{total}}$ Γ_{30}/Γ

NODE=M057R35
NODE=M057R35

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.51±0.19±0.01	[1] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

[1] ATHAR 07 reports $(0.51 \pm 0.18 \pm 0.06) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \pi^+\pi^-\eta')/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R35;LINKAGE=AT

$\Gamma(K^*(892)^\pm K^\mp)/\Gamma_{\text{total}}$ Γ_{34}/Γ

NODE=M057R86
NODE=M057R86

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
1.46±0.21±0.04	[1] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma K\overline{K}\pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.75 \pm 0.27 \pm 0.04$	[2] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma K^+ K^- \pi^0$
$1.36 \pm 0.27 \pm 0.03$	[3] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma K^0_S K^\pm \pi^\mp$

OCCUR=2
OCCUR=3

[1] ABLIKIM 17AG reports $(1.5 \pm 0.1 \pm 0.2) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^*(892)^\pm K^\mp)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R86;LINKAGE=A

[2] ABLIKIM 17AG reports $(1.8 \pm 0.2 \pm 0.2) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^*(892)^\pm K^\mp)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R86;LINKAGE=B

[3] ABLIKIM 17AG reports $(1.4 \pm 0.2 \pm 0.2) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^*(892)^\pm K^\mp)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R86;LINKAGE=C

$\Gamma(K^*(892)^0\overline{K}^0 + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{35}/Γ

NODE=M057R87
NODE=M057R87

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
1.26±0.27±0.03	[1] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma K^0_S K^\pm \pi^\mp$

[1] ABLIKIM 17AG reports $(1.3 \pm 0.2 \pm 0.2) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^*(892)^0\overline{K}^0 + \text{ c.c.})/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R87;LINKAGE=A

$\Gamma(K^*_2(1430)^\pm K^\mp)/\Gamma_{\text{total}}$ Γ_{36}/Γ

NODE=M057R88
NODE=M057R88

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
15.1±1.2±0.4	[1] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma K \overline{K} \pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
17.7±1.6±0.4	[2] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma K^+ K^- \pi^0$ OCCUR=2
13.2±1.5±0.3	[3] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma K^0_S K^\pm \pi^\mp$ OCCUR=3

[1] ABLIKIM 17AG reports $(15.5 \pm 0.6 \pm 1.2) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^*_2(1430)^\pm K^\mp)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R88;LINKAGE=A

[2] ABLIKIM 17AG reports $(18.2 \pm 0.8 \pm 1.6) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^*_2(1430)^\pm K^\mp)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R88;LINKAGE=B

[3] ABLIKIM 17AG reports $(13.6 \pm 0.8 \pm 1.4) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^*_2(1430)^\pm K^\mp)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R88;LINKAGE=C

$\Gamma(K^*_2(1430)^0\overline{K}^0 + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{37}/Γ

NODE=M057R89
NODE=M057R89

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
12.6±1.7±0.3	[1] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma K^0_S K^\pm \pi^\mp$

[1] ABLIKIM 17AG reports $(13.0 \pm 1.0 \pm 1.5) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^*_2(1430)^0\overline{K}^0 + \text{ c.c.})/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R89;LINKAGE=A

$\Gamma(K^*_3(1780)^\pm K^\mp)/\Gamma_{\text{total}}$ Γ_{38}/Γ

NODE=M057R90
NODE=M057R90

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
5.2±0.8±0.1	[1] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma K \overline{K} \pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5.1±1.0±0.1	[2] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma K^+ K^- \pi^0$ OCCUR=2
5.7±1.8±0.1	[3] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma K^0_S K^\pm \pi^\mp$ OCCUR=3

[1] ABLIKIM 17AG reports $(5.4 \pm 0.5 \pm 0.7) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^*_3(1780)^\pm K^\mp)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R90;LINKAGE=A

[2] ABLIKIM 17AG reports $(5.3 \pm 0.5 \pm 0.9) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^*_3(1780)^\pm K^\mp)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R90;LINKAGE=B

[3] ABLIKIM 17AG reports $(5.9 \pm 1.1 \pm 1.5) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^*_3(1780)^\pm K^\mp)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R90;LINKAGE=C

$\Gamma(K_3^*(1780)^0\overline{K}^0 + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{39}/Γ

NODE=M057R91
NODE=M057R91

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
5.7±2.1±0.1	[1] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma K_S^0 K^\pm \pi^\mp$

[1] ABLIKIM 17AG reports $(5.9 \pm 1.6 \pm 1.5) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K_3^*(1780)^0\overline{K}^0 + \text{c.c.})/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R91;LINKAGE=A

$\Gamma(a_2(1320)^0\pi^0)/\Gamma_{\text{total}}$ Γ_{40}/Γ

NODE=M057R92
NODE=M057R92

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
13.1±3.4±0.3	[1] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma K^+ K^- \pi^0$

[1] ABLIKIM 17AG reports $(13.5 \pm 1.6 \pm 3.2) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to a_2(1320)^0\pi^0)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R92;LINKAGE=A

$\Gamma(a_2(1320)^\pm\pi^\mp)/\Gamma_{\text{total}}$ Γ_{41}/Γ

NODE=M057R93
NODE=M057R93

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
17.9±6.2±0.4	[1] ABLIKIM	17AG	BES3	$\psi(2S) \to \gamma K_S^0 K^\pm \pi^\mp$

[1] ABLIKIM 17AG reports $(18.4 \pm 3.3 \pm 5.5) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to a_2(1320)^\pm\pi^\mp)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R93;LINKAGE=A

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

NODE=M057R05
NODE=M057R05

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.31±0.08±0.01	[1] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

[1] ATHAR 07 reports $(0.31 \pm 0.07 \pm 0.04) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^+K^-\pi^0)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R05;LINKAGE=AT

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

NODE=M057R09
NODE=M057R09

VALUE (units 10^{-3})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<0.33	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. • • •						
0.181±0.004		3693	[2] ABLIKIM	24BW	BES3	$\psi(2S) \to \gamma\chi_{c2}$

[1] ATHAR 07 reports $< 0.33 \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^+K^-\eta)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$.

NODE=M057R09;LINKAGE=AT

[2] No systematic error reported.

NODE=M057R09;LINKAGE=A

$\Gamma(K^+K^-\eta'(958))/\Gamma_{\text{total}}$ Γ_{45}/Γ

NODE=M057R78
NODE=M057R78

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.94±0.34	107	[1] ABLIKIM	14J	BES3	$\psi(2S) \to \gamma K^+ K^- \eta'(958)$

[1] Derived using $B(\psi(2S) \to \gamma\chi_{c2}) = (8.72 \pm 0.34)\%$. Uncertainty includes both statistical and systematic contributions combined in quadrature.

NODE=M057R78;LINKAGE=A

$\Gamma(\eta\eta')/\Gamma_{\text{total}}$ Γ_{46}/Γ

NODE=M057R03
NODE=M057R03

VALUE (units 10^{-5})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
2.2±0.5±0.1		20	[1] ABLIKIM	17AI	BES3	$\psi(2S) \to \gamma\eta'\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
< 6	90	3.3 ± 8.0	[2] ASNER	09	CLEO	$\psi(2S) \to \gamma\eta\eta'$
<23	90		[3] ADAMS	07	CLEO	$\psi(2S) \to \gamma\chi_{c2}$

[1] ABLIKIM 17AI reports $(2.27 \pm 0.43 \pm 0.25) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \eta\eta')/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R03;LINKAGE=A

[2] ASNER 09 reports $< 0.6 \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \eta\eta')/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$. NODE=M057R03;LINKAGE=AS

[3] Superseded by ASNER 09. ADAMS 07 reports $< 2.3 \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \eta\eta')/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 0.0933 \pm 0.0014 \pm 0.0061$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$. NODE=M057R03;LINKAGE=AD

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

NODE=M057R04
NODE=M057R04

VALUE (units 10^{-5})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
4.6±0.6±0.1		60	[1] ABLIKIM	17AI	BES3	$\psi(2S) \to \gamma\eta'\eta'$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<10	90	12 ± 7	[2] ASNER	09	CLEO	$\psi(2S) \to \gamma\eta'\eta'$
<31	90		[3] ADAMS	07	CLEO	$\psi(2S) \to \gamma\chi_{c2}$

[1] ABLIKIM 17AI reports $(4.76 \pm 0.56 \pm 0.38) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \eta'\eta')/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R04;LINKAGE=A

[2] ASNER 09 reports $< 1.0 \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \eta'\eta')/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$. NODE=M057R04;LINKAGE=AS

[3] Superseded by ASNER 09. ADAMS 07 reports $< 3.1 \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \eta'\eta')/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 0.0933 \pm 0.0014 \pm 0.0061$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$. NODE=M057R04;LINKAGE=AD

$\Gamma(\pi^+\pi^- K^0_S K^0_S)/\Gamma_{\text{total}}$ Γ_{48}/Γ

NODE=M057R31
NODE=M057R31

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.2±0.5±0.1	57 ± 11	[1] ABLIKIM	05O	BES2	$\psi(2S) \to \gamma\chi_{c2}$

[1] ABLIKIM 05O reports $[\Gamma(\chi_{c2}(1P) \to \pi^+\pi^- K^0_S K^0_S)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))] = (0.207 \pm 0.039 \pm 0.033) \times 10^{-3}$ which we divide by our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R31;LINKAGE=AB

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

NODE=M057R32
NODE=M057R32

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<4	90	2.3 ± 2.2	[1] ABLIKIM	05O	BES2	$e^+e^- \to \chi_{c2}\gamma$

[1] ABLIKIM 05O reports $[\Gamma(\chi_{c2}(1P) \to K^+K^- K^0_S K^0_S)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))] < 3.5 \times 10^{-5}$ which we divide by our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$. NODE=M057R32;LINKAGE=AB

$\Gamma(K^0_S K^0_S K^0_S K^0_S)/\Gamma_{\text{total}}$ Γ_{50}/Γ

NODE=M057R94
NODE=M057R94

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.15±0.18±0.03	68	[1] ABLIKIM	19AA	BES3	$\psi(2S) \to \gamma 4K^0_S$

[1] Using $B(K^0_S \to \pi^+\pi^-) = (69.20 \pm 0.05)\%$. ABLIKIM 19AA reports $[\Gamma(\chi_{c2}(1P) \to K^0_S K^0_S K^0_S K^0_S)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))] = (10.8 \pm 1.5 \pm 0.8) \times 10^{-6}$ which we divide by our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.. NODE=M057R94;LINKAGE=A

$\Gamma(K^+K^-\phi)/\Gamma_{\text{total}}$ Γ_{52}/Γ

NODE=M057R01
NODE=M057R01

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.44±0.30±0.03	52	[1] ABLIKIM	06T	BES2	$\psi(2S) \to \gamma 2K^+ 2K^-$

[1] ABLIKIM 06T reports $(1.67 \pm 0.26 \pm 0.24) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^+K^-\phi)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.1 \pm 0.4) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R01;LINKAGE=AB

$\Gamma(\overline{K}^0 K^+ \pi^- \phi + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{53}/Γ

NODE=M057R79
NODE=M057R79

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
4.83±0.32±0.66	ABLIKIM	15M	BES3	$\psi(2S) \to \gamma\chi_{c2}$

$\Gamma(K^+ K^- \pi^0 \phi)/\Gamma_{\text{total}}$ Γ_{54}/Γ

NODE=M057R80
NODE=M057R80

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
2.74±0.16±0.44	ABLIKIM	15M	BES3	$\psi(2S) \to \gamma\chi_{c2}$

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

NODE=M057R75
NODE=M057R75

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.93±0.06±0.10	408	[1] ABLIKIM	13B	BES3	$e^+e^- \to \psi(2S) \to \gamma\chi_{c2}$

[1] Using 1.06×10^8 $\psi(2S)$ mesons and $B(\psi(2S) \to \chi_{c2}\gamma) = (8.72 \pm 0.34)\%$.

NODE=M057R75;LINKAGE=A

$\Gamma(p\bar{p}\pi^0)/\Gamma_{\text{total}}$ Γ_{58}/Γ

NODE=M057R06
NODE=M057R06

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.47±0.04 OUR AVERAGE				
0.48±0.04±0.01	[1] ONYISI	10	CLE3	$\psi(2S) \to \gamma p\bar{p}X$
0.44±0.09±0.01	[2] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

[1] ONYISI 10 reports $(4.83 \pm 0.25 \pm 0.35 \pm 0.31) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to p\bar{p}\pi^0)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R06;LINKAGE=ON

[2] ATHAR 07 reports $(0.44 \pm 0.08 \pm 0.05) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to p\bar{p}\pi^0)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R06;LINKAGE=AT

$\Gamma(p\bar{p}\eta)/\Gamma_{\text{total}}$ Γ_{59}/Γ

NODE=M057R34
NODE=M057R34

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.177±0.025 OUR AVERAGE				
0.175±0.026±0.004	[1] ONYISI	10	CLE3	$\psi(2S) \to \gamma p\bar{p}X$
0.189±0.071±0.005	[2] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+ h^- h^0$

[1] ONYISI 10 reports $(1.76 \pm 0.23 \pm 0.14 \pm 0.11) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to p\bar{p}\eta)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R34;LINKAGE=ON

[2] ATHAR 07 reports $(0.19 \pm 0.07 \pm 0.02) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to p\bar{p}\eta)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R34;LINKAGE=AT

$\Gamma(p\bar{p}\omega)/\Gamma_{\text{total}}$ Γ_{60}/Γ

NODE=M057R56
NODE=M057R56

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.37±0.04±0.01	[1] ONYISI	10	CLE3	$\psi(2S) \to \gamma p\bar{p}X$

[1] ONYISI 10 reports $(3.68 \pm 0.35 \pm 0.26 \pm 0.24) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to p\bar{p}\omega)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R56;LINKAGE=ON

$\Gamma(p\bar{p}\phi)/\Gamma_{\text{total}}$ Γ_{61}/Γ

NODE=M057R62
NODE=M057R62

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
2.8±0.9±0.1	24 ± 7	[1] ABLIKIM	11F	BES3	$\psi(2S) \to \gamma p\bar{p}K^+K^-$

[1] ABLIKIM 11F reports $(3.04 \pm 0.85 \pm 0.43) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to p\bar{p}\phi)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.74 \pm 0.35) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R62;LINKAGE=AB

$\Gamma(p\bar{p}\pi^+\pi^-)/\Gamma_{total}$ Γ_{62}/Γ

NODE=M057R6
NODE=M057R6

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
1.32±0.34 OUR EVALUATION	Treating systematic error as correlated.			
1.3 ±0.4 OUR AVERAGE	Error includes scale factor of 1.3.			
1.17±0.19±0.30	[1] BAI	99B	BES	$\psi(2S) \to \gamma\chi_{c2}$
2.64±1.03±0.14	[1] TANENBAUM	78	MRK1	$\psi(2S) \to \gamma\chi_{c2}$

→ UNCHECKED ←

[1] Rescaled by us using $B(\psi(2S) \to \gamma\chi_{c2}) = (8.3 \pm 0.4)\%$ and $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (32.6 \pm 0.5)\%$. Multiplied by a factor of 2 to convert from $K^0_S K^+\pi^-$ to $K^0 K^+\pi^-$ decay.

NODE=M057R6;LINKAGE=X3

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

NODE=M057R49
NODE=M057R49

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.080±0.024±0.002	29.2	[1] HE	08B	CLEO	$e^+e^- \to \gamma h^+ h^- h^0 h^0$

[1] HE 08B reports 0.08 ± 0.02 ± 0.01 ± 0.01 % from a measurement of $[\Gamma(\chi_{c2}(1P) \to p\bar{p}\pi^0\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R49;LINKAGE=HE

$\Gamma(p\bar{p}K^+K^-(\text{non-resonant}))/\Gamma_{total}$ Γ_{64}/Γ

NODE=M057R59
NODE=M057R59

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.94±0.32±0.05	131 ± 12	[1] ABLIKIM	11F	BES3	$\psi(2S) \to \gamma p\bar{p}K^+K^-$

[1] ABLIKIM 11F reports $(2.08 \pm 0.19 \pm 0.30) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to p\bar{p}K^+K^-(\text{non-resonant}))/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.74 \pm 0.35) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R59;LINKAGE=AB

$\Gamma(p\bar{p}K^0_S K^0_S)/\Gamma_{total}$ Γ_{65}/Γ

NODE=M057R30
NODE=M057R30

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<7.9	90	[1] ABLIKIM	06D	BES2	$\psi(2S) \to \chi_{c2}\gamma$

[1] Using $B(\psi(2S) \to \chi_{c2}\gamma) = (9.3 \pm 0.6)\%$.

NODE=M057R;LINKAGE=AB

$\Gamma(p\bar{n}\pi^-)/\Gamma_{total}$ Γ_{67}/Γ

NODE=M057R33
NODE=M057R33

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
8.7±1.0 OUR AVERAGE					
8.5±1.0±0.2	3309	[1] ABLIKIM	12J	BES3	$\psi(2S) \to \gamma p\bar{n}\pi^-$
10.3±3.5±0.3		[2] ABLIKIM	06I	BES2	$\psi(2S) \to \gamma p\pi^- X$

[1] ABLIKIM 12J reports $[\Gamma(\chi_{c2}(1P) \to p\bar{n}\pi^-)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))] = (0.80 \pm 0.02 \pm 0.09) \times 10^{-4}$ which we divide by our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R33;LINKAGE=AL

[2] ABLIKIM 06I reports $[\Gamma(\chi_{c2}(1P) \to p\bar{n}\pi^-)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))] = (0.97 \pm 0.20 \pm 0.26) \times 10^{-4}$ which we divide by our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R33;LINKAGE=AB

$\Gamma(\bar{p}n\pi^+)/\Gamma_{total}$ Γ_{68}/Γ

NODE=M057R70
NODE=M057R70

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
9.1±0.8±0.2	3732	[1] ABLIKIM	12J	BES3	$\psi(2S) \to \gamma\bar{p}n\pi^+$

[1] ABLIKIM 12J reports $[\Gamma(\chi_{c2}(1P) \to \bar{p}n\pi^+)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))] = (0.85 \pm 0.02 \pm 0.07) \times 10^{-4}$ which we divide by our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R70;LINKAGE=AL

$\Gamma(p\bar{n}\pi^-\pi^0)/\Gamma_{total}$ Γ_{69}/Γ

NODE=M057R71
NODE=M057R71

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
22.1±1.7±0.5	2128	[1] ABLIKIM	12J	BES3	$\psi(2S) \to \gamma p\bar{n}\pi^-\pi^0$

[1] ABLIKIM 12J reports $[\Gamma(\chi_{c2}(1P) \to p\bar{n}\pi^-\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))] = (2.07 \pm 0.06 \pm 0.15) \times 10^{-4}$ which we divide by our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R71;LINKAGE=AL

$\Gamma(\bar{p}n\pi^+\pi^0)/\Gamma_{total}$ Γ_{70}/Γ

NODE=M057R72
NODE=M057R72

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
21.4±1.8±0.5	2352	[1] ABLIKIM	12J	BES3	$\psi(2S) \to \gamma\bar{p}n\pi^+\pi^0$

[1] ABLIKIM 12J reports $[\Gamma(\chi_{c2}(1P) \to \bar{p}n\pi^+\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))] = (2.01 \pm 0.06 \pm 0.16) \times 10^{-4}$ which we divide by our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R72;LINKAGE=AL

$\Gamma(\Lambda\bar{\Lambda}\pi^+\pi^-)/\Gamma_{total}$ Γ_{72}/Γ

NODE=M057R29
NODE=M057R29

VALUE (units 10^{-5})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
127±15±3		371	[1] ABLIKIM	12I	BES3	$\psi(2S) \to \gamma\Lambda\bar{\Lambda}\pi^+\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<350	90		[2] ABLIKIM	06D	BES2	$\psi(2S) \to \chi_{c2}\gamma$

[1] ABLIKIM 12I reports $(137.0 \pm 7.6 \pm 15.7) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \Lambda\bar{\Lambda}\pi^+\pi^-)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.72 \pm 0.34) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R29;LINKAGE=AL

[2] Using $B(\psi(2S) \to \chi_{c2}\gamma) = (9.3 \pm 0.6)\%$.

NODE=M057R29;LINKAGE=AB

$\Gamma(\Lambda\bar{\Lambda}\pi^+\pi^-(\text{non-resonant}))/\Gamma_{total}$ Γ_{73}/Γ

NODE=M057R65
NODE=M057R65

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
67±15±2	36	[1] ABLIKIM	12I	BES3	$\psi(2S) \to \gamma\Lambda\bar{\Lambda}\pi^+\pi^-$

[1] ABLIKIM 12I reports $(71.8 \pm 14.5 \pm 8.2) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \Lambda\bar{\Lambda}\pi^+\pi^-\text{ (non-resonant)})/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.72 \pm 0.34) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R65;LINKAGE=AL

$\Gamma(\Sigma(1385)^+\bar{\Lambda}\pi^- + \text{c.c.})/\Gamma_{total}$ Γ_{74}/Γ

NODE=M057R66
NODE=M057R66

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
<40	90	[1] ABLIKIM	12I	BES3	$\psi(2S) \to \gamma\Sigma(1385)^+\bar{\Lambda}\pi^-$

[1] ABLIKIM 12I reports $< 42 \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \Sigma(1385)^+\bar{\Lambda}\pi^- + \text{c.c.})/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.72 \pm 0.34) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$.

NODE=M057R66;LINKAGE=AL

$\Gamma(\Sigma(1385)^-\bar{\Lambda}\pi^+ + \text{c.c.})/\Gamma_{total}$ Γ_{75}/Γ

NODE=M057R67
NODE=M057R67

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
<60	90	[1] ABLIKIM	12I	BES3	$\psi(2S) \to \gamma\Sigma(1385)^-\bar{\Lambda}\pi^+$

[1] ABLIKIM 12I reports $< 61 \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \Sigma(1385)^-\bar{\Lambda}\pi^+ + \text{c.c.})/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.72 \pm 0.34) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$.

NODE=M057R67;LINKAGE=AL

$\Gamma(K^+\bar{p}\Lambda + \text{c.c.})/\Gamma_{total}$ Γ_{79}/Γ

NODE=M057R07
NODE=M057R07

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
7.9±0.5 OUR AVERAGE					
7.8±0.5±0.2	5k	[1,2] ABLIKIM	13D	BES3	$\psi(2S) \to \gamma\Lambda\bar{p}K^+$
8.5±1.6±0.2		[3] ATHAR	07	CLEO	$\psi(2S) \to \gamma h^+h^-h^0$

[1] ABLIKIM 13D reports $(8.4 \pm 0.3 \pm 0.6) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^+\bar{p}\Lambda + \text{c.c.})/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.72 \pm 0.34) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R07;LINKAGE=AB

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

NODE=M057R07;LINKAGE=LB

[3] ATHAR 07 reports $(8.5 \pm 1.4 \pm 1.0) \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to K^+\bar{p}\Lambda + \text{c.c.})/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R07;LINKAGE=AT

$\Gamma(nK^0_S\overline{\Lambda}+\text{c.c.})/\Gamma_{\text{total}}$ Γ_{80}/Γ

NODE=M057P01
NODE=M057P01

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
3.63±0.27±0.09	879	[1] ABLIKIM	21AV	BES3	$\psi(2S)\to\gamma nK^0_S\overline{\Lambda}$ + c.c.

[1] ABLIKIM 21AV reports $(3.58\pm0.16\pm0.23)\times10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P)\to nK^0_S\overline{\Lambda}+\text{c.c.})/\Gamma_{\text{total}}]\times[B(\psi(2S)\to\gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S)\to\gamma\chi_{c2}(1P))=0.0952\pm0.0020$, which we rescale to our best value $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(9.38\pm0.23)\times10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Also uses $B(\overline{\Lambda}\to\overline{p}\pi^+)=(63.9\pm0.5)\%$ and $B(K^0_S\to\pi^+\pi^-)=(69.20\pm0.05)\%$.

NODE=M057P01;LINKAGE=B

$\Gamma(K^*(892)^+\overline{p}\Lambda+\text{c.c.})/\Gamma_{\text{total}}$ Γ_{81}/Γ

NODE=M057R98
NODE=M057R98

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
8.3±1.2±0.2	476	[1] ABLIKIM	19AU	BES3	$\psi(2S)\to\gamma K^{*+}\overline{p}\Lambda$

[1] ABLIKIM 19AU reports $[\Gamma(\chi_{c2}(1P)\to K^*(892)^+\overline{p}\Lambda+\text{c.c.})/\Gamma_{\text{total}}]\times[B(\psi(2S)\to\gamma\chi_{c2}(1P))]=(7.8\pm0.9\pm0.6)\times10^{-5}$ which we divide by our best value $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(9.38\pm0.23)\times10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R98;LINKAGE=F

$\Gamma(K^+\overline{p}\Lambda(1520)+\text{c.c.})/\Gamma_{\text{total}}$ Γ_{82}/Γ

NODE=M057R60
NODE=M057R60

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.9±0.7±0.1	79 ± 13	[1] ABLIKIM	11F	BES3	$\psi(2S)\to\gamma p\overline{p}K^+K^-$

[1] ABLIKIM 11F reports $(3.06\pm0.50\pm0.54)\times10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P)\to K^+\overline{p}\Lambda(1520)+\text{c.c.})/\Gamma_{\text{total}}]\times[B(\psi(2S)\to\gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(8.74\pm0.35)\times10^{-2}$, which we rescale to our best value $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(9.38\pm0.23)\times10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R60;LINKAGE=AB

$\Gamma(\Lambda(1520)\overline{\Lambda}(1520))/\Gamma_{\text{total}}$ Γ_{84}/Γ

NODE=M057R61
NODE=M057R61

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
4.7±1.5±0.1	29 ± 7	[1] ABLIKIM	11F	BES3	$\psi(2S)\to\gamma p\overline{p}K^+K^-$

[1] ABLIKIM 11F reports $(5.05\pm1.29\pm0.93)\times10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P)\to\Lambda(1520)\overline{\Lambda}(1520))/\Gamma_{\text{total}}]\times[B(\psi(2S)\to\gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(8.74\pm0.35)\times10^{-2}$, which we rescale to our best value $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(9.38\pm0.23)\times10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R61;LINKAGE=AB

$\Gamma(\Sigma^0\overline{\Sigma}^0)/\Gamma_{\text{total}}$ Γ_{85}/Γ

NODE=M057R43
NODE=M057R43

VALUE (units 10^{-5})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
3.7±0.6±0.1		91	[1] ABLIKIM	18V	BES3	$\psi(2S)\to\gamma\Sigma^0\overline{\Sigma}^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<6	90		[2] ABLIKIM	13H	BES3	$\psi(2S)\to\gamma\Sigma^0\overline{\Sigma}^0$
<7	90	7.5 ± 3.4	[3] NAIK	08	CLEO	$\psi(2S)\to\gamma\Sigma^0\overline{\Sigma}^0$

[1] ABLIKIM 18V reports $[\Gamma(\chi_{c2}(1P)\to\Sigma^0\overline{\Sigma}^0)/\Gamma_{\text{total}}]\times[B(\psi(2S)\to\gamma\chi_{c2}(1P))]=(0.35\pm0.05\pm0.02)\times10^{-5}$ which we divide by our best value $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(9.38\pm0.23)\times10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R43;LINKAGE=A

[2] ABLIKIM 13H reports $<0.65\times10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P)\to\Sigma^0\overline{\Sigma}^0)/\Gamma_{\text{total}}]\times[B(\psi(2S)\to\gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(8.74\pm0.35)\times10^{-2}$, which we rescale to our best value $B(\psi(2S)\to\gamma\chi_{c2}(1P))=9.38\times10^{-2}$.

NODE=M057R43;LINKAGE=AB

[3] NAIK 08 reports $<0.75\times10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P)\to\Sigma^0\overline{\Sigma}^0)/\Gamma_{\text{total}}]\times[B(\psi(2S)\to\gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(9.33\pm0.14\pm0.61)\times10^{-2}$, which we rescale to our best value $B(\psi(2S)\to\gamma\chi_{c2}(1P))=9.38\times10^{-2}$.

NODE=M057R43;LINKAGE=NA

$\Gamma(\Sigma^+\overline{\Sigma}^-)/\Gamma_{\text{total}}$ Γ_{88}/Γ

NODE=M057R44
NODE=M057R44

VALUE (units 10^{-5})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
3.4±0.7±0.1		55	[1] ABLIKIM	18V	BES3	$\psi(2S)\to\gamma\Sigma^+\overline{\Sigma}^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<8	90		[2] ABLIKIM	13H	BES3	$\psi(2S)\to\gamma\Sigma^+\overline{\Sigma}^-$
<7	90	4.0 ± 3.5	[3] NAIK	08	CLEO	$\psi(2S)\to\gamma\Sigma^+\overline{\Sigma}^-$

[1] ABLIKIM 18V reports $[\Gamma(\chi_{c2}(1P) \to \Sigma^+\overline{\Sigma}^-)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))] = (0.32 \pm 0.06 \pm 0.03) \times 10^{-5}$ which we divide by our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R44;LINKAGE=A

[2] ABLIKIM 13H reports $< 0.88 \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \Sigma^+\overline{\Sigma}^-)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.74 \pm 0.35) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$. NODE=M057R44;LINKAGE=AB

[3] NAIK 08 reports $< 0.67 \times 10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \Sigma^+\overline{\Sigma}^-)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.33 \pm 0.14 \pm 0.61) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$. NODE=M057R44;LINKAGE=NA

$\Gamma(\Sigma^+\overline{\Sigma}^-\eta)/\Gamma_{\text{total}}$ Γ_{89}/Γ

NODE=M057P11
NODE=M057P11

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
5.5±1.3±0.1	35	[1] ABLIKIM	24CA	BES3	$\psi(2S) \to \gamma\chi_{c2}(1P)$

[1] ABLIKIM 24CA reports $(5.46 \pm 1.18 \pm 0.50) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \Sigma^+\overline{\Sigma}^-\eta)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.52 \pm 0.20) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057P11;LINKAGE=A

$\Gamma(\Sigma^-\overline{\Sigma}^+)/\Gamma_{\text{total}}$ Γ_{90}/Γ

NODE=M057R99
NODE=M057R99

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
4.5±1.8±0.1	131	[1] ABLIKIM	20I	BES3	$\psi(2S) \to \gamma\Sigma^-\overline{\Sigma}^+$

[1] ABLIKIM 20I reports $(4.4 \pm 1.7 \pm 0.5) \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \Sigma^-\overline{\Sigma}^+)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.52 \pm 0.20) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R99;LINKAGE=A

$\Gamma(\Sigma(1385)^+\overline{\Sigma}(1385)^-)/\Gamma_{\text{total}}$ Γ_{91}/Γ

NODE=M057R68
NODE=M057R68

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
<16	90	[1] ABLIKIM	12I	BES3	$\psi(2S) \to \gamma\Sigma(1385)^+\overline{\Sigma}(1385)^-$

[1] ABLIKIM 12I reports $< 17 \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \Sigma(1385)^+\overline{\Sigma}(1385)^-)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.72 \pm 0.34) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$. NODE=M057R68;LINKAGE=AL

$\Gamma(\Sigma(1385)^-\overline{\Sigma}(1385)^+)/\Gamma_{\text{total}}$ Γ_{92}/Γ

NODE=M057R69
NODE=M057R69

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
<8	90	[1] ABLIKIM	12I	BES3	$\psi(2S) \to \gamma\Sigma(1385)^-\overline{\Sigma}(1385)^+$

[1] ABLIKIM 12I reports $< 8.5 \times 10^{-5}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \Sigma(1385)^-\overline{\Sigma}(1385)^+)/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.72 \pm 0.34) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$. NODE=M057R69;LINKAGE=AL

$\Gamma(K^-\Lambda\overline{\Xi}^+ + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{93}/Γ

NODE=M057R81
NODE=M057R81

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.79±0.32±0.04	51	[1] ABLIKIM	15I	BES3	$\psi(2S) \to \gamma K^-\Lambda\overline{\Xi}^+ + \text{c.c.}$

[1] ABLIKIM 15I reports $[\Gamma(\chi_{c2}(1P) \to K^-\Lambda\overline{\Xi}^+ + \text{c.c.})/\Gamma_{\text{total}}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))] = (1.68 \pm 0.26 \pm 0.15) \times 10^{-5}$ which we divide by our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R81;LINKAGE=A

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

NODE=M057R45
NODE=M057R45

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
1.86±0.22±0.04		804	[1] ABLIKIM	22O	BES3	$\psi(2S) \to \gamma\Xi^0\overline{\Xi}^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<1.1	90	3	[2] NAIK	08	CLEO	$\psi(2S) \to \gamma\Xi^0\overline{\Xi}^0$

[1] ABLIKIM 22O reports $(1.83\pm0.15\pm0.16)\times10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P)\to\Xi^0\overline{\Xi}^0)/\Gamma_{\rm total}]\times[B(\psi(2S)\to\gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(9.52\pm0.20)\times10^{-2}$, which we rescale to our best value $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(9.38\pm0.23)\times10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R45;LINKAGE=A

[2] NAIK 08 reports $<1.06\times10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P)\to\Xi^0\overline{\Xi}^0)/\Gamma_{\rm total}]\times[B(\psi(2S)\to\gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(9.33\pm0.14\pm0.61)\times10^{-2}$, which we rescale to our best value $B(\psi(2S)\to\gamma\chi_{c2}(1P))=9.38\times10^{-2}$.

NODE=M057R45;LINKAGE=NA

$\Gamma(\Xi^-\overline{\Xi}^+)/\Gamma_{\rm total}$ Γ_{95}/Γ

NODE=M057R17
NODE=M057R17

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
1.46±0.12 OUR AVERAGE						
1.46±0.12±0.04		1691	[1] ABLIKIM	22O	BES3	$\psi(2S)\to\gamma\Xi^-\overline{\Xi}^+$
1.44±0.32±0.03		29 ± 5	[2] NAIK	08	CLEO	$\psi(2S)\to\gamma\Xi^+\overline{\Xi}^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
< 3.7	90		[3] ABLIKIM	06D	BES2	$\psi(2S)\to\chi_{c2}\gamma$

[1] ABLIKIM 22O reports $(1.44\pm0.06\pm0.11)\times10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P)\to\Xi^-\overline{\Xi}^+)/\Gamma_{\rm total}]\times[B(\psi(2S)\to\gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(9.52\pm0.20)\times10^{-2}$, which we rescale to our best value $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(9.38\pm0.23)\times10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R17;LINKAGE=A

[2] NAIK 08 reports $(1.45\pm0.30\pm0.15)\times10^{-4}$ from a measurement of $[\Gamma(\chi_{c2}(1P)\to\Xi^-\overline{\Xi}^+)/\Gamma_{\rm total}]\times[B(\psi(2S)\to\gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(9.33\pm0.14\pm0.61)\times10^{-2}$, which we rescale to our best value $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(9.38\pm0.23)\times10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=M057R17;LINKAGE=NA

[3] Using $B(\psi(2S)\to\chi_{c2}\gamma)=(9.3\pm0.6)\%$.

NODE=M057R17;LINKAGE=AB

$\Gamma(\Omega^-\overline{\Omega}^+)/\Gamma_{\rm total}$ Γ_{96}/Γ

NODE=M057P03
NODE=M057P03

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
4.52±0.24±0.18	1038	ABLIKIM	23T	BES3	$\chi_{cJ}\to\Omega^-\overline{\Omega}^+$

$\Gamma(J/\psi(1S)\pi^+\pi^-\pi^0)/\Gamma_{\rm total}$ Γ_{97}/Γ

NODE=M057R13
NODE=M057R13

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.015	90	BARATE	81	SPEC	190 GeV π^- Be $\to 2\pi2\mu$

$\Gamma(\pi^0\eta_c)/\Gamma_{\rm total}$ Γ_{98}/Γ

NODE=M057R77
NODE=M057R77

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<3.2 × 10⁻³	90	[1] ABLIKIM	15N	BES3	$\psi(2S)e^+e^-\to\gamma\pi^0\eta_c$

[1] Using $B(\eta_c\to K^0_S K^\pm\pi^\mp)\times B(K^0_S\to\pi^+\pi^-)\times B(\pi^0\to\gamma\gamma)=(1.66\pm0.11)\times10^{-2}$.

NODE=M057R77;LINKAGE=A

$\Gamma(\eta_c(1S)\pi^+\pi^-)/\Gamma_{\rm total}$ Γ_{99}/Γ

NODE=M057R76
NODE=M057R76

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.54 × 10⁻²	90	[1,2] ABLIKIM	13B	BES3	$e^+e^-\to\psi(2S)\to\gamma\chi_{c2}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.2 × 10⁻²	90	[1,3] ABLIKIM	13B	BES3	$e^+e^-\to\psi(2S)\to\gamma\chi_{c2}$

OCCUR=2

[1] Using 1.06×10^8 $\psi(2S)$ mesons and $B(\psi(2S)\to\chi_{c2}\gamma)=(8.72\pm0.34)\%$.

NODE=M057R76;LINKAGE=A

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

NODE=M057R76;LINKAGE=B

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

NODE=M057R76;LINKAGE=C

$\Gamma(\eta_c(1S)\pi^+\pi^-)/\Gamma(\overline{K}^0K^+\pi^-+\text{c.c.})$ Γ_{99}/Γ_{42}

NODE=M057R64
NODE=M057R64

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<16.4	90	[1] LEES	12AE	BABR	$e^+e^-\to e^+e^-\pi^+\pi^-\eta_c$

[1] We divided the reported limit by 2 to take into account the $K^0_L K^+\pi^-$ mode.

NODE=M057R64;LINKAGE=LE

RADIATIVE DECAYS

NODE=M057310

$\Gamma(\gamma\rho^0)/\Gamma_{\rm total}$ Γ_{101}/Γ

NODE=M057R40
NODE=M057R40

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<19	90	13 ± 11	[1] ABLIKIM	11E	BES3	$\psi(2S)\to\gamma\gamma\rho^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<40	90	17.2±6.8	[2] BENNETT	08A	CLEO	$\psi(2S)\to\gamma\gamma\rho^0$

[1] ABLIKIM 11E reports $< 20.8 \times 10^{-6}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \gamma\rho^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.74 \pm 0.35) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$. NODE=M057R40;LINKAGE=AB

[2] BENNETT 08A reports $< 50 \times 10^{-6}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \gamma\rho^0)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.1 \pm 0.4) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$. NODE=M057R40;LINKAGE=BE

$\Gamma(\gamma\omega)/\Gamma_{total}$ Γ_{102}/Γ

NODE=M057R41
NODE=M057R41

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<6	90	1 ± 6	[1] ABLIKIM	11E	BES3	$\psi(2S) \to \gamma\gamma\omega$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<6	90	0.0 ± 1.8	[2] BENNETT	08A	CLEO	$\psi(2S) \to \gamma\gamma\omega$

[1] ABLIKIM 11E reports $< 6.1 \times 10^{-6}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \gamma\omega)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.74 \pm 0.35) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$. NODE=M057R41;LINKAGE=AB

[2] BENNETT 08A reports $< 7.0 \times 10^{-6}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \gamma\omega)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.1 \pm 0.4) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$. NODE=M057R41;LINKAGE=BE

$\Gamma(\gamma\phi)/\Gamma_{total}$ Γ_{103}/Γ

NODE=M057R42
NODE=M057R42

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
< 8	90	5 ± 5	[1] ABLIKIM	11E	BES3	$\psi(2S) \to \gamma\gamma\phi$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<11	90	1.3 ± 2.5	[2] BENNETT	08A	CLEO	$\psi(2S) \to \gamma\gamma\phi$

[1] ABLIKIM 11E reports $< 8.1 \times 10^{-6}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \gamma\phi)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.74 \pm 0.35) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$. NODE=M057R42;LINKAGE=AB

[2] BENNETT 08A reports $< 13 \times 10^{-6}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to \gamma\phi)/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.1 \pm 0.4) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = 9.38 \times 10^{-2}$. NODE=M057R42;LINKAGE=BE

$\Gamma(e^+e^- J/\psi(1S))/\Gamma_{total}$ Γ_{105}/Γ

NODE=M057R82
NODE=M057R82

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.41±0.15±0.06	1.3k	[1,2] ABLIKIM	17I	BES3	$\psi(2S) \to \gamma e^+e^- J/\psi$

[1] ABLIKIM 17I reports $(2.48 \pm 0.08 \pm 0.16) \times 10^{-3}$ from a measurement of $[\Gamma(\chi_{c2}(1P) \to e^+e^- J/\psi(1S))/\Gamma_{total}] \times [B(\psi(2S) \to \gamma\chi_{c2}(1P))]$ assuming $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.11 \pm 0.31) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (9.38 \pm 0.23) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=M057R82;LINKAGE=B

[2] Not independent from other measurements reported by ABLIKIM 17I NODE=M057R82;LINKAGE=C

$\Gamma(e^+e^- J/\psi(1S))/\Gamma(\gamma J/\psi(1S))$ $\Gamma_{105}/\Gamma_{100}$

NODE=M057R83
NODE=M057R83

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
11.3±0.4±0.5	1.3k	[1] ABLIKIM	17I	BES3	$\psi(2S) \to e^+e^- \gamma J/\psi$

[1] Uses B($\psi(2S) \to \gamma\chi_{c2}(1P)$) × B($\chi_{c2}(1P) \to \gamma J/\psi(1S)$) = (199.6 ± 0.8 ± 7.0) × 10^{-4} from ABLIKIM 17N and accounts for common systematic errors. NODE=M057R83;LINKAGE=A

$\Gamma(\mu^+\mu^- J/\psi(1S))/\Gamma(e^+e^- J/\psi(1S))$ $\Gamma_{106}/\Gamma_{105}$

NODE=M057R96
NODE=M057R96

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
9.40±0.79±1.15	219	ABLIKIM	19Z	BES3	$\psi(2S) \to \gamma\chi_c \to \gamma(\mu^+\mu^- J/\psi)$

$\Gamma(\gamma\gamma)/\Gamma(\gamma J/\psi(1S))$ $\Gamma_{104}/\Gamma_{100}$

NODE=M057R23
NODE=M057R23

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
1.49±0.08 OUR FIT	Error includes scale factor of 1.5.			
0.99±0.18	[1] AMBROGIANI	00B	E835	$\bar{p}p \to \chi_{c2} \to \gamma\gamma, \gamma J/\psi$

[1] Calculated by us using $B(J/\psi(1S) \to e^+e^-) = 0.0593 \pm 0.0010$. NODE=M057R;LINKAGE=7A

$\Gamma(\gamma\gamma)/\Gamma_{total} \times \Gamma(p\bar{p})/\Gamma_{total}$ $\Gamma_{104}/\Gamma \times \Gamma_{57}/\Gamma$

NODE=M057R24
NODE=M057R24

VALUE (units 10^{-8})	DOCUMENT ID		TECN	COMMENT
2.12±0.15 OUR FIT Error includes scale factor of 1.2.				
1.7 ±0.4 OUR AVERAGE				
1.60±0.42	ARMSTRONG	93	E760	$\bar{p}p \rightarrow \gamma\gamma X$
9.9 ±4.5	BAGLIN	87B	SPEC	$\bar{p}p \rightarrow \gamma\gamma X$

$\chi_{c2}(1P)$ CROSS-PARTICLE BRANCHING RATIOS

NODE=M057230

$\Gamma(\chi_{c2}(1P) \rightarrow 2(\pi^+\pi^-))/\Gamma_{total} \times \Gamma(\psi(2S) \rightarrow \gamma\chi_{c2}(1P))/\Gamma(\psi(2S) \rightarrow J/\psi(1S)\pi^+\pi^-)$ $\Gamma_1/\Gamma \times \Gamma_{183}^{\psi(2S)}/\Gamma_{12}^{\psi(2S)}$

NODE=M057B5
NODE=M057B5

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
3.04±0.21 OUR FIT Error includes scale factor of 1.6.				
3.1 ±1.0 OUR AVERAGE Error includes scale factor of 2.5.				
2.3 ±0.1 ±0.5	[1] BAI	99B	BES	$\psi(2S) \rightarrow \gamma\chi_{c2}$
4.3 ±0.6	[2] TANENBAUM	78	MRK1	$\psi(2S) \rightarrow \gamma\chi_{c2}$

[1] Calculated by us. The value for $B(\chi_{c2} \rightarrow 2\pi^+2\pi^-)$ reported in BAI 99B is derived using $B(\psi(2S) \rightarrow \gamma\chi_{c2}) = (7.8 \pm 0.8)\%$ and $B(\psi(2S) \rightarrow J/\psi(1S)\pi^+\pi^-) = (32.4 \pm 2.6)\%$ [BAI 98D]. NODE=M057B;LINKAGE=K1

[2] The value for $B(\psi(2S) \rightarrow \gamma\chi_{c2}) \times B(\chi_{c2} \rightarrow 2\pi^+\pi^-)$ reported in TANENBAUM 78 is derived using $B(\psi(2S) \rightarrow J/\psi(1S)\pi^+\pi^-) \times B(J/\psi(1S)\ell^+\ell^-) = (4.6 \pm 0.7)\%$. Calculated by us using $B(J/\psi(1S) \rightarrow \ell^+\ell^-) = 0.1181 \pm 0.0020$. NODE=M057B;LINKAGE=K2

$\Gamma(\chi_{c2}(1P) \rightarrow 2(\pi^+\pi^-))/\Gamma_{total} \times \Gamma(\psi(2S) \rightarrow \gamma\chi_{c2}(1P))/\Gamma_{total}$ $\Gamma_1/\Gamma \times \Gamma_{183}^{\psi(2S)}/\Gamma^{\psi(2S)}$

NODE=M057P08
NODE=M057P08

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.05 ±0.07 OUR FIT Error includes scale factor of 1.6.					
1.098±0.001±0.055	1042k	[1] ABLIKIM	24BT	BES3	$\psi(2S) \rightarrow \gamma\chi_{c2}$

[1] Calculated by us. The value given here is derived from the value of $B(\chi_{c2} \rightarrow 2(\pi^+\pi^-))$ reported in ABLIKIM 24BT using $B(\psi(2S) \rightarrow \gamma\chi_{c2}) = (9.52 \pm 0.20)\%$ [PDG 22]. NODE=M057P08;LINKAGE=A

$\Gamma(\chi_{c2}(1P) \rightarrow K^+K^-\pi^+\pi^-)/\Gamma_{total} \times \Gamma(\psi(2S) \rightarrow \gamma\chi_{c2}(1P))/\Gamma(\psi(2S) \rightarrow J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{14}/\Gamma \times \Gamma_{183}^{\psi(2S)}/\Gamma_{12}^{\psi(2S)}$

NODE=M057B18
NODE=M057B18

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
2.27±0.31 OUR FIT Error includes scale factor of 1.2.				
2.5 ±0.9 OUR AVERAGE Error includes scale factor of 2.3.				
1.90±0.14±0.44	BAI	99B	BES	$\psi(2S) \rightarrow \gamma\chi_{c2}$
3.8 ±0.67	[1] TANENBAUM	78	MRK1	$\psi(2S) \rightarrow \gamma\chi_{c2}$

[1] The reported value is derived using $B(\psi(2S) \rightarrow \pi^+\pi^- J/\psi) \times B(J/\psi \rightarrow \ell^+\ell^-) = (4.6 \pm 0.7)\%$. Calculated by us using $B(J/\psi \rightarrow \ell^+\ell^-) = 0.1181 \pm 0.0020$. NODE=M057B18;LINKAGE=TA

$\Gamma(\chi_{c2}(1P) \rightarrow K^*(892)^0\overline{K}^*(892)^0)/\Gamma_{total} \times \Gamma(\psi(2S) \rightarrow \gamma\chi_{c2}(1P))/\Gamma_{total}$ $\Gamma_{18}/\Gamma \times \Gamma_{183}^{\psi(2S)}/\Gamma^{\psi(2S)}$

NODE=M057B19
NODE=M057B19

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
2.1 ±0.9 OUR FIT Error includes scale factor of 2.3.				
3.11±0.36±0.48	ABLIKIM	04H	BES2	$\psi(2S) \rightarrow \gamma\chi_{c2}$

$\Gamma(\chi_{c2}(1P) \rightarrow \phi\phi)/\Gamma_{total} \times \Gamma(\psi(2S) \rightarrow \gamma\chi_{c2}(1P))/\Gamma_{total}$ $\Gamma_{20}/\Gamma \times \Gamma_{183}^{\psi(2S)}/\Gamma^{\psi(2S)}$

NODE=M057B16
NODE=M057B16

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.15±0.07 OUR FIT Error includes scale factor of 1.7.					
0.98±0.13 OUR AVERAGE Error includes scale factor of 1.3.					
0.94±0.03±0.10	849	[1] ABLIKIM	11K	BES3	$\psi(2S) \rightarrow \gamma$ hadrons
1.38±0.24±0.23	41	[2] ABLIKIM	06T	BES2	$\psi(2S) \rightarrow \gamma 2K^+2K^-$

[1] Calculated by us. The value of $B(\chi_{c2} \rightarrow \phi\phi)$ reported by ABLIKIM 11K was derived using $B(\psi(2S) \rightarrow \gamma\chi_{c2}(1P)) = (8.74 \pm 0.35)\%$. NODE=M057B16;LINKAGE=AL

[2] Calculated by us. The value of $B(\chi_{c2} \rightarrow \phi\phi)$ reported by ABLIKIM 06T was derived using $B(\psi(2S) \rightarrow \gamma\chi_{c2}(1P)) = (8.1 \pm 0.4)\%$. NODE=M057B16;LINKAGE=AB

$\Gamma(\chi_{c2}(1P)\to\phi\phi)/\Gamma_{total}\times\Gamma(\psi(2S)\to\gamma\chi_{c2}(1P))/\Gamma(\psi(2S)\to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{20}/\Gamma\times\Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}_{12}$

NODE=M057B17
NODE=M057B17

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
3.32±0.21 OUR FIT Error includes scale factor of 1.7.				
4.8 ±1.3 ±1.3	[1] BAI	99B	BES	$\psi(2S)\to\gamma 2K^+2K^-$

[1] Calculated by us. The value of $B(\chi_{c2}\to\phi\phi)$ reported by BAI 99B was derived using $B(\psi(2S)\to\gamma\chi_{c2}(1P))=(7.8\pm0.8)\%$ and $B(\psi(2S)\to J/\psi\pi^+\pi^-)=(32.4\pm2.6)\%$ [BAI 98D]. NODE=M057B17;LINKAGE=BA

$\Gamma(\chi_{c2}(1P)\to\pi\pi)/\Gamma_{total}\times\Gamma(\psi(2S)\to\gamma\chi_{c2}(1P))/\Gamma_{total}$ $\Gamma_{25}/\Gamma\times\Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057B02
NODE=M057B02

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.12±0.08 OUR FIT					
2.17±0.09 OUR AVERAGE					
2.19±0.05±0.15	4.5k	[1] ABLIKIM	10A	BES3	$e^+e^-\to\psi(2S)\to\gamma\chi_{c2}$
2.23±0.06±0.10	2.5k	[2] ASNER	09	CLEO	$\psi(2S)\to\gamma\pi^+\pi^-$
1.90±0.08±0.20	0.8k	[3] ASNER	09	CLEO	$\psi(2S)\to\gamma\pi^0\pi^0$ OCCUR=2

[1] Calculated by us. ABLIKIM 10A reports $B(\chi_{c2}\to\pi^0\pi^0)=(0.88\pm0.02\pm0.06\pm0.04)\times10^{-3}$ using $B(\psi(2S)\to\gamma\chi_{c2})=(8.3\pm0.4)\%$. We have multiplied the $\pi^0\pi^0$ measurement by 3 to obtain $\pi\pi$. NODE=M057B02;LINKAGE=AB

[2] Calculated by us. ASNER 09 reports $B(\chi_{c2}\to\pi^+\pi^-)=(1.59\pm0.04\pm0.07\pm0.10)\times10^{-3}$ using $B(\psi(2S)\to\gamma\chi_{c2})=(9.33\pm0.14\pm0.61)\%$. We have multiplied the $\pi^+\pi^-$ measurement by 3/2 to obtain $\pi\pi$. NODE=M057B02;LINKAGE=AS

[3] Calculated by us. ASNER 09 reports $B(\chi_{c2}\to\pi^0\pi^0)=(0.68\pm0.03\pm0.07\pm0.04)\times10^{-3}$ using $B(\psi(2S)\to\gamma\chi_{c2})=(9.33\pm0.14\pm0.61)\%$. We have multiplied the $\pi^0\pi^0$ measurement by 3 to obtain $\pi\pi$. NODE=M057B02;LINKAGE=AN

$\Gamma(\chi_{c2}(1P)\to\pi\pi)/\Gamma_{total}\times\Gamma(\psi(2S)\to\gamma\chi_{c2}(1P))/\Gamma(\psi(2S)\to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{25}/\Gamma\times\Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}_{12}$

NODE=M057B9
NODE=M057B9

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.611±0.023 OUR FIT					
0.54 ±0.06 OUR AVERAGE					
0.66 ±0.18 ±0.37	21 ± 6	[1] BAI	03C	BES	$\psi(2S)\to\gamma\pi^0\pi^0$
0.54 ±0.05 ±0.04	185 ± 16	[2] BAI	98I	BES	$\psi(2S)\to\gamma\pi^+\pi^-$

[1] We have multiplied $\pi^0\pi^0$ measurement by 3 to obtain $\pi\pi$. NODE=M057B;LINKAGE=BM

[2] Calculated by us. The value for $B(\chi_{c2}\to\pi^+\pi^-)$ reported by BAI 98I is derived using $B(\psi(2S)\to\gamma\chi_{c2})=(7.8\pm0.8)\%$ and $B(\psi(2S)\to J/\psi\pi^+\pi^-)=(32.4\pm2.6)\%$ [BAI 98D]. We have multiplied $\pi^+\pi^-$ measurement by 3/2 to obtain $\pi\pi$. NODE=M057B;LINKAGE=BA

$\Gamma(\chi_{c2}(1P)\to\eta\eta)/\Gamma_{total}\times\Gamma(\psi(2S)\to\gamma\chi_{c2}(1P))/\Gamma_{total}$ $\Gamma_{31}/\Gamma\times\Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057B04
NODE=M057B04

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
0.52±0.04 OUR FIT						
0.52±0.04 OUR AVERAGE						
0.54±0.03±0.04		386	[1] ABLIKIM	10A	BES3	$e^+e^-\to\psi(2S)\to\gamma\chi_{c2}$
0.47±0.05±0.05		156	ASNER	09	CLEO	$\psi(2S)\to\gamma\eta\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
< 0.44	90		[2] ADAMS	07	CLEO	$\psi(2S)\to\gamma\chi_{c2}$
< 3	90		BAI	03C	BES	$\psi(2S)\to\gamma\eta\eta\to5\gamma$
0.62±0.31±0.19			LEE	85	CBAL	$\psi(2S)\to$ photons

[1] Calculated by us. ABLIKIM 10A reports $B(\chi_{c2}\to\eta\eta)=(0.65\pm0.04\pm0.05\pm0.03)\times10^{-3}$ using $B(\psi(2S)\to\gamma\chi_{c2})=(8.3\pm0.4)\%$. NODE=M057B04;LINKAGE=AB

[2] Superseded by ASNER 09. NODE=M057B04;LINKAGE=AD

$\Gamma(\chi_{c2}(1P)\to K^+K^-)/\Gamma_{total}\times\Gamma(\psi(2S)\to\gamma\chi_{c2}(1P))/\Gamma_{total}$ $\Gamma_{32}/\Gamma\times\Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057B03
NODE=M057B03

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
9.5±1.4 OUR FIT Error includes scale factor of 2.4.					
10.5±0.3±0.6	1.6k	[1] ASNER	09	CLEO	$\psi(2S)\to\gamma K^+K^-$

[1] Calculated by us. ASNER 09 reports $B(\chi_{c2}\to K^+K^-)=(1.13\pm0.03\pm0.06\pm0.07)\times10^{-3}$ using $B(\psi(2S)\to\gamma\chi_{c2})=(9.33\pm0.14\pm0.61)\%$. NODE=M057B03;LINKAGE=AS

$\Gamma(\chi_{c2}(1P) \to K^+K^-)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{32}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}_{12}$

NODE=M057B8
NODE=M057B8

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.28 ±0.04 OUR FIT	Error includes scale factor of 2.3.				
0.190±0.034±0.019	115 ± 13	[1] BAI	98I	BES	$\psi(2S) \to \gamma K^+K^-$

[1] Calculated by us. The value for $B(\chi_{c2} \to K^+K^-)$ reported by BAI 98I is derived using $B(\psi(2S) \to \gamma\chi_{c2}) = (7.8 \pm 0.8)\%$ and $B(\psi(2S) \to J/\psi\pi^+\pi^-) = (32.4 \pm 2.6)\%$ [BAI 98D].

NODE=M057B;LINKAGE=BI

$\Gamma(\chi_{c2}(1P) \to K^0_S K^0_S)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma_{total}$ $\Gamma_{33}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057B12
NODE=M057B12

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
5.0 ±0.4 OUR FIT					
5.0 ±0.4 OUR AVERAGE					
4.9 ±0.3 ±0.3	373 ± 20	[1] ASNER	09	CLEO	$\psi(2S) \to \gamma K^0_S K^0_S$
5.72±0.76±0.63	65	ABLIKIM	05O	BES2	$\psi(2S) \to \gamma K^0_S K^0_S$

[1] Calculated by us. ASNER 09 reports $B(\chi_{c2} \to K^0_S K^0_S) = (0.53 \pm 0.03 \pm 0.03 \pm 0.03) \times 10^{-3}$ using $B(\psi(2S) \to \gamma\chi_{c2}) = (9.33 \pm 0.14 \pm 0.61)\%$.

NODE=M057B12;LINKAGE=AS

$\Gamma(\chi_{c2}(1P) \to K^0_S K^0_S)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{33}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}_{12}$

NODE=M057B13
NODE=M057B13

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
14.3±1.1 OUR FIT				
14.7±4.1±3.3	[1] BAI	99B	BES	$\psi(2S) \to \gamma K^0_S K^0_S$

[1] Calculated by us. The value of $B(\chi_{c2} \to K^0_S K^0_S)$ reported by BAI 99B was derived using $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (7.8 \pm 0.8)\%$ and $B(\psi(2S) \to J/\psi\pi^+\pi^-) = (32.4 \pm 2.6)\%$ [BAI 98D].

NODE=M057B13;LINKAGE=BA

$\Gamma(\chi_{c2}(1P) \to \overline{K}^0 K^+\pi^- + \text{c.c.})/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma_{total}$ $\Gamma_{42}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057B05
NODE=M057B05

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.22±0.18 OUR FIT					
1.15±0.18 OUR AVERAGE					
1.21±0.19±0.09	37	[1] ATHAR	07	CLEO	$\psi(2S) \to \gamma K^0_S K^\pm\pi^\mp$
0.97±0.32±0.13	28	[2] ABLIKIM	06R	BES2	$\psi(2S) \to \gamma K^0_S K^\pm\pi^\mp$

[1] Calculated by us. ATHAR 07 reports $B(\chi_{c2} \to \overline{K}^0 K^+\pi^- + \text{c.c.}) = (1.3 \pm 0.2 \pm 0.1 \pm 0.1) \times 10^{-3}$ using $B(\psi(2S) \to \gamma\chi_{c2}) = (9.33 \pm 0.14 \pm 0.61)\%$.

NODE=M057B05;LINKAGE=AT

[2] Calculated by us. ABLIKIM 06R reports $B(\chi_{c2} \to K^0_S K^\pm\pi^\mp) = (0.6 \pm 0.2 \pm 0.1) \times 10^{-3}$ using $B(\psi(2S) \to \gamma\chi_{c2}) = (8.1 \pm 0.6)\%$. We have multiplied by 2 to obtain $\overline{K}^0 K^+\pi^-$ + c.c. from $K^0_S K^\pm\pi^\mp$.

NODE=M057B05;LINKAGE=AB

$\Gamma(\chi_{c2}(1P) \to K^+K^-K^+K^-)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma_{total}$ $\Gamma_{51}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057B14
NODE=M057B14

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.57±0.21 OUR FIT	Error includes scale factor of 1.1.				
1.76±0.16±0.24	160	[1] ABLIKIM	06T	BES2	$\psi(2S) \to \gamma 2K^+2K^-$

[1] Calculated by us. The value of $B(\chi_{c2} \to 2K^+2K^-)$ reported by ABLIKIM 06T was derived using $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (8.1 \pm 0.4)\%$.

NODE=M057B14;LINKAGE=AB

$\Gamma(\chi_{c2}(1P) \to K^+K^-K^+K^-)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{51}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}_{12}$

NODE=M057B15
NODE=M057B15

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
4.5±0.6 OUR FIT	Error includes scale factor of 1.1.			
3.6±0.6±0.6	[1] BAI	99B	BES	$\psi(2S) \to \gamma 2K^+2K^-$

[1] Calculated by us. The value of $B(\chi_{c2} \to 2K^+2K^-)$ reported by BAI 99B was derived using $B(\psi(2S) \to \gamma\chi_{c2}(1P)) = (7.8 \pm 0.8)\%$ and $B(\psi(2S) \to J/\psi\pi^+\pi^-) = (32.4 \pm 2.6)\%$ [BAI 98D].

NODE=M057B15;LINKAGE=BA

$\Gamma(\chi_{c2}(1P) \to 3(K^+K^-))/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma_{total}$ $\Gamma_{55}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057P05
NODE=M057P05

VALUE (units 10^{-7})	EVTS	DOCUMENT ID		TECN	COMMENT
6.8±1.1±0.8	46.4 ± 7.0	[1] ABLIKIM	24P	BES3	$e^+e^- \to \psi(2S)$

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

NODE=M057P05;LINKAGE=A

$\Gamma(\chi_{c2}(1P) \to p\bar{p})/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{57}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}_{12}$

NODE=M057B1
NODE=M057B1

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
1.97±0.10 OUR FIT	Error includes scale factor of 1.1.			
1.4 ±1.1	[1] BAI	98I	BES	$\psi(2S) \to \gamma\chi_{c2} \to \gamma\bar{p}p$

[1] Calculated by us. The value for $B(\chi_{c2} \to p\bar{p})$ reported in BAI 98I is derived using $B(\psi(2S) \to \gamma\chi_{c2}) = (7.8 \pm 0.8)\%$ and $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (32.4 \pm 2.6)\%$ [BAI 98D].

NODE=M057B;LINKAGE=J8

$\Gamma(\chi_{c2}(1P) \to p\bar{p})/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma_{total}$ $\Gamma_{57}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057B6
NODE=M057B6

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
6.83±0.34 OUR FIT	Error includes scale factor of 1.1.				
7.1 ±0.5 OUR AVERAGE	Error includes scale factor of 1.2.				
7.3 ±0.4 ±0.3	405	ABLIKIM	13V	BES3	$\psi(2S) \to \gamma p\bar{p}$
7.2 ±0.7 ±0.4	121 ± 12	[1] NAIK	08	CLEO	$\psi(2S) \to \gamma p\bar{p}$
4.4 $^{+1.6}_{-1.4}$ ±0.6	$14.3^{+5.2}_{-4.7}$	BAI	04F	BES	$\psi(2S) \to \gamma\chi_{c2}(1P) \to \gamma\bar{p}p$

[1] Calculated by us. NAIK 08 reports $B(\chi_{c2} \to p\bar{p}) = (7.7 \pm 0.8 \pm 0.4 \pm 0.5) \times 10^{-5}$ using $B(\psi(2S) \to \gamma\chi_{c2}) = (9.33 \pm 0.14 \pm 0.61)\%$.

NODE=M057B6;LINKAGE=NA

$\Gamma(\chi_{c2}(1P) \to p\bar{p}K^0_S K^-\pi^+ + \text{c.c.})/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma_{total}$ $\Gamma_{66}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057P09
NODE=M057P09

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
5.36±0.26±0.43	574	ABLIKIM	24BX	BES3	$\psi(2S) \to \gamma\chi_{c2}$

$\Gamma(\chi_{c2}(1P) \to \bar{p}\Lambda(1520)K^0_S\pi^+ + \text{c.c.})/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma_{total}$ $\Gamma_{83}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057P10
NODE=M057P10

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
$3.89^{+0.83}_{-0.80}$±0.39	94	ABLIKIM	24BX	BES3	$\psi(2S) \to \gamma\chi_{c2}$

$\Gamma(\chi_{c2}(1P) \to \Lambda\bar{\Lambda})/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma_{total}$ $\Gamma_{71}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057B10
NODE=M057B10

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
17.4±1.4 OUR FIT					
17.3±1.5 OUR AVERAGE					
18.2±0.8±1.7	670	ABLIKIM	21L	BES3	$\psi(2S) \to \gamma p\pi^-\bar{p}\pi^+$
15.9±2.1±1.0	71	[1] NAIK	08	CLEO	$\psi(2S) \to \gamma\Lambda\bar{\Lambda}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
18.2±1.4±0.9	207	[2,3] ABLIKIM	13H	BES3	$\psi(2S) \to \gamma\Lambda\bar{\Lambda}$

[1] Calculated by us. NAIK 08 reports $B(\chi_{c2} \to \Lambda\bar{\Lambda}) = (17.0 \pm 2.2 \pm 1.1 \pm 1.1) \times 10^{-5}$ using $B(\psi(2S) \to \gamma\chi_{c2}) = (9.33 \pm 0.14 \pm 0.61)\%$.

NODE=M057B10;LINKAGE=NA

[2] Superseded by ABLIKIM 21L

NODE=M057B10;LINKAGE=A

[3] Calculated by us. ABLIKIM 13H reports $B(\chi_{c2} \to \Lambda\bar{\Lambda}) = (20.8 \pm 1.6 \pm 2.3) \times 10^{-5}$ from a measurement of $B(\chi_{c2} \to \Lambda\bar{\Lambda}) \times B(\psi(2S) \to \gamma\chi_{c2})$ assuming $B(\psi(2S) \to \gamma\chi_{c2}) = (8.74 \pm 0.35)\%$.

NODE=M057B10;LINKAGE=AB

$\Gamma(\chi_{c2}(1P) \to \Lambda\bar{\Lambda})/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{71}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}_{12}$

NODE=M057B11
NODE=M057B11

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
5.0±0.4 OUR FIT					
$7.1^{+3.1}_{-2.9}$±1.3	$8.3^{+3.7}_{-3.4}$	[1] BAI	03E	BES	$\psi(2S) \to \gamma\Lambda\bar{\Lambda}$

[1] BAI 03E reports [$B(\chi_{c2} \to \Lambda\bar{\Lambda})\ B(\psi(2S) \to \gamma\chi_{c2})$ / $B(\psi(2S) \to J/\psi\pi^+\pi^-)$] × [$B^2(\Lambda \to \pi^- p)$ / $B(J/\psi \to p\bar{p})$] = $(1.33^{+0.59}_{-0.55} \pm 0.25)\%$. We calculate from this measurement the presented value using $B(\Lambda \to \pi^- p) = (63.9 \pm 0.5)\%$ and $B(J/\psi \to p\bar{p}) = (2.17 \pm 0.07) \times 10^{-3}$.

NODE=M057B11;LINKAGE=BA

$\Gamma(\chi_{c2}(1P) \to \Lambda\bar{\Lambda}\eta)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma_{total}$

$\Gamma_{76}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057P02
NODE=M057P02

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
1.00±0.20±0.14	32	ABLIKIM	22AO	BES3	$\psi(2S) \to \gamma p\pi^- \bar{p}\pi^+\gamma\gamma$

$\Gamma(\chi_{c2}(1P) \to \Lambda\bar{\Lambda}\omega)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma_{total}$

$\Gamma_{77}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057P06
NODE=M057P06

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
13.3±1.2±1.6	251 ± 23	[1] ABLIKIM	24BE	BES3	$e^+e^- \to \psi(2S) \to \gamma\chi_{c2}$

[1] Calculated by us. The authors report $B(\chi_{c2} \to \Lambda\bar{\Lambda}\omega)$ obtained from a product using PDG 22 value of $B(\psi(2S) \to \gamma\chi_{c2})$.

NODE=M057P06;LINKAGE=A

$\Gamma(\chi_{c2}(1P) \to \Lambda\bar{\Lambda}\phi)/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma_{total}$

$\Gamma_{78}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057P04
NODE=M057P04

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
6.79±0.77±0.35	94.4	ABLIKIM	24AC	BES3	$\psi(2S) \to \gamma\chi_{c2}$

$\Gamma(\chi_{c2}(1P) \to \Sigma^+\bar{p}K^0_S + \text{c.c.})/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma_{total}$

$\Gamma_{86}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057B07
NODE=M057B07

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
7.85±0.77±0.44	129	[1] ABLIKIM	19BB	BES3	$\psi(2S) \to \gamma\Sigma^+\bar{p}K^0_S$ + c.c.

[1] Calculated by us. ABLIKIM 19BB reports $B(\chi_{c2} \to \Sigma^+\bar{p}K^0_S + \text{c.c.}) = (8.25 \pm 0.83 \pm 0.49) \times 10^{-5}$ using $B(\psi(2S) \to \gamma\chi_{c2}) = (9.52 \pm 0.20)\%$ and other branching fractions from PDG 18.

NODE=M057B07;LINKAGE=A

$\Gamma(\chi_{c2}(1P) \to \Sigma^0\bar{p}K^+ + \text{c.c.})/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma_{total}$

$\Gamma_{87}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057P00
NODE=M057P00

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
0.87±0.06±0.04	271	[1] ABLIKIM	20AE	BES3	$\psi(2S) \to \gamma\Sigma^0\bar{p}K^+$ + c.c.

[1] Calculated by us. ABLIKIM 20AE reports $B(\chi_{c2} \to \Sigma^0\bar{p}K^+ + \text{c.c.}) = (0.91 \pm 0.06 \pm 0.05) \times 10^{-4}$ using $B(\psi(2S) \to \gamma\chi_{c2}) = (9.52 \pm 0.20)\%$ and other branching fractions from PDG 20.

NODE=M057P00;LINKAGE=A

$\Gamma(\chi_{c2}(1P) \to \gamma J/\psi(1S))/\Gamma_{total} \times \Gamma(\psi(2S) \to \gamma\chi_{c2}(1P))/\Gamma_{total}$

$\Gamma_{100}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057B2
NODE=M057B2

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.83 ±0.06 OUR FIT		Error includes scale factor of 1.8.			
1.69 ±0.16 OUR AVERAGE		Error includes scale factor of 3.4. See the ideogram below.			
1.996±0.008±0.070	81k	[1] ABLIKIM	17N	BES3	$\psi(2S) \to \gamma\gamma J/\psi$
1.793±0.008±0.163	1.0M	ABLIKIM	17U	BES3	$e^+e^- \to \gamma X$
1.62 ±0.04 ±0.12	5.8k	BAI	04I	BES2	$\psi(2S) \to J/\psi\gamma\gamma$
0.99 ±0.10 ±0.08		GAISER	86	CBAL	$\psi(2S) \to \gamma X$
1.47 ±0.17		[2] OREGLIA	82	CBAL	$\psi(2S) \to \gamma\chi_{c2}$
1.8 ±0.5		[3] BRANDELIK	79B	DASP	$\psi(2S) \to \gamma\chi_{c2}$
1.2 ±0.2		[3] BARTEL	78B	CNTR	$\psi(2S) \to \gamma\chi_{c2}$
2.2 ±1.2		[4] BIDDICK	77	CNTR	$e^+e^- \to \gamma X$
1.2 ±0.7		[2] WHITAKER	76	MRK1	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.874±0.007±0.102	76k	[5] ABLIKIM	12O	BES3	$\psi(2S) \to \gamma\chi_{c2}$
1.95 ±0.02 ±0.07	12.4k	[6] MENDEZ	08	CLEO	$\psi(2S) \to \gamma\chi_{c2}$
1.85 ±0.04 ±0.07	1.9k	[7] ADAM	05A	CLEO	Repl. by MENDEZ 08

[1] Uses $B(J/\psi \to e^+e^-) = (5.971 \pm 0.032)\%$ and $B(J/\psi \to \mu^+\mu^-) = (5.961 \pm 0.033)\%$.

NODE=M057B2;LINKAGE=A

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

NODE=M057B;LINKAGE=3Q

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

NODE=M057B;LINKAGE=2Q

[4] Assumes isotropic gamma distribution.

NODE=M057B;LINKAGE=EA

[5] Superseded by ABLIKIM 17N.

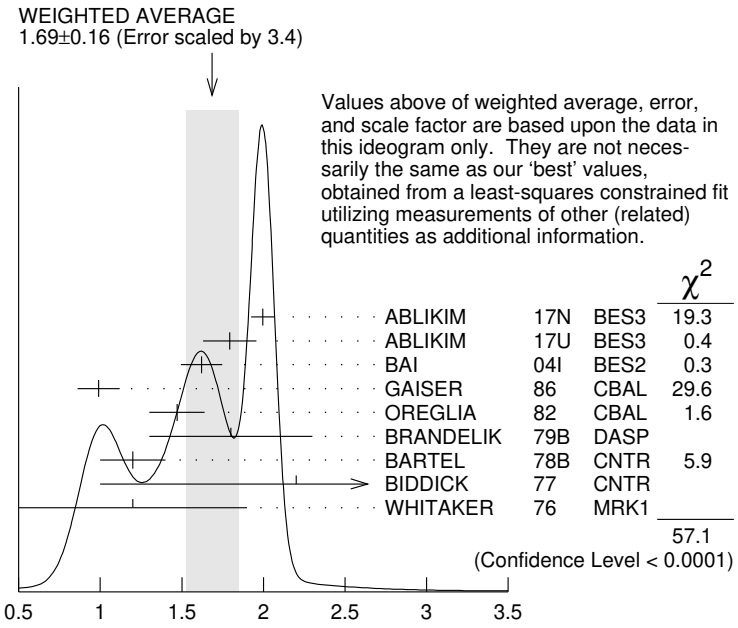
NODE=M057B2;LINKAGE=B

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

NODE=M057B2;LINKAGE=ME

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

NODE=M057B;LINKAGE=AD



$\Gamma\big(\chi_{c2}(1P) \to \gamma J/\psi(1S)\big)/\Gamma_{\rm total} \times \Gamma\big(\psi(2S) \to \gamma\chi_{c2}(1P)\big)/\Gamma_{\rm total}$ (units 10^{-2})

$\Gamma\big(\chi_{c2}(1P) \to \gamma J/\psi(1S)\big)/\Gamma_{\rm total} \times \Gamma\big(\psi(2S) \to \gamma\chi_{c2}(1P)\big)/\Gamma\big(\psi(2S) \to J/\psi(1S)\pi^+\pi^-\big)$ $\Gamma_{100}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}_{12}$

NODE=M057B3
NODE=M057B3

VALUE (units 10^{-2})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
5.27±0.18 OUR FIT Error includes scale factor of 1.8.					
5.53±0.17 OUR AVERAGE					
5.56±0.05±0.16	12.4k	MENDEZ	08	CLEO	$\psi(2S) \to \gamma\chi_{c2}$
6.0 ±2.8	1.3k	[1] ABLIKIM	04B	BES	$\psi(2S) \to J/\psi X$
3.9 ±1.2		[2] HIMEL	80	MRK2	$\psi(2S) \to \gamma\chi_{c2}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
5.52±0.13±0.13	1.9k	[3] ADAM	05A	CLEO	Repl. by MENDEZ 08

[1] From a fit to the J/ψ recoil mass spectra. NODE=M057B;LINKAGE=AB

[2] The value for $B(\psi(2S) \to \gamma\chi_{c2})\times B(\chi_{c2} \to \gamma J/\psi(1S))$ reported in HIMEL 80 is derived using $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (33 \pm 3)\%$ and $B(J/\psi(1S) \to \ell^+\ell^-) = 0.138 \pm 0.018$. Calculated by us using $B(J/\psi(1S) \to \ell^+\ell^-) = (0.1181 \pm 0.0020)$. NODE=M057B;LINKAGE=H8

[3] Not independent from other values reported by ADAM 05A. NODE=M057B3;LINKAGE=AD

$\Gamma\big(\chi_{c2}(1P) \to \gamma\gamma\big)/\Gamma_{\rm total} \times \Gamma\big(\psi(2S) \to \gamma\chi_{c2}(1P)\big)/\Gamma_{\rm total}$ $\Gamma_{104}/\Gamma \times \Gamma^{\psi(2S)}_{183}/\Gamma^{\psi(2S)}$

NODE=M057B4
NODE=M057B4

VALUE (units 10^{-5})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.73±0.11 OUR FIT Error includes scale factor of 1.3.					
2.82±0.10 OUR AVERAGE					
2.83±0.08±0.06	5k	[1] ABLIKIM	17AE	BES3	$\psi(2S) \to \gamma\chi_{c2} \to 3\gamma$
2.68±0.28±0.15	0.3k	ECKLUND	08A	CLEO	$\psi(2S) \to \gamma\chi_{c2} \to 3\gamma$
7.0 ±2.1 ±2.0		LEE	85	CBAL	$\psi(2S) \to \gamma\chi_{c2}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.81±0.17±0.15	1.1k	[2] ABLIKIM	12A	BES3	$\psi(2S) \to \gamma\chi_{c2} \to 3\gamma$

[1] ABLIKIM 17AE measures the ratio of two-photon partial widths for the helicity $\lambda = 0$ and helicity $\lambda = 2$ components to be $f_{0/2} = \Gamma^{\lambda=0}_{\gamma\gamma} / \Gamma^{\lambda=2}_{\gamma\gamma} = 0.000 \pm 0.006 \pm 0.012$. NODE=M057B4;LINKAGE=A

[2] ABLIKIM 12A measures the ratio of two-photon partial widths for the helicity $\lambda = 0$ and helicity $\lambda = 2$ components to be $f_{0/2} = \Gamma^{\lambda=0}_{\gamma\gamma}/\Gamma^{\lambda=2}_{\gamma\gamma} = 0.00 \pm 0.02 \pm 0.02$. Superseded by ABLIKIM 17AE. NODE=M057B4;LINKAGE=AB

$\Gamma\big(\chi_{c2}(1P) \to \gamma\gamma\big)/\Gamma\big(\chi_{c0}(1P) \to \gamma\gamma\big)$ $\Gamma_{104}/\Gamma^{\chi_{c0}(1P)}_{104}$

NODE=M057B06
NODE=M057B06

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.292±0.028 OUR AVERAGE					
0.295±0.014±0.028	8k	[1] ABLIKIM	17AE	BES3	$\psi(2S) \to \gamma\chi_{cJ} \to 3\gamma$
0.278±0.050±0.036	0.5k	[1] ECKLUND	08A	CLEO	$\psi(2S) \to \gamma\chi_{cJ} \to 3\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.271±0.029±0.030	1.9k	[1,2] ABLIKIM	12A	BES3	$\psi(2S) \to \gamma\chi_{cJ} \to 3\gamma$

[1] Not independent from the values of $\Gamma(\chi_{c0}, \chi_{c2})$ and $B(\psi(2S) \to \chi_{c0}, \chi_{c2})$.
[2] Superseded by ABLIKIM 17AE.

NODE=M057B06;LINKAGE=AB
NODE=M057B06;LINKAGE=A

MULTIPOLE AMPLITUDES IN $\chi_{c2}(1P) \to \gamma J/\psi(1S)$ RADIATIVE DECAY

NODE=M057240

$a_2 = M2/\sqrt{E1^2 + M2^2 + E3^2}$ Magnetic quadrupole fractional transition amplitude

NODE=M057A1
NODE=M057A1

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
-11.0 ± 1.0 OUR AVERAGE					
$-12.0 \pm 1.3 \pm 0.4$	89k	[1] ABLIKIM	17N	BES3	$\psi(2S) \to \gamma\gamma\ell^+\ell^-$
$-9.3 \pm 1.6 \pm 0.3$	19.8k	[2] ARTUSO	09	CLEO	$\psi(2S) \to \gamma\gamma\ell^+\ell^-$
$-9.3^{+3.9}_{-4.1} \pm 0.6$	5.9k	[3] AMBROGIANI	02	E835	$p\overline{p} \to \chi_{c2} \to J/\psi\gamma$
-14 ± 6	1.9k	[3] ARMSTRONG	93E	E760	$p\overline{p} \to \chi_{c2} \to J/\psi\gamma$
$-33.3^{+11.6}_{-29.2}$	441	[3] OREGLIA	82	CBAL	$\psi(2S) \to \chi_{c1}\gamma \to J/\psi\gamma\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$-7.9 \pm 1.9 \pm 0.3$	19.8k	[4] ARTUSO	09	CLEO	$\psi(2S) \to \gamma\gamma\ell^+\ell^-$

OCCUR=2

[1] Correlated with a_3, b_2, and b_3 with correlation coefficients $\rho_{a_2 a_3} = 0.733$, $\rho_{a_2 b_2} = -0.605$, and $\rho_{a_2 b_3} = -0.095$.

NODE=M057A1;LINKAGE=B

[2] From a fit with floating *M2* amplitudes a_2 and b_2, and fixed *E3* amplitudes a_3=b_3=0.

NODE=M057A1;LINKAGE=AR

[3] Assuming a_3=0.

NODE=M057A1;LINKAGE=A

[4] From a fit with floating *M2* and *E3* amplitudes a_2, b_2, and a_3, and b_3.

NODE=M057A1;LINKAGE=AT

$a_3 = E3/\sqrt{E1^2 + M2^2 + E3^2}$ Electric octupole fractional transition amplitude

NODE=M057A2
NODE=M057A2

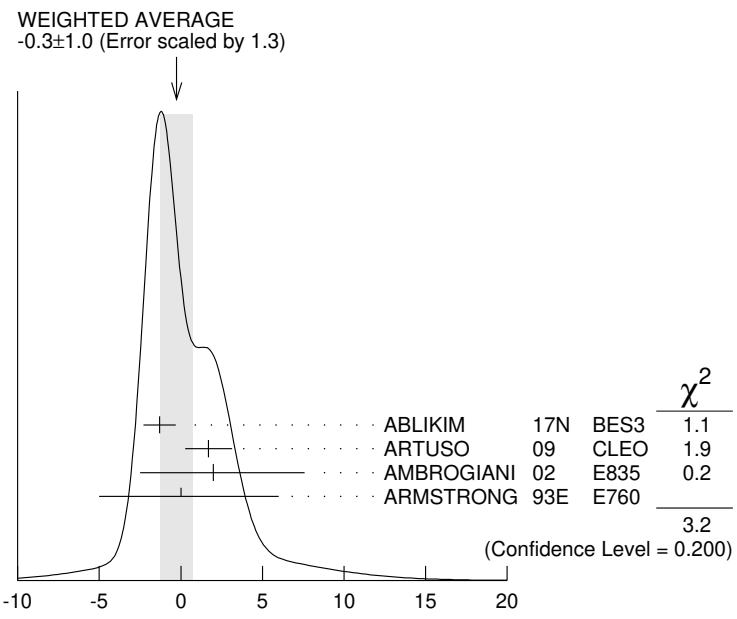
VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
-0.3 ± 1.0 OUR AVERAGE Error includes scale factor of 1.3. See the ideogram below.					
$-1.3 \pm 0.9 \pm 0.4$	89k	[1] ABLIKIM	17N	BES3	$\psi(2S) \to \gamma\gamma\ell^+\ell^-$
$1.7 \pm 1.4 \pm 0.3$	19.8k	[2] ARTUSO	09	CLEO	$\psi(2S) \to \gamma\gamma\ell^+\ell^-$
$2.0^{+5.5}_{-4.4} \pm 0.9$	5908	AMBROGIANI	02	E835	$p\overline{p} \to \chi_{c2} \to J/\psi\gamma$
0^{+6}_{-5}	1904	ARMSTRONG	93E	E760	$p\overline{p} \to \chi_{c2} \to J/\psi\gamma$

[1] Correlated with a_2, b_2, and b_3 with correlation coefficients $\rho_{a_2 a_3} = 0.733$, $\rho_{a_3 b_2} = -0.422$, and $\rho_{a_3 b_3} = -0.024$.

NODE=M057A2;LINKAGE=A

[2] From a fit with floating *M2* and *E3* amplitudes a_2, b_2, and a_3, and b_3.

NODE=M057A2;LINKAGE=AR



$a_3 = E3/\sqrt{E1^2 + M2^2 + E3^2}$ Electric octupole fractional transition amplitude (units 10^{-2})

MULTIPOLE AMPLITUDES IN $\psi(2S) \to \gamma\chi_{c2}(1P)$ RADIATIVE DECAY

NODE=M057250

$b_2 = M2/\sqrt{E1^2 + M2^2 + E3^2}$ Magnetic quadrupole fractional transition amplitude

NODE=M057QB2
NODE=M057QB2

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.9±0.9 OUR AVERAGE		Error includes scale factor of 1.4. See the ideogram below.			
$1.7 \pm 0.8 \pm 0.2$	89k	[1] ABLIKIM	17N	BES3	$\psi(2S) \to \gamma\gamma\ell^+\ell^-$
$4.6 \pm 1.0 \pm 1.3$	13.8k	[2] ABLIKIM	11I	BES3	$\psi(2S) \to \gamma\pi^+\pi^-, \gamma K^+K^-$
$0.2 \pm 1.5 \pm 0.4$	19.8k	[3] ARTUSO	09	CLEO	$\psi(2S) \to \gamma\gamma\ell^+\ell^-$
$-5.1^{+5.4}_{-3.6}$	721	[2] ABLIKIM	04I	BES2	$\psi(2S) \to \gamma\pi^+\pi^-, \gamma K^+K^-$
$13.2^{+9.8}_{-7.5}$	441	[4] OREGLIA	82	CBAL	$\psi(2S) \to \gamma\gamma\ell^+\ell^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.0 \pm 1.3 \pm 0.3$	19.8k	[4] ARTUSO	09	CLEO	$\psi(2S) \to \gamma\gamma\ell^+\ell^-$

OCCUR=2

[1] Correlated with a_2, a_3, and b_3 with correlation coefficients $\rho_{a_2 b_2} = -0.605$, $\rho_{a_3 b_2} = -0.422$, and $\rho_{b_2 b_3} = 0.384$.

NODE=M057QB2;LINKAGE=A

[2] From a fit with floating $M2$ and $E3$ amplitudes b_2 and b_3.

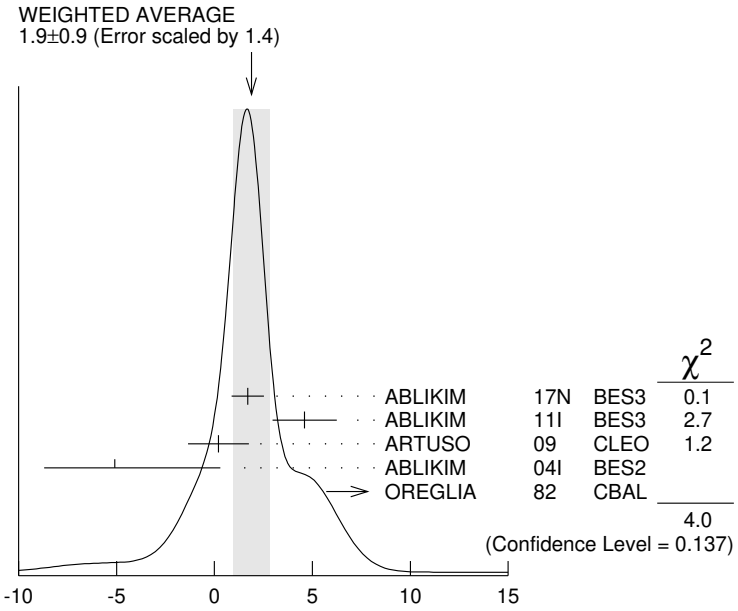
NODE=M057QB2;LINKAGE=AB

[3] From a fit with floating $M2$ and $E3$ amplitudes a_2, b_2, and a_3, and b_3.

NODE=M057QB2;LINKAGE=AT

[4] From a fit with floating $M2$ amplitudes a_2 and b_2, and fixed $E3$ amplitudes a_3=b_3=0.

NODE=M057QB2;LINKAGE=AR



$b_2 = M2/\sqrt{E1^2 + M2^2 + E3^2}$ Magnetic quadrupole fractional transition amplitude (units 10^{-2})

$b_3 = E3/\sqrt{E1^2 + M2^2 + E3^2}$ Electric octupole fractional transition amplitude

NODE=M057QB3
NODE=M057QB3

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
−1.0±0.6 OUR AVERAGE					
$-1.4 \pm 0.7 \pm 0.4$	89k	[1] ABLIKIM	17N	BES3	$\psi(2S) \to \gamma\gamma\ell^+\ell^-$
$1.5 \pm 0.8 \pm 1.8$	13.8k	[2] ABLIKIM	11I	BES3	$\psi(2S) \to \gamma\pi^+\pi^-, \gamma K^+K^-$
$-0.8 \pm 1.2 \pm 0.2$	19.8k	ARTUSO	09	CLEO	$\psi(2S) \to \gamma\gamma\ell^+\ell^-$
$-2.7^{+4.3}_{-2.9}$	721	[2] ABLIKIM	04I	BES2	$\psi(2S) \to \gamma\pi^+\pi^-, \gamma K^+K^-$

[1] Correlated with a_2, a_3, and b_2 with correlation coefficients $\rho_{a_2 b_3} = -0.095$, $\rho_{a_3 b_3} = -0.024$, and $\rho_{b_2 b_3} = 0.384$.

NODE=M057QB3;LINKAGE=A

[2] From a fit with floating $M2$ and $E3$ amplitudes b_2 and b_3.

NODE=M057QB3;LINKAGE=AB

MULTIPOLE AMPLITUDE RATIOS IN RADIATIVE DECAYS $\psi(2S) \to \gamma\chi_{c2}(1P)$ and $\chi_{c2} \to \gamma J/\psi(1S)$

NODE=M057260

b_2/a_2 Magnetic quadrupole transition amplitude ratio

NODE=M057QAR
NODE=M057QAR

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{-11^{+14}_{-15}}$	19.8k	[1] ARTUSO	09	CLEO	$\psi(2S) \to \gamma\gamma\ell^+\ell^-$

[1] Statistical and systematic errors combined. From a fit with floating *M2* amplitudes a_2 and b_2, and fixed *E3* amplitudes a_3=b_3=0. Not independent of values for $a_2(\chi_{c2}(1P))$ and $b_2(\chi_{c2}(1P))$ from ARTUSO 09.

NODE=M057QAR;LINKAGE=AR

$\chi_{c2}(1P)$ REFERENCES

NODE=M057

ABLIKIM	24AC	PR D110 032016	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62682
ABLIKIM	24BE	PR D110 032022	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62904
ABLIKIM	24BT	PR D110 072009	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63025
ABLIKIM	24BW	PR D110 092003	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63028
ABLIKIM	24BX	PR D110 112009	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63029
ABLIKIM	24CA	PR D110 112013	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63032
ABLIKIM	24P	PR D109 072016	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62667
ABLIKIM	23N	JHEP 2305 069	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62056
ABLIKIM	23T	PR D107 092004	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62064
SEINO	23	JHEP 2301 160	Y. Seino *et al.*	(BELLE Collab.)	REFID=62051
ABLIKIM	22AO	PR D106 072004	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61887
ABLIKIM	22O	JHEP 2206 074	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61652
ABLIKIM	22Q	PR D106 032014	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61663
PDG	22	PTEP 2022 083C01	R.L. Workman *et al.*	(PDG Collab.)	REFID=61634
ABLIKIM	21AV	JHEP 2111 217	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61465
ABLIKIM	21L	PR D103 112004	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61117
ABLIKIM	20AE	PR D102 092006	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60733
ABLIKIM	20B	PR D101 012012	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60212
ABLIKIM	20I	PR D101 092002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60303
PDG	20	PTEP 2020 083C01	P.A. Zyla *et al.*	(PDG Collab.)	REFID=60676
ABLIKIM	19AA	PR D99 052008	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59844
ABLIKIM	19AU	PR D100 052010	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59996
ABLIKIM	19BB	PR D100 092006	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60026
ABLIKIM	19J	PR D99 012015	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59606
ABLIKIM	19Z	PR D99 051101	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59837
ABLIKIM	18V	PR D97 052011	M. Ablikim *et al.*	(BESIII Collab.)	REFID=58990
PDG	18	PR D98 030001	M. Tanabashi *et al.*	(PDG Collab.)	REFID=59304
AAIJ	17BB	EPJ C77 609	R. Aaij *et al.*	(LHCb Collab.)	REFID=58191
AAIJ	17BI	PRL 119 221801	R. Aaij *et al.*	(LHCb Collab.)	REFID=58278
ABLIKIM	17AE	PR D96 092007	M. Ablikim *et al.*	(BESIII Collab.)	REFID=58310
ABLIKIM	17AG	PR D96 111102	M. Ablikim *et al.*	(BESIII Collab.)	REFID=58316
ABLIKIM	17AI	PR D96 112006	M. Ablikim *et al.*	(BESIII Collab.)	REFID=58321
ABLIKIM	17I	PRL 118 221802	M. Ablikim *et al.*	(BESIII Collab.)	REFID=57931
ABLIKIM	17N	PR D95 072004	M. Ablikim *et al.*	(BESIII Collab.)	REFID=57978
ABLIKIM	17U	PR D96 032001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=58026
PDG	16	CP C40 100001	C. Patrignani *et al.*	(PDG Collab.)	REFID=57140
ABLIKIM	15I	PR D91 092006	M. Ablikim *et al.*	(BESIII Collab.)	REFID=56774
ABLIKIM	15M	PR D91 112008	M. Ablikim *et al.*	(BESIII Collab.)	REFID=56778
ABLIKIM	15N	PR D91 112018	M. Ablikim *et al.*	(BESIII Collab.)	REFID=56779
ABLIKIM	14J	PR D89 074030	M. Ablikim *et al.*	(BESIII Collab.)	REFID=55901
ABLIKIM	13B	PR D87 012002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=54877
ABLIKIM	13D	PR D87 012007	M. Ablikim *et al.*	(BESIII Collab.)	REFID=54879
ABLIKIM	13H	PR D87 032007	M. Ablikim *et al.*	(BESIII Collab.)	REFID=54953
ABLIKIM	13V	PR D88 112001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=55583
UEHARA	13	PTEP 2013 123C01	S. Uehara *et al.*	(BELLE Collab.)	REFID=55592
ABLIKIM	12A	PR D85 112008	M. Ablikim *et al.*	(BESIII Collab.)	REFID=54266
ABLIKIM	12I	PR D86 052004	M. Ablikim *et al.*	(BESIII Collab.)	REFID=54736
ABLIKIM	12J	PR D86 052011	M. Ablikim *et al.*	(BESIII Collab.)	REFID=54737
ABLIKIM	12O	PRL 109 172002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=54742
LEES	12AE	PR D86 092005	J.P. Lees *et al.*	(BABAR Collab.)	REFID=54752
LIU	12B	PRL 108 232001	Z.Q. Liu *et al.*	(BELLE Collab.)	REFID=54303
ABLIKIM	11A	PR D83 012006	M. Ablikim *et al.*	(BESIII Collab.)	REFID=53647
ABLIKIM	11E	PR D83 112005	M. Ablikim *et al.*	(BESIII Collab.)	REFID=16717
ABLIKIM	11F	PR D83 112009	M. Ablikim *et al.*	(BESIII Collab.)	REFID=16719
ABLIKIM	11I	PR D84 092006	M. Ablikim *et al.*	(BESIII Collab.)	REFID=53930
ABLIKIM	11K	PRL 107 092001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=53940
DEL-AMO-SA...	11M	PR D84 012004	P. del Amo Sanchez *et al.*	(BABAR Collab.)	REFID=16751
ABLIKIM	10A	PR D81 052005	M. Ablikim *et al.*	(BESIII Collab.)	REFID=53347
ONYISI	10	PR D82 011103	P.U.E. Onyisi *et al.*	(CLEO Collab.)	REFID=53360
UEHARA	10A	PR D82 114031	S. Uehara *et al.*	(BELLE Collab.)	REFID=53641
ARTUSO	09	PR D80 112003	M. Artuso *et al.*	(CLEO Collab.)	REFID=53206
ASNER	09	PR D79 072007	D.M. Asner *et al.*	(CLEO Collab.)	REFID=52721
UEHARA	09	PR D79 052009	S. Uehara *et al.*	(BELLE Collab.)	REFID=52761
BENNETT	08A	PRL 101 151801	J.V. Bennett *et al.*	(CLEO Collab.)	REFID=52575
ECKLUND	08A	PR D78 091501	K.M. Ecklund *et al.*	(CLEO Collab.)	REFID=52583
HE	08B	PR D78 092004	Q. He *et al.*	(CLEO Collab.)	REFID=52588
MENDEZ	08	PR D78 011102	H. Mendez *et al.*	(CLEO Collab.)	REFID=52684
NAIK	08	PR D78 031101	P. Naik *et al.*	(CLEO Collab.)	REFID=52301
UEHARA	08	EPJ C53 1	S. Uehara *et al.*	(BELLE Collab.)	REFID=52064
ADAMS	07	PR D75 071101	G.S. Adams *et al.*	(CLEO Collab.)	REFID=51651
ATHAR	07	PR D75 032002	S.B. Athar *et al.*	(CLEO Collab.)	REFID=51618
CHEN	07B	PL B651 15	W.T. Chen *et al.*	(BELLE Collab.)	REFID=51710
ABLIKIM	06D	PR D73 052006	M. Ablikim *et al.*	(BES Collab.)	REFID=51049
ABLIKIM	06I	PR D74 012004	M. Ablikim *et al.*	(BES Collab.)	REFID=51126
ABLIKIM	06R	PR D74 072001	M. Ablikim *et al.*	(BES Collab.)	REFID=51447
ABLIKIM	06T	PL B642 197	M. Ablikim *et al.*	(BES Collab.)	REFID=51453
DOBBS	06	PR D73 071101	S. Dobbs *et al.*	(CLEO Collab.)	REFID=51062
ABLIKIM	05G	PR D71 092002	M. Ablikim *et al.*	(BES Collab.)	REFID=50756
ABLIKIM	05N	PL B630 7	M. Ablikim *et al.*	(BES Collab.)	REFID=50847
ABLIKIM	05O	PL B630 21	M. Ablikim *et al.*	(BES Collab.)	REFID=50846
ADAM	05A	PRL 94 232002	N.E. Adam *et al.*	(CLEO Collab.)	REFID=50763
ANDREOTTI	05A	NP B717 34	M. Andreotti *et al.*	(FNAL E835 Collab.)	REFID=50769
NAKAZAWA	05	PL B615 39	H. Nakazawa *et al.*	(BELLE Collab.)	REFID=50807
ABLIKIM	04B	PR D70 012003	M. Ablikim *et al.*	(BES Collab.)	REFID=49741

ABLIKIM	04H	PR D70 092003	M. Ablikim *et al.*	(BES Collab.)	REFID=50188
ABLIKIM	04I	PR D70 092004	M. Ablikim *et al.*	(BES Collab.)	REFID=50189
BAI	04F	PR D69 092001	J.Z. Bai *et al.*	(BES Collab.)	REFID=49752
BAI	04I	PR D70 012006	J.Z. Bai *et al.*	(BES Collab.)	REFID=49755
AULCHENKO	03	PL B573 63	V.M. Aulchenko *et al.*	(KEDR Collab.)	REFID=49579
BAI	03C	PR D67 032004	J.Z. Bai *et al.*	(BES Collab.)	REFID=49190
BAI	03E	PR D67 112001	J.Z. Bai *et al.*	(BES Collab.)	REFID=49416
ABE	02T	PL B540 33	K. Abe *et al.*	(BELLE Collab.)	REFID=48813
AMBROGIANI	02	PR D65 052002	M. Ambrogiani *et al.*	(FNAL E835 Collab.)	REFID=48552
EISENSTEIN	01	PRL 87 061801	B.I. Eisenstein *et al.*	(CLEO Collab.)	REFID=48344
AMBROGIANI	00B	PR D62 052002	M. Ambrogiani *et al.*	(FNAL E835 Collab.)	REFID=47940
ACCIARRI	99E	PL B453 73	M. Acciarri *et al.*	(L3 Collab.)	REFID=46943
BAI	99B	PR D60 072001	J.Z. Bai *et al.*	(BES Collab.)	REFID=47385
ACKER..,K...	98	PL B439 197	K. Ackerstaff *et al.*	(OPAL Collab.)	REFID=46324
BAI	98D	PR D58 092006	J.Z. Bai *et al.*	(BES Collab.)	REFID=46338
BAI	98I	PRL 81 3091	J.Z. Bai *et al.*	(BES Collab.)	REFID=46343
DOMINICK	94	PR D50 4265	J. Dominick *et al.*	(CLEO Collab.)	REFID=44077
ARMSTRONG	93	PRL 70 2988	T.A. Armstrong *et al.*	(FNAL E760 Collab.)	REFID=43306
ARMSTRONG	93E	PR D48 3037	T.A. Armstrong *et al.*	(FNAL-E760 Collab.)	REFID=48616
BAUER	93	PL B302 345	D.A. Bauer *et al.*	(TPC Collab.)	REFID=43315
ARMSTRONG	92	NP B373 35	T.A. Armstrong *et al.*	(FNAL, FERR, GENO+)	REFID=41865
Also		PRL 68 1468	T.A. Armstrong *et al.*	(FNAL, FERR, GENO+)	REFID=41907
BAGLIN	87B	PL B187 191	C. Baglin *et al.*	(R704 Collab.)	REFID=40018
BAGLIN	86B	PL B172 455	C. Baglin	(LAPP, CERN, GENO, LYON, OSLO+)	REFID=22145
GAISER	86	PR D34 711	J. Gaiser *et al.*	(Crystal Ball Collab.)	REFID=22012
LEE	85	SLAC 282	R.A. Lee	(SLAC)	REFID=40589
LEMOIGNE	82	PL 113B 509	Y. Lemoigne *et al.*	(SACL, LOIC, SHMP+)	REFID=22084
OREGLIA	82	PR D25 2259	M.J. Oreglia *et al.*	(SLAC, CIT, HARV+)	REFID=22120
Also		Private Comm.	M.J. Oreglia	(EFI)	REFID=22143
BARATE	81	PR D24 2994	R. Barate *et al.*	(SACL, LOIC, SHMP, CERN+)	REFID=22164
HIMEL	80	PRL 44 920	T. Himel *et al.*	(LBL, SLAC)	REFID=22119
Also		Private Comm.	G. Trilling	(LBL, UCB)	REFID=22113
BRANDELIK	79B	NP B160 426	R. Brandelik *et al.*	(DASP Collab.)	REFID=22115
BARTEL	78B	PL 79B 492	W. Bartel *et al.*	(DESY, HEIDP)	REFID=22111
TANENBAUM	78	PR D17 1731	W.M. Tanenbaum *et al.*	(SLAC, LBL)	REFID=22112
Also		Private Comm.	G. Trilling	(LBL, UCB)	REFID=22113
BIDDICK	77	PRL 38 1324	C.J. Biddick *et al.*	(UCSD, UMD, PAVI+)	REFID=22059
WHITAKER	76	PRL 37 1596	J.S. Whitaker *et al.*	(SLAC, LBL)	REFID=22151