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$J/\psi(1S)$

$I^G(J^{PC}) = 0^-(1^{--})$

$J/\psi(1S)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
3096.900±0.006 OUR AVERAGE					
3096.900±0.002±0.006		[1] ANASHIN	15	KEDR	$e^+e^- \to$ hadrons
3096.89 ±0.09	502	[2] ARTAMONOV	00	OLYA	$e^+e^- \to$ hadrons
3096.91 ±0.03 ±0.01		[3] ARMSTRONG	93B	E760	$\overline{p}p \to e^+e^-$
3096.95 ±0.1 ±0.3	193	BAGLIN	87	SPEC	$\overline{p}p \to e^+e^-X$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3096.66 ±0.19 ±0.02	6.1k	[4] AAIJ	15BI	LHCB	$pp \to J/\psi X$
3096.917±0.010±0.007		AULCHENKO	03	KEDR	$e^+e^- \to$ hadrons
3097.5 ±0.3		GRIBUSHIN	96	FMPS	515 π^- Be $\to 2\mu X$
3098.4 ±2.0	38k	LEMOIGNE	82	GOLI	185 π^- Be $\to \gamma\mu^+\mu^-$ A
3096.93 ±0.09	502	[5] ZHOLENTZ	80	REDE	e^+e^-
3097.0 ±1		[6] BRANDELIK	79C	DASP	e^+e^-

[1] Supersedes AULCHENKO 03.

[2] Reanalysis of ZHOLENTZ 80 using new electron mass (COHEN 87) and radiative corrections (KURAEV 85).

[3] Mass central value and systematic error recalculated by us according to Eq. (16) in ARMSTRONG 93B, using the value for the $\psi(2S)$ mass from AULCHENKO 03.

[4] From a sample of $\eta_c(1S)$ and J/ψ produced in b-hadron decays. Systematic uncertainties not estimated.

[5] Superseded by ARTAMONOV 00.

[6] From a simultaneous fit to e^+e^-, $\mu^+\mu^-$ and hadronic channels assuming $\Gamma(e^+e^-) = \Gamma(\mu^+\mu^-)$.

$J/\psi(1S)$ WIDTH

VALUE (keV)	EVTS	DOCUMENT ID		TECN	COMMENT
92.6 ± 1.7 OUR AVERAGE		Error includes scale factor of 1.1.			
92.45± 1.40±1.48		[1] ANASHIN	20	KEDR	e^+e^-
96.1 ± 3.2	13k	[2] ADAMS	06A	CLEO	$e^+e^- \to \mu^+\mu^-\gamma$
84.4 ± 8.9		BAI	95B	BES	e^+e^-
91 ±11 ±6		[3] ARMSTRONG	93B	E760	$\overline{p}p \to e^+e^-$
85.5 $^{+6.1}_{-5.8}$		[4] HSUEH	92	RVUE	See Υ mini-review
• • • We do not use the following data for averages, fits, limits, etc. • • •					
92.94± 1.83		[5,6] ANASHIN	18A	KEDR	e^+e^-
94.1 ± 2.7		[7] ANASHIN	10	KEDR	3.097 $e^+e^- \to e^+e^-, \mu^+\mu^-$
93.7 ± 3.5	7.8k	[2] AUBERT	04	BABR	$e^+e^- \to \mu^+\mu^-\gamma$

[1] Based on the same dataset as ANASHIN 18A and correlated to the values reported there .

[2] Calculated by us from the reported values of $\Gamma(e^+e^-)\times B(\mu^+\mu^-)$ using $B(e^+e^-) = (5.94 \pm 0.06)\%$ and $B(\mu^+\mu^-) = (5.93 \pm 0.06)\%$.

[3] The initial-state radiation correction reevaluated by ANDREOTTI 07 in its Ref. [4].
[4] Using data from COFFMAN 92, BALDINI-CELIO 75, BOYARSKI 75, ESPOSITO 75B, BRANDELIK 79C.
[5] Using $\Gamma(e^+e^-)$ from ANASHIN 18A and $B(J/\psi(1S) \to e^+e^-) = (5.971 \pm 0.032)\%$ from PDG 16.
[6] Superseded by ANASHIN 20 that is based on the same dataset .
[7] Assuming $\Gamma(e^+e^-) = \Gamma(\mu^+\mu^-)$ and using $\Gamma(e^+e^-)/\Gamma_{\text{total}} = (5.94 \pm 0.06)\%$.

$J/\psi(1S)$ DECAY MODES

	Mode		Fraction (Γ_i/Γ)	Scale factor/ Confidence level
Γ_1	hadrons		$(87.7 \pm 0.5)\%$	
Γ_2	virtual$\gamma \to$ hadrons		$(13.50 \pm 0.30)\%$	
Γ_3	ggg		$(64.1 \pm 1.0)\%$	
Γ_4	γgg		$(8.8 \pm 1.1)\%$	
Γ_5	e^+e^-		$(5.971 \pm 0.032)\%$	
Γ_6	$e^+e^-\gamma$	[a]	$(8.8 \pm 1.4) \times 10^{-3}$	
Γ_7	$\mu^+\mu^-$		$(5.961 \pm 0.033)\%$	
	Decays involving hadronic resonances			
Γ_8	$\rho\pi$		$(1.69 \pm 0.15)\%$	S=2.4
Γ_9	$\rho^0\pi^0$		$(5.6 \pm 0.7) \times 10^{-3}$	
Γ_{10}	$a_2(1320)\rho$		$(1.09 \pm 0.22)\%$	
Γ_{11}	$\eta\pi^+\pi^-$		$(3.8 \pm 0.7) \times 10^{-4}$	
Γ_{12}	$\eta\pi^+\pi^-\pi^0$		$(1.17 \pm 0.20)\%$	
Γ_{13}	$\eta\pi^+\pi^- 3\pi^0$		$(4.9 \pm 1.0) \times 10^{-3}$	
Γ_{14}	$\eta\rho$		$(1.93 \pm 0.23) \times 10^{-4}$	
Γ_{15}	$\eta\phi(2170) \to \eta\phi f_0(980) \to \eta\phi\pi^+\pi^-$		$(1.2 \pm 0.4) \times 10^{-4}$	
Γ_{16}	$\eta\phi(2170) \to \eta K^*(892)^0 \overline{K}^*(892)^0$		$< 2.52 \times 10^{-4}$	CL=90%
Γ_{17}	$\eta K^\pm K^0_S \pi^\mp$	[b]	$(2.2 \pm 0.4) \times 10^{-3}$	
Γ_{18}	$\eta K^*(892)^0 \overline{K}^*(892)^0$		$(1.15 \pm 0.26) \times 10^{-3}$	
Γ_{19}	$\rho\eta'(958)$		$(8.1 \pm 0.8) \times 10^{-5}$	S=1.6
Γ_{20}	$\rho^\pm\pi^\mp\pi^+\pi^- 2\pi^0$		$(2.8 \pm 0.8)\%$	
Γ_{21}	$\rho^+\rho^-\pi^+\pi^-\pi^0$		$(6 \pm 4) \times 10^{-3}$	
Γ_{22}	$\rho^\mp K^\pm K^0_S$		$(1.9 \pm 0.4) \times 10^{-3}$	
Γ_{23}	$\rho(1450)\pi$			
Γ_{24}	$\rho(1450)\pi \to \pi^+\pi^-\pi^0$		$(2.3 \pm 0.7) \times 10^{-3}$	
Γ_{25}	$\rho(1450)^\pm\pi^\mp \to K^0_S K^\pm \pi^\mp$		$(3.5 \pm 0.6) \times 10^{-4}$	
Γ_{26}	$\rho(1450)^0\pi^0 \to K^+K^-\pi^0$		$(2.7 \pm 0.6) \times 10^{-4}$	
Γ_{27}	$\rho(1450)\eta'(958) \to \pi^+\pi^-\eta'(958)$		$(3.3 \pm 0.7) \times 10^{-6}$	
Γ_{28}	$\rho(1700)\pi$			
Γ_{29}	$\rho(1700)\pi \to \pi^+\pi^-\pi^0$		$(1.7 \pm 1.1) \times 10^{-4}$	

Γ_{30}	$\rho(2150)\pi$			
Γ_{31}	$\rho(2150)\pi \rightarrow \pi^+\pi^-\pi^0$		$(8 \pm 40) \times 10^{-6}$	
Γ_{32}	$\rho_3(1690)\pi \rightarrow \pi^+\pi^-\pi^0$			
Γ_{33}	$\omega\pi^0$		$(4.5 \pm 0.5) \times 10^{-4}$	S=1.4
Γ_{34}	$\omega\pi^0 \rightarrow \pi^+\pi^-\pi^0$		$(1.7 \pm 0.8) \times 10^{-5}$	
Γ_{35}	$\omega\pi^+\pi^-$		$(7.2 \pm 1.0) \times 10^{-3}$	
Γ_{36}	$\omega\pi^0\pi^0$		$(3.4 \pm 0.8) \times 10^{-3}$	
Γ_{37}	$\omega 3\pi^0$		$(1.9 \pm 0.6) \times 10^{-3}$	
Γ_{38}	$\omega f_2(1270)$		$(4.3 \pm 0.6) \times 10^{-3}$	
Γ_{39}	$\omega\eta$		$(1.74 \pm 0.20) \times 10^{-3}$	S=1.6
Γ_{40}	$\omega\pi^+\pi^-\pi^0$		$(4.0 \pm 0.7) \times 10^{-3}$	
Γ_{41}	$\omega\pi^0\eta$		$(3.4 \pm 1.7) \times 10^{-4}$	
Γ_{42}	$\omega\pi^+\pi^+\pi^-\pi^-$		$(8.5 \pm 3.4) \times 10^{-3}$	
Γ_{43}	$\omega\pi^+\pi^- 2\pi^0$		(3.3 ± 0.5) %	
Γ_{44}	$\omega\eta'\pi^+\pi^-$		$(1.12 \pm 0.13) \times 10^{-3}$	
Γ_{45}	$\omega\eta'(958)$		$(1.89 \pm 0.18) \times 10^{-4}$	
Γ_{46}	$\omega f_0(980)$		$(1.4 \pm 0.5) \times 10^{-4}$	
Γ_{47}	$\omega f_0(1710) \rightarrow \omega K\overline{K}$		$(4.8 \pm 1.1) \times 10^{-4}$	
Γ_{48}	$\omega f_1(1420)$		$(6.8 \pm 2.4) \times 10^{-4}$	
Γ_{49}	$\omega f'_2(1525)$		$< 2.2 \times 10^{-4}$	CL=90%
Γ_{50}	$\omega X(1835) \rightarrow \omega p\overline{p}$		$< 3.9 \times 10^{-6}$	CL=95%
Γ_{51}	$\omega X(1835),\ X \rightarrow \eta'\pi^+\pi^-$		$< 6.2 \times 10^{-5}$	
Γ_{52}	$\omega K^\pm K^0_S\pi^\mp$	[b]	$(3.4 \pm 0.5) \times 10^{-3}$	
Γ_{53}	$\omega K\overline{K}$		$(1.9 \pm 0.4) \times 10^{-3}$	
Γ_{54}	$\omega K^*(892)\overline{K}+$ c.c.		$(6.1 \pm 0.9) \times 10^{-3}$	
Γ_{55}	$\eta' K^{*\pm} K^\mp$		$(1.48 \pm 0.13) \times 10^{-3}$	
Γ_{56}	$\eta' K^{*0}\overline{K}^0+$ c.c.		$(1.66 \pm 0.21) \times 10^{-3}$	
Γ_{57}	$\eta' h_1(1415) \rightarrow \eta' K^*\overline{K}+$ c.c.		$(2.16 \pm 0.31) \times 10^{-4}$	
Γ_{58}	$\eta' h_1(1415) \rightarrow \eta' K^{*\pm} K^\mp$		$(1.51 \pm 0.23) \times 10^{-4}$	
Γ_{59}	$\overline{K} K^*(892)+$c.c.			
Γ_{60}	$\overline{K} K^*(892)+$c.c. $\rightarrow K^0_S K^\pm\pi^\mp$		$(5.0 \pm 0.5) \times 10^{-3}$	
Γ_{61}	$K^+ K^*(892)^- +$ c.c.		$(6.0 ^{+0.8}_{-1.0}) \times 10^{-3}$	S=2.9
Γ_{62}	$K^+ K^*(892)^- +$ c.c. $\rightarrow K^+ K^-\pi^0$		$(2.69 ^{+0.13}_{-0.20}) \times 10^{-3}$	
Γ_{63}	$K^+ K^*(892)^- +$ c.c. $\rightarrow K^0 K^\pm\pi^\mp +$ c.c.		$(3.0 \pm 0.4) \times 10^{-3}$	
Γ_{64}	$K^0\overline{K}^*(892)^0+$ c.c.		$(4.2 \pm 0.4) \times 10^{-3}$	
Γ_{65}	$K^0\overline{K}^*(892)^0+$ c.c. $\rightarrow K^0 K^\pm\pi^\mp +$ c.c.		$(3.2 \pm 0.4) \times 10^{-3}$	
Γ_{66}	$\overline{K}^*(892)^0 K^+\pi^- +$ c.c.		$(7.7 \pm 1.6) \times 10^{-3}$	
Γ_{67}	$K^*(892)^\pm K^\mp\pi^0$		$(4.1 \pm 1.3) \times 10^{-3}$	
Γ_{68}	$K^*(892)^+ K^0_S\pi^- +$ c.c.		$(2.0 \pm 0.5) \times 10^{-3}$	

Γ_{69}	$K^*(892)^+ K^0_S \pi^- +$ c.c. $\rightarrow$ $K^0_S K^0_S \pi^+ \pi^-$	$(6.7 \pm 2.2) \times 10^{-4}$	
Γ_{70}	$K^*(892)^0 K^0_S \rightarrow \gamma K^0_S K^0_S$	$(6.3 {}^{+0.6}_{-0.5}) \times 10^{-6}$	
Γ_{71}	$K^*(892)^0 K^0_S \pi^0$	$(7 \pm 4) \times 10^{-4}$	
Γ_{72}	$K^*(892)^\pm K^*(700)^\mp$	$(1.1 {}^{+1.0}_{-0.6}) \times 10^{-3}$	
Γ_{73}	$K^*(892)^0 \overline{K}^*(892)^0$	$(2.3 \pm 0.6) \times 10^{-4}$	
Γ_{74}	$K^*(892)^\pm K^*(892)^\mp$	$(1.00 {}^{+0.22}_{-0.40}) \times 10^{-3}$	
Γ_{75}	$K_1(1400)^\pm K^\mp$	$(3.8 \pm 1.4) \times 10^{-3}$	
Γ_{76}	$K^*(1410) \overline{K}$+c.c.		
Γ_{77}	$K^*(1410) \overline{K}$+c.c $\rightarrow$ $K^\pm K^\mp \pi^0$	$(7 \pm 4) \times 10^{-5}$	
Γ_{78}	$K^*(1410) \overline{K} +$ c.c. $\rightarrow$ $K^0_S K^\pm \pi^\mp$	$(8 \pm 6) \times 10^{-5}$	
Γ_{79}	$K^*_2(1430) \overline{K}$+c.c.		
Γ_{80}	$K^*_2(1430) \overline{K}$+c.c. $\rightarrow$ $K^\pm K^\mp \pi^0$	$(1.0 \pm 0.5) \times 10^{-4}$	
Γ_{81}	$K^*_2(1430) \overline{K} +$ c.c. $\rightarrow$ $K^0_S K^\pm \pi^\mp$	$(4.0 \pm 1.0) \times 10^{-4}$	
Γ_{82}	$\overline{K}^*_2(1430) K +$ c.c.	$< 4.0 \times 10^{-3}$	CL=90%
Γ_{83}	$K^*_2(1430)^+ K^- +$ c.c. $\rightarrow$ $K^+ K^- \pi^0$	$(2.69 {}^{+0.25}_{-0.19}) \times 10^{-4}$	
Γ_{84}	$K^*_2(1430)^+ K^0_S \pi^- +$ c.c.	$(3.6 \pm 1.8) \times 10^{-3}$	
Γ_{85}	$\overline{K}^*_2(1430)^0 K^*(892)^0 +$ c.c.	$(4.67 \pm 0.29) \times 10^{-3}$	
Γ_{86}	$K^*_2(1430)^- K^*(892)^+ +$ c.c.	$(3.4 \pm 2.9) \times 10^{-3}$	
Γ_{87}	$K^*_2(1430)^- K^*(892)^+ +$ c.c. $\rightarrow$ $K^*(892)^+ K^0_S \pi^- +$ c.c.	$(4 \pm 4) \times 10^{-4}$	
Γ_{88}	$K^*_2(1430)^0 \overline{K}^*_2(1430)^0$	$< 2.9 \times 10^{-3}$	CL=90%
Γ_{89}	$\overline{K}_2(1770)^0 K^*(892)^0 +$ c.c. $\rightarrow$ $K^*(892)^0 K^- \pi^+ +$ c.c.	$(6.9 \pm 0.9) \times 10^{-4}$	
Γ_{90}	$K^*_2(1980)^+ K^- +$ c.c. $\rightarrow$ $K^+ K^- \pi^0$	$(1.10 {}^{+0.60}_{-0.14}) \times 10^{-5}$	
Γ_{91}	$K^*_4(2045)^+ K^- +$ c.c. $\rightarrow$ $K^+ K^- \pi^0$	$(6.2 {}^{+2.9}_{-1.6}) \times 10^{-6}$	
Γ_{92}	$K_1(1270)^\pm K^\mp$	$< 3.0 \times 10^{-3}$	CL=90%
Γ_{93}	$K_1(1270) K^0_S \rightarrow \gamma K^0_S K^0_S$	$(8.5 \pm 2.5) \times 10^{-7}$	
Γ_{94}	$a_2(1320)^\pm \pi^\mp$	[b] $< 4.3 \times 10^{-3}$	CL=90%
Γ_{95}	$\phi \pi^0$	3×10^{-6} or 1×10^{-7}	
Γ_{96}	$\phi \pi^+ \pi^-$	$(9.4 \pm 1.5) \times 10^{-4}$	S=1.7
Γ_{97}	$\phi \pi^0 \pi^0$	$(5.0 \pm 1.0) \times 10^{-4}$	
Γ_{98}	$\phi 2(\pi^+ \pi^-)$	$(1.60 \pm 0.32) \times 10^{-3}$	

Γ_{99}	$\phi\eta$		$(7.4 \pm 0.8) \times 10^{-4}$	S=1.5
Γ_{100}	$\phi\eta'(958)$		$(4.6 \pm 0.5) \times 10^{-4}$	S=2.2
Γ_{101}	$\phi\eta\eta'$		$(2.32 \pm 0.17) \times 10^{-4}$	
Γ_{102}	$\phi f_0(980)$		$(3.2 \pm 0.9) \times 10^{-4}$	S=1.9
Γ_{103}	$\phi f_0(980) \to \phi\pi^+\pi^-$		$(2.60 \pm 0.34) \times 10^{-4}$	
Γ_{104}	$\phi f_0(980) \to \phi\pi^0\pi^0$		$(1.8 \pm 0.5) \times 10^{-4}$	
Γ_{105}	$\phi\pi^0 f_0(980) \to \phi\pi^0\pi^+\pi^-$		$(4.5 \pm 1.0) \times 10^{-6}$	
Γ_{106}	$\phi\pi^0 f_0(980) \to \phi\pi^0 p^0\pi^0$		$(1.7 \pm 0.6) \times 10^{-6}$	
Γ_{107}	$\phi f_0(980)\eta \to \eta\phi\pi^+\pi^-$		$(3.2 \pm 1.0) \times 10^{-4}$	
Γ_{108}	$\phi a_0(980)^0 \to \phi\eta\pi^0$		$(4.4 \pm 1.4) \times 10^{-6}$	
Γ_{109}	$\phi f_2(1270)$		$(3.2 \pm 0.6) \times 10^{-4}$	
Γ_{110}	$\phi f_1(1285)$		$(2.6 \pm 0.5) \times 10^{-4}$	
Γ_{111}	$\phi f_1(1285) \to \phi\pi^0 f_0(980) \to \phi\pi^0\pi^+\pi^-$		$(9.4 \pm 2.8) \times 10^{-7}$	
Γ_{112}	$\phi f_1(1285) \to \phi\pi^0 f_0(980) \to \phi 3\pi^0$		$(2.1 \pm 2.2) \times 10^{-7}$	
Γ_{113}	$\phi\eta(1405) \to \phi\eta\pi^+\pi^-$		$(2.0 \pm 1.0) \times 10^{-5}$	
Γ_{114}	$\phi f'_2(1525)$		$(8 \pm 4) \times 10^{-4}$	S=2.7
Γ_{115}	$\phi X(1835) \to \phi p\overline{p}$		$< 2.1 \times 10^{-7}$	CL=90%
Γ_{116}	$\phi X(1835) \to \phi\eta\pi^+\pi^-$		$< 2.8 \times 10^{-4}$	CL=90%
Γ_{117}	$\phi X(1870) \to \phi\eta\pi^+\pi^-$		$< 6.13 \times 10^{-5}$	CL=90%
Γ_{118}	$\phi K\overline{K}$		$(1.77 \pm 0.16) \times 10^{-3}$	S=1.3
Γ_{119}	$\phi f_0(1710) \to \phi K\overline{K}$		$(3.6 \pm 0.6) \times 10^{-4}$	
Γ_{120}	$\phi K^+ K^-$		$(8.3 \pm 1.1) \times 10^{-4}$	
Γ_{121}	$\phi K^0_S K^0_S$		$(5.9 \pm 1.5) \times 10^{-4}$	
Γ_{122}	$\phi K^\pm K^0_S \pi^\mp$	[b]	$(7.2 \pm 0.8) \times 10^{-4}$	
Γ_{123}	$\phi K^*(892)\overline{K}+$ c.c.		$(2.18 \pm 0.23) \times 10^{-3}$	
Γ_{124}	$b_1(1235)^\pm\pi^\mp$	[b]	$(3.0 \pm 0.5) \times 10^{-3}$	
Γ_{125}	$b_1(1235)^0\pi^0$		$(2.3 \pm 0.6) \times 10^{-3}$	
Γ_{126}	$f'_2(1525)K^+K^-$		$(1.06 \pm 0.35) \times 10^{-3}$	
Γ_{127}	$\Delta(1232)^+\overline{p}$		$< 1 \times 10^{-4}$	CL=90%
Γ_{128}	$\Delta(1232)^{++}\overline{p}\pi^-$		$(1.6 \pm 0.5) \times 10^{-3}$	
Γ_{129}	$\Delta(1232)^{++}\overline{\Delta}(1232)^{--}$		$(1.10 \pm 0.29) \times 10^{-3}$	
Γ_{130}	$\overline{\Sigma}(1385)^0 pK^-$		$(5.1 \pm 3.2) \times 10^{-4}$	
Γ_{131}	$\Sigma(1385)^0\overline{\Lambda}+$ c.c.		$< 8.2 \times 10^{-6}$	CL=90%
Γ_{132}	$\Sigma(1385)^-\overline{\Sigma}^+$ (or c.c.)	[b]	$(3.1 \pm 0.5) \times 10^{-4}$	
Γ_{133}	$\Sigma(1385)^-\overline{\Sigma}(1385)^+$ (or c.c.)	[b]	$(1.16 \pm 0.05) \times 10^{-3}$	
Γ_{134}	$\Sigma(1385)^0\overline{\Sigma}(1385)^0$		$(1.07 \pm 0.08) \times 10^{-3}$	
Γ_{135}	$\Lambda(1520)\overline{\Lambda}+$ c.c. $\to \gamma\Lambda\overline{\Lambda}$		$< 4.1 \times 10^{-6}$	CL=90%
Γ_{136}	$\overline{\Lambda}(1520)\Lambda+$ c.c.		$< 1.80 \times 10^{-3}$	CL=90%
Γ_{137}	$\Xi^0\overline{\Xi}^0$		$(1.17 \pm 0.04) \times 10^{-3}$	
Γ_{138}	$\Xi(1530)^-\overline{\Xi}^+ +$ c.c.		$(3.18 \pm 0.08) \times 10^{-4}$	
Γ_{139}	$\Xi(1530)^0\overline{\Xi}^0$		$(3.2 \pm 1.4) \times 10^{-4}$	

Γ_{140}	$\Theta(1540)\overline{\Theta}(1540) \to K^0_S p K^- \overline{n} +$ c.c.	[c] $<$ 1.1	$\times 10^{-5}$	CL=90%
Γ_{141}	$\Theta(1540) K^- \overline{n} \to K^0_S p K^- \overline{n}$	[c] $<$ 2.1	$\times 10^{-5}$	CL=90%
Γ_{142}	$\Theta(1540) K^0_S \overline{p} \to K^0_S \overline{p} K^+ n$	[c] $<$ 1.6	$\times 10^{-5}$	CL=90%
Γ_{143}	$\overline{\Theta}(1540) K^+ n \to K^0_S \overline{p} K^+ n$	[c] $<$ 5.6	$\times 10^{-5}$	CL=90%
Γ_{144}	$\overline{\Theta}(1540) K^0_S p \to K^0_S p K^- \overline{n}$	[c] $<$ 1.1	$\times 10^{-5}$	CL=90%

Decays into stable hadrons

Γ_{145}	$2(\pi^+\pi^-)\pi^0$	(3.71 ± 0.28) %	S=1.3
Γ_{146}	$3(\pi^+\pi^-)\pi^0$	(2.9 ± 0.6) %	
Γ_{147}	$\pi^+\pi^- 3\pi^0$	(1.9 ± 0.9) %	
Γ_{148}	$\pi^+\pi^- 4\pi^0$	(6.5 ± 1.3) $\times 10^{-3}$	
Γ_{149}	$\rho^\pm \pi^\mp \pi^0 \pi^0$	(1.41 ± 0.22) %	
Γ_{150}	$\rho^+ \rho^- \pi^0$	(6.0 ± 1.1) $\times 10^{-3}$	
Γ_{151}	$\pi^+\pi^-\pi^0$	(2.10 ± 0.08) %	S=1.6
Γ_{152}	$2(\pi^+\pi^-\pi^0)$	(1.61 ± 0.20) %	
Γ_{153}	$\pi^+\pi^-\pi^0 K^+ K^-$	(1.20 ± 0.30) %	
Γ_{154}	$\pi^+\pi^-$	(1.47 ± 0.14) $\times 10^{-4}$	
Γ_{155}	$2(\pi^+\pi^-)$	(3.57 ± 0.30) $\times 10^{-3}$	
Γ_{156}	$3(\pi^+\pi^-)$	(4.3 ± 0.4) $\times 10^{-3}$	
Γ_{157}	$2(\pi^+\pi^-)3\pi^0$	(6.2 ± 0.9) %	
Γ_{158}	$4(\pi^+\pi^-)\pi^0$	(9.0 ± 3.0) $\times 10^{-3}$	
Γ_{159}	$2(\pi^+\pi^-)\eta$	(2.29 ± 0.28) $\times 10^{-3}$	
Γ_{160}	$3(\pi^+\pi^-)\eta$	(7.2 ± 1.5) $\times 10^{-4}$	
Γ_{161}	$2(\pi^+\pi^-\pi^0)\eta$	(1.6 ± 0.5) $\times 10^{-3}$	
Γ_{162}	$\pi^+\pi^-\pi^0\pi^0\eta$	(2.4 ± 0.5) $\times 10^{-3}$	
Γ_{163}	$\rho^\pm \pi^\mp \pi^0 \eta$	(1.9 ± 0.8) $\times 10^{-3}$	
Γ_{164}	$K^+ K^-$	(2.86 ± 0.21) $\times 10^{-4}$	
Γ_{165}	$K^0_S K^0_L$	(1.95 ± 0.11) $\times 10^{-4}$	S=2.4
Γ_{166}	$K^0_S K^0_S$	$<$ 1.4 $\times 10^{-8}$	CL=95%
Γ_{167}	$K \overline{K} \pi$	(6.1 ± 1.0) $\times 10^{-3}$	
Γ_{168}	$K^+ K^- \pi^0$	(2.88 ± 0.12) $\times 10^{-3}$	
Γ_{169}	$K^0_S K^\pm \pi^\mp$	(5.6 ± 0.5) $\times 10^{-3}$	
Γ_{170}	$K^0_S K^0_L \pi^0$	(2.06 ± 0.26) $\times 10^{-3}$	
Γ_{171}	$K^*(892)^0 \overline{K}^0 +$ c.c. $\to K^0_S K^0_L \pi^0$	(1.21 ± 0.18) $\times 10^{-3}$	
Γ_{172}	$K^*_2(1430)^0 \overline{K}^0 +$ c.c. $\to K^0_S K^0_L \pi^0$	(4.3 ± 1.3) $\times 10^{-4}$	
Γ_{173}	$K^+ K^- \pi^+ \pi^-$	(6.86 ± 0.28) $\times 10^{-3}$	
Γ_{174}	$K^+ K^- \pi^0 \pi^0$	(2.13 ± 0.22) $\times 10^{-3}$	
Γ_{175}	$K^0_S K^0_L \pi^+ \pi^-$	(3.8 ± 0.6) $\times 10^{-3}$	
Γ_{176}	$K^0_S K^0_L \pi^0 \pi^0$	(1.9 ± 0.4) $\times 10^{-3}$	
Γ_{177}	$K^0_S K^0_L \eta$	(1.45 ± 0.33) $\times 10^{-3}$	

Γ_{178}	$K^0_S K^0_S \pi^+ \pi^-$		$(1.68 \pm 0.19) \times 10^{-3}$	
Γ_{179}	$K^\mp K^0_S \pi^\pm \pi^0$		$(5.7 \pm 0.5) \times 10^{-3}$	
Γ_{180}	$K^+ K^- 2(\pi^+ \pi^-)$		$(3.1 \pm 1.3) \times 10^{-3}$	
Γ_{181}	$K^+ K^- \pi^+ \pi^- \eta$		$(4.7 \pm 0.7) \times 10^{-3}$	
Γ_{182}	$2(K^+ K^-)$		$(7.2 \pm 0.8) \times 10^{-4}$	
Γ_{183}	$K^+ K^- K^0_S K^0_S$		$(4.2 \pm 0.7) \times 10^{-4}$	
Γ_{184}	$p\overline{p}$		$(2.120 \pm 0.029) \times 10^{-3}$	
Γ_{185}	$p\overline{p}\pi^0$		$(1.19 \pm 0.08) \times 10^{-3}$	S=1.1
Γ_{186}	$p\overline{p}\pi^+\pi^-$		$(6.0 \pm 0.5) \times 10^{-3}$	S=1.3
Γ_{187}	$p\overline{p}\pi^+\pi^-\pi^0$	[d]	$(2.3 \pm 0.9) \times 10^{-3}$	S=1.9
Γ_{188}	$p\overline{p}\eta$		$(2.00 \pm 0.12) \times 10^{-3}$	
Γ_{189}	$p\overline{p}\rho$		$< 3.1 \times 10^{-4}$	CL=90%
Γ_{190}	$p\overline{p}\omega$		$(9.8 \pm 1.0) \times 10^{-4}$	S=1.3
Γ_{191}	$p\overline{p}\eta'(958)$		$(1.29 \pm 0.14) \times 10^{-4}$	S=2.0
Γ_{192}	$p\overline{p}a_0(980) \to p\overline{p}\pi^0\eta$		$(6.8 \pm 1.8) \times 10^{-5}$	
Γ_{193}	$p\overline{p}\phi$		$(5.19 \pm 0.33) \times 10^{-5}$	
Γ_{194}	$p\overline{n}\pi^-$		$(2.12 \pm 0.09) \times 10^{-3}$	
Γ_{195}	$n\overline{n}$		$(2.09 \pm 0.16) \times 10^{-3}$	
Γ_{196}	$n\overline{n}\pi^+\pi^-$		$(4 \pm 4) \times 10^{-3}$	
Γ_{197}	$n N(1440)$		seen	
Γ_{198}	$n N(1520)$		seen	
Γ_{199}	$n N(1535)$		seen	
Γ_{200}	$\Lambda\overline{\Lambda}$		$(1.89 \pm 0.09) \times 10^{-3}$	S=2.8
Γ_{201}	$\Lambda\overline{\Lambda}\pi^0$		$(3.8 \pm 0.4) \times 10^{-5}$	
Γ_{202}	$\Lambda\overline{\Lambda}\pi^+\pi^-$		$(4.3 \pm 1.0) \times 10^{-3}$	
Γ_{203}	$\Lambda\overline{\Lambda}\eta$		$(1.62 \pm 0.17) \times 10^{-4}$	
Γ_{204}	$\Lambda\overline{\Sigma}^-\pi^+$ (or c.c.)	[b]	$(8.3 \pm 0.7) \times 10^{-4}$	S=1.2
Γ_{205}	$p K^- \overline{\Lambda}$+c.c.		$(8.6 \pm 1.1) \times 10^{-4}$	
Γ_{206}	$p K^- \overline{\Sigma}^0$		$(2.9 \pm 0.8) \times 10^{-4}$	
Γ_{207}	$\overline{\Lambda} n K^0_S$ + c.c.		$(6.5 \pm 1.1) \times 10^{-4}$	
Γ_{208}	$\Lambda\overline{\Sigma}$ + c.c.		$(2.83 \pm 0.23) \times 10^{-5}$	
Γ_{209}	$\Sigma^+\overline{\Sigma}^-$		$(1.07 \pm 0.04) \times 10^{-3}$	
Γ_{210}	$\Sigma^0\overline{\Sigma}^0$		$(1.172 \pm 0.032) \times 10^{-3}$	S=1.4
Γ_{211}	$\Xi^-\overline{\Xi}^+$		$(9.7 \pm 0.8) \times 10^{-4}$	S=1.4

Radiative decays

Γ_{212}	$\gamma\eta_c(1S)$		(1.7 ± 0.4) %	S=1.5
Γ_{213}	$\gamma\eta_c(1S) \to 3\gamma$		$(3.8 {}^{+1.3}_{-1.0}) \times 10^{-6}$	S=1.1
Γ_{214}	$\gamma\eta_c(1S) \to \gamma\eta\eta\eta'$		$(4.9 \pm 0.8) \times 10^{-5}$	
Γ_{215}	3γ		$(1.16 \pm 0.22) \times 10^{-5}$	
Γ_{216}	4γ		$< 9 \times 10^{-6}$	CL=90%
Γ_{217}	5γ		$< 1.5 \times 10^{-5}$	CL=90%
Γ_{218}	$\gamma\pi^0$		$(3.56 \pm 0.17) \times 10^{-5}$	
Γ_{219}	$\gamma\pi^0\pi^0$		$(1.15 \pm 0.05) \times 10^{-3}$	

Γ_{220}	$\gamma 2\pi^+ 2\pi^-$	$(2.8 \pm 0.5) \times 10^{-3}$	S=1.9
Γ_{221}	$\gamma f_2(1270) f_2(1270)$	$(9.5 \pm 1.7) \times 10^{-4}$	
Γ_{222}	$\gamma f_2(1270) f_2(1270)$ (non resonant)	$(8.2 \pm 1.9) \times 10^{-4}$	
Γ_{223}	$\gamma \pi^+ \pi^- 2\pi^0$	$(8.3 \pm 3.1) \times 10^{-3}$	
Γ_{224}	$\gamma K^0_S K^0_S$	$(8.1 \pm 0.4) \times 10^{-4}$	
Γ_{225}	$\gamma (K \overline{K} \pi)$ $[J^{PC} = 0^{-+}]$	$(7 \pm 4) \times 10^{-4}$	S=2.1
Γ_{226}	$\gamma K^+ K^- \pi^+ \pi^-$	$(2.1 \pm 0.6) \times 10^{-3}$	
Γ_{227}	$\gamma K^*(892) \overline{K}^*(892)$	$(4.0 \pm 1.3) \times 10^{-3}$	
Γ_{228}	$\gamma \eta$	$(1.085 \pm 0.018) \times 10^{-3}$	
Γ_{229}	$\gamma \eta \pi^0$	$(2.14 \pm 0.31) \times 10^{-5}$	
Γ_{230}	$\gamma f_0(500) \to \gamma \pi \pi$		
Γ_{231}	$\gamma f_0(500) \to \gamma K \overline{K}$		
Γ_{232}	$\gamma f_0(500) \to \gamma \eta \eta$		
Γ_{233}	$\gamma a_0(980)^0 \to \gamma \eta \pi^0$	$< 2.5 \times 10^{-6}$	CL=95%
Γ_{234}	$\gamma a_2(1320)^0 \to \gamma \eta \pi^0$	$< 6.6 \times 10^{-6}$	CL=95%
Γ_{235}	$\gamma \eta \pi \pi$	$(6.1 \pm 1.0) \times 10^{-3}$	
Γ_{236}	$\gamma \eta_2(1870) \to \gamma \eta \pi^+ \pi^-$	$(6.2 \pm 2.4) \times 10^{-4}$	
Γ_{237}	$\gamma \eta'(958)$	$(5.25 \pm 0.07) \times 10^{-3}$	S=1.3
Γ_{238}	$\gamma f_0(980) \to \gamma \pi \pi$		
Γ_{239}	$\gamma f_0(980) \to \gamma K \overline{K}$		
Γ_{240}	$\gamma \rho \rho$	$(4.5 \pm 0.8) \times 10^{-3}$	
Γ_{241}	$\gamma \rho \omega$	$< 5.4 \times 10^{-4}$	CL=90%
Γ_{242}	$\gamma \rho \phi$	$< 8.8 \times 10^{-5}$	CL=90%
Γ_{243}	$\gamma \omega \omega$	$(1.61 \pm 0.33) \times 10^{-3}$	
Γ_{244}	$\gamma \phi \phi$	$(4.0 \pm 1.2) \times 10^{-4}$	S=2.1
Γ_{245}	$\gamma \eta(1405/1475) \to \gamma K \overline{K} \pi$	$(2.8 \pm 0.6) \times 10^{-3}$	S=1.6
Γ_{246}	$\gamma \eta(1405/1475) \to \gamma \gamma \rho^0$	$(7.8 \pm 2.0) \times 10^{-5}$	S=1.8
Γ_{247}	$\gamma \eta(1405/1475) \to \gamma \eta \pi^+ \pi^-$	$(3.0 \pm 0.5) \times 10^{-4}$	
Γ_{248}	$\gamma \eta(1405/1475) \to \gamma \rho^0 \rho^0$	$(1.7 \pm 0.4) \times 10^{-3}$	S=1.3
Γ_{249}	$\gamma \eta(1405/1475) \to \gamma \gamma \phi$	$< 8.2 \times 10^{-5}$	CL=95%
Γ_{250}	$\gamma \eta(1405) \to \gamma \gamma \gamma$	$< 2.63 \times 10^{-6}$	CL=90%
Γ_{251}	$\gamma \eta(1475) \to \gamma \gamma \gamma$	$< 1.86 \times 10^{-6}$	CL=90%
Γ_{252}	$\gamma \eta(1760) \to \gamma \rho^0 \rho^0$	$(1.3 \pm 0.9) \times 10^{-4}$	
Γ_{253}	$\gamma \eta(1760) \to \gamma \omega \omega$	$(1.98 \pm 0.33) \times 10^{-3}$	
Γ_{254}	$\gamma \eta(1760) \to \gamma \gamma \gamma$	$< 4.80 \times 10^{-6}$	CL=90%
Γ_{255}	$\gamma \eta(2225)$	$(3.14 {}^{+0.50}_{-0.19}) \times 10^{-4}$	
Γ_{256}	$\gamma f_2(1270)$	$(1.64 \pm 0.12) \times 10^{-3}$	S=1.3
Γ_{257}	$\gamma f_2(1270) \to \gamma K^0_S K^0_S$	$(2.58 {}^{+0.60}_{-0.22}) \times 10^{-5}$	
Γ_{258}	$\gamma f_1(1285)$	$(6.1 \pm 0.8) \times 10^{-4}$	
Γ_{259}	$\gamma f_0(1370) \to \gamma \pi \pi$		
Γ_{260}	$\gamma f_0(1370) \to \gamma K \overline{K}$	$(4.2 \pm 1.5) \times 10^{-4}$	
Γ_{261}	$\gamma f_0(1370) \to \gamma K^0_S K^0_S$	$(1.1 \pm 0.4) \times 10^{-5}$	

Γ_{262}	$\gamma f_0(1370) \to \gamma\eta\eta$		
Γ_{263}	$\gamma f_0(1370) \to \gamma\eta\eta'$		
Γ_{264}	$\gamma f_1(1420) \to \gamma K\overline{K}\pi$	$(7.9 \pm 1.3) \times 10^{-4}$	
Γ_{265}	$\gamma f_0(1500) \to \gamma\pi\pi$	$(1.09 \pm 0.24) \times 10^{-4}$	
Γ_{266}	$\gamma f_0(1500) \to \gamma\eta\eta$	$(1.7 {}^{+0.6}_{-1.4}) \times 10^{-5}$	
Γ_{267}	$\gamma f_0(1500) \to \gamma K^0_S K^0_S$	$(1.59 {}^{+0.24}_{-0.60}) \times 10^{-5}$	
Γ_{268}	$\gamma f_0(1500) \to \gamma\eta\eta'$		
Γ_{269}	$\gamma f_1(1510) \to \gamma\eta\pi^+\pi^-$	$(4.5 \pm 1.2) \times 10^{-4}$	
Γ_{270}	$\gamma f'_2(1525)$	$(5.7 {}^{+0.8}_{-0.5}) \times 10^{-4}$	S=1.5
Γ_{271}	$\gamma f'_2(1525) \to \gamma K^0_S K^0_S$	$(8.0 {}^{+0.7}_{-0.5}) \times 10^{-5}$	
Γ_{272}	$\gamma f'_2(1525) \to \gamma\eta\eta$	$(3.4 \pm 1.4) \times 10^{-5}$	
Γ_{273}	$\gamma f_2(1640) \to \gamma\omega\omega$	$(2.8 \pm 1.8) \times 10^{-4}$	
Γ_{274}	$\gamma f_0(1710) \to \gamma\pi\pi$	$(3.8 \pm 0.5) \times 10^{-4}$	
Γ_{275}	$\gamma f_0(1710) \to \gamma K\overline{K}$	$(9.5 {}^{+1.0}_{-0.5}) \times 10^{-4}$	S=1.5
Γ_{276}	$\gamma f_0(1710) \to \gamma\omega\omega$	$(3.1 \pm 1.0) \times 10^{-4}$	
Γ_{277}	$\gamma f_0(1710) \to \gamma\eta\eta$	$(2.4 {}^{+1.2}_{-0.7}) \times 10^{-4}$	
Γ_{278}	$\gamma f_0(1710) \to \gamma\eta\eta'$		
Γ_{279}	$\gamma f_0(1710) \to \gamma\omega\phi$	$(2.5 \pm 0.6) \times 10^{-4}$	
Γ_{280}	$\gamma f_0(1750) \to \gamma K^0_S K^0_S$	$(1.11 {}^{+0.20}_{-0.33}) \times 10^{-5}$	
Γ_{281}	$\gamma f_2(1810) \to \gamma\eta\eta$	$(5.4 {}^{+3.5}_{-2.4}) \times 10^{-5}$	
Γ_{282}	$\gamma f_2(1910) \to \gamma\omega\omega$	$(2.0 \pm 1.4) \times 10^{-4}$	
Γ_{283}	$\gamma f_2(1950) \to \gamma K^*(892)\overline{K}^*(892)$	$(7.0 \pm 2.2) \times 10^{-4}$	
Γ_{284}	$\gamma f_0(2020) \to \gamma\pi\pi$		
Γ_{285}	$\gamma f_0(2020) \to \gamma K\overline{K}$		
Γ_{286}	$\gamma f_0(2020) \to \gamma\eta\eta$		
Γ_{287}	$\gamma f_4(2050)$	$(2.7 \pm 0.7) \times 10^{-3}$	
Γ_{288}	$\gamma f_0(2100) \to \gamma\eta\eta$	$(1.13 {}^{+0.60}_{-0.30}) \times 10^{-4}$	
Γ_{289}	$\gamma f_0(2100) \to \gamma K\overline{K}$		
Γ_{290}	$\gamma f_0(2100) \to \gamma\pi\pi$	$(6.2 \pm 1.0) \times 10^{-4}$	
Γ_{291}	$\gamma f_0(2200)$		
Γ_{292}	$\gamma f_0(2200) \to \gamma K\overline{K}$	$(5.9 \pm 1.3) \times 10^{-4}$	
Γ_{293}	$\gamma f_0(2200) \to \gamma K^0_S K^0_S$	$(2.72 {}^{+0.19}_{-0.50}) \times 10^{-4}$	
Γ_{294}	$\gamma f_0(2200) \to \gamma\pi\pi$		
Γ_{295}	$\gamma f_0(2200) \to \gamma\eta\eta$		
Γ_{296}	$\gamma f_J(2220)$		
Γ_{297}	$\gamma f_J(2220) \to \gamma\pi\pi$	$< 3.9 \times 10^{-5}$	CL=90%
Γ_{298}	$\gamma f_J(2220) \to \gamma K\overline{K}$	$< 4.1 \times 10^{-5}$	CL=90%

Γ_{299}	$\gamma f_J(2220) \to \gamma p\overline{p}$		$(1.5 \pm 0.8) \times 10^{-5}$	
Γ_{300}	$\gamma f_0(2330) \to \gamma K^0_S K^0_S$		$(4.9 \pm 0.7) \times 10^{-5}$	
Γ_{301}	$\gamma f_0(2330) \to \gamma \pi\pi$			
Γ_{302}	$\gamma f_0(2330) \to \gamma \eta\eta$			
Γ_{303}	$\gamma f_2(2340) \to \gamma \eta\eta$		$(5.6 {}^{+2.4}_{-2.2}) \times 10^{-5}$	
Γ_{304}	$\gamma f_2(2340) \to \gamma K^0_S K^0_S$		$(5.5 {}^{+4.0}_{-1.5}) \times 10^{-5}$	
Γ_{305}	$\gamma X(1835) \to \gamma \pi^+\pi^-\eta'$		$(2.7 {}^{+0.6}_{-0.8}) \times 10^{-4}$	S=1.6
Γ_{306}	$\gamma X(1835) \to \gamma p\overline{p}$		$(7.7 {}^{+1.5}_{-0.9}) \times 10^{-5}$	
Γ_{307}	$\gamma X(1835) \to \gamma K^0_S K^0_S \eta$		$(3.3 {}^{+2.0}_{-1.3}) \times 10^{-5}$	
Γ_{308}	$\gamma X(1835) \to \gamma\gamma\phi(1020)$			
Γ_{309}	$\gamma X(1835) \to \gamma\gamma\gamma$		$< 3.56 \times 10^{-6}$	CL=90%
Γ_{310}	$\gamma X(1835) \to \gamma 3(\pi^+\pi^-)$		$(2.4 {}^{+0.7}_{-0.8}) \times 10^{-5}$	
Γ_{311}	$\gamma X(2370) \to \gamma K^+ K^- \eta'$		$(1.8 \pm 0.7) \times 10^{-5}$	
Γ_{312}	$\gamma X(2370) \to \gamma K^0_S K^0_S \eta'$		$(1.2 \pm 0.5) \times 10^{-5}$	
Γ_{313}	$\gamma X(2370) \to \gamma \eta\eta\eta'$		$< 9.2 \times 10^{-6}$	CL=90%
Γ_{314}	$\gamma p\overline{p}$		$(3.8 \pm 1.0) \times 10^{-4}$	
Γ_{315}	$\gamma p\overline{p}\pi^+\pi^-$		$< 7.9 \times 10^{-4}$	CL=90%
Γ_{316}	$\gamma \Lambda\overline{\Lambda}$		$< 1.3 \times 10^{-4}$	CL=90%
Γ_{317}	$\gamma A \to \gamma$ invisible	[e]	$< 1.7 \times 10^{-6}$	CL=90%
Γ_{318}	$\gamma A^0 \to \gamma \mu^+\mu^-$	[f]	$< 5 \times 10^{-6}$	CL=90%

Dalitz decays

Γ_{319}	$\pi^0 e^+ e^-$		$(7.6 \pm 1.4) \times 10^{-7}$	
Γ_{320}	$\eta e^+ e^-$		$(1.42 \pm 0.08) \times 10^{-5}$	
Γ_{321}	$\eta'(958) e^+ e^-$		$(6.59 \pm 0.18) \times 10^{-5}$	
Γ_{322}	$\eta U \to \eta e^+ e^-$	[g]	$< 9.11 \times 10^{-7}$	CL=90%
Γ_{323}	$\eta'(958) U \to \eta'(958) e^+ e^-$	[g]	$< 2.0 \times 10^{-7}$	CL=90%
Γ_{324}	$\phi e^+ e^-$		$< 1.2 \times 10^{-7}$	CL=90%

Weak decays

Γ_{325}	$D^- e^+ \nu_e$ + c.c.	$< 7.1 \times 10^{-8}$	CL=90%
Γ_{326}	$\overline{D}^0 e^+ e^-$ + c.c.	$< 8.5 \times 10^{-8}$	CL=90%
Γ_{327}	$D^-_s e^+ \nu_e$ + c.c.	$< 1.3 \times 10^{-6}$	CL=90%
Γ_{328}	$D^{*-}_s e^+ \nu_e$ + c.c.	$< 1.8 \times 10^{-6}$	CL=90%
Γ_{329}	$D^- \pi^+$ + c.c.	$< 7.5 \times 10^{-5}$	CL=90%
Γ_{330}	$\overline{D}^0 \overline{K}^0$ + c.c.	$< 1.7 \times 10^{-4}$	CL=90%
Γ_{331}	$\overline{D}^0 \overline{K}^{*0}$ + c.c.	$< 2.5 \times 10^{-6}$	CL=90%
Γ_{332}	$D^-_s \pi^+$ + c.c.	$< 1.3 \times 10^{-4}$	CL=90%
Γ_{333}	$D^-_s \rho^+$ + c.c.	$< 1.3 \times 10^{-5}$	CL=90%

Charge conjugation (C), Parity (P), Lepton Family number (LF) violating modes

Γ_{334}	$\gamma\gamma$	C	$<$ 2.7	$\times 10^{-7}$	CL=90%
Γ_{335}	$\gamma\phi$	C	$<$ 1.4	$\times 10^{-6}$	CL=90%
Γ_{336}	$e^{\pm}\mu^{\mp}$	LF	$<$ 1.6	$\times 10^{-7}$	CL=90%
Γ_{337}	$e^{\pm}\tau^{\mp}$	LF	$<$ 7.5	$\times 10^{-8}$	CL=90%
Γ_{338}	$\mu^{\pm}\tau^{\mp}$	LF	$<$ 2.0	$\times 10^{-6}$	CL=90%
Γ_{339}	$\Lambda_c^+ e^-$ +c.c.		$<$ 6.9	$\times 10^{-8}$	CL=90%

Other decays

Γ_{340}	invisible		$<$ 7	$\times 10^{-4}$	CL=90%

[a] For $E_\gamma > 100$ MeV.

[b] The value is for the sum of the charge states or particle/antiparticle states indicated.

[c] $\Theta(1540)$ is a hypothetical pentaquark state of 1.54 GeV/c^2 mass and a width of less than 25 MeV/c^2.

[d] Includes $p\overline{p}\pi^+\pi^-\gamma$ and excludes $p\overline{p}\eta$, $p\overline{p}\omega$, $p\overline{p}\eta'$.

[e] For a narrow state A with mass less than 960 MeV.

[f] For a narrow scalar or pseudoscalar A^0 with mass 0.21–3.0 GeV.

[g] For a dark photon U with mass between 100 and 2100 MeV.

$J/\psi(1S)$ PARTIAL WIDTHS

Γ(hadrons) Γ_1

VALUE (keV)	DOCUMENT ID		TECN	COMMENT
81.37± 1.36±1.30	[1] ANASHIN	20	KEDR	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •				
74.1 ± 8.1	BAI	95B	BES	e^+e^-
59 ±24	BALDINI-...	75	FRAG	e^+e^-
59 ±14	BOYARSKI	75	MRK1	e^+e^-
50 ±25	ESPOSITO	75B	FRAM	e^+e^-

[1] Based on the same dataset as ANASHIN 18A and correlated to the values reported there .

$\Gamma(e^+e^-)$ Γ_5

VALUE (keV)	EVTS	DOCUMENT ID		TECN	COMMENT
5.53 ±0.10 OUR AVERAGE					
5.550±0.056±0.089		[1,2] ANASHIN	18A	KEDR	e^+e^-
5.36 $^{+0.29}_{-0.28}$		[3] HSUEH	92	RVUE	See Υ mini-review
• • • We do not use the following data for averages, fits, limits, etc. • • •					
5.58 ±0.05 ±0.08		[4] ABLIKIM	16Q	BES3	3.773 $e^+e^- \to \mu^+\mu^-\gamma$
5.71 ±0.16	13k	[5] ADAMS	06A	CLEO	$e^+e^- \to \mu^+\mu^-\gamma$
5.57 ±0.19	7.8k	[5] AUBERT	04	BABR	$e^+e^- \to \mu^+\mu^-\gamma$

5.14 ±0.39	BAI	95B	BES	e^+e^-
4.72 ±0.35	ALEXANDER	89	RVUE	See Υ mini-review
4.4 ±0.6	[3] BRANDELIK	79C	DASP	e^+e^-
4.6 ±0.8	[6] BALDINI-...	75	FRAG	e^+e^-
4.8 ±0.6	BOYARSKI	75	MRK1	e^+e^-
4.6 ±1.0	ESPOSITO	75B	FRAM	e^+e^-

[1] From the cross sections of $e^+e^- \to e^+e^-$ and $e^+e^- \to$ hadrons near the $J/\psi(1S)$ peak.

[2] Based on the same dataset as ANASHIN 20 and correlated to the values reported there.

[3] From a simultaneous fit to e^+e^-, $\mu^+\mu^-$, and hadronic channels assuming $\Gamma(e^+e^-) = \Gamma(\mu^+\mu^-)$.

[4] Using $B(J/\psi \to \mu^+\mu^-) = (5.973 \pm 0.007 \pm 0.037)\%$ from ABLIKIM 13R.

[5] Calculated by us from the reported values of $\Gamma(e^+e^-)\times B(\mu^+\mu^-)$ using $B(\mu^+\mu^-) = (5.93 \pm 0.06)\%$.

[6] Assuming equal partial widths for e^+e^- and $\mu^+\mu^-$.

$\Gamma(\mu^+\mu^-)$ Γ_7

VALUE (keV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5.13±0.52	BAI	95B	BES	e^+e^-
4.8 ±0.6	BOYARSKI	75	MRK1	e^+e^-
5 ±1	ESPOSITO	75B	FRAM	e^+e^-

$\Gamma(\gamma\gamma)$ Γ_{334}

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<5.4	90	BRANDELIK	79C	DASP	e^+e^-

$J/\psi(1S)$ $\Gamma(i)\Gamma(e^+e^-)/\Gamma(\text{total})$

This combination of a partial width with the partial width into e^+e^- and with the total width is obtained from the integrated cross section into channel(I) in the e^+e^- annihilation.

$\Gamma(\text{hadrons}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_1\Gamma_5/\Gamma$

VALUE (keV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4.884±0.048±0.078	[1,2] ANASHIN	18A	KEDR	e^+e^-
4 ±0.8	[3] BALDINI-...	75	FRAG	e^+e^-
3.9 ±0.8	[3] ESPOSITO	75B	FRAM	e^+e^-

[1] From the cross sections of $e^+e^- \to e^+e^-$ and $e^+e^- \to$ hadrons near the $J/\psi(1S)$ peak.

[2] Based on the same dataset as ANASHIN 20 and correlated to the values reported there.

[3] Data redundant with branching ratios or partial widths above.

$\Gamma(e^+e^-) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_5\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
333.1± 6.6±4.0	[1,2] ANASHIN	18A	KEDR	e^+e^-

332.3± 6.4±4.8	ANASHIN	10	KEDR	3.097 $e^+e^- \to e^+e^-$
350 ± 20	BRANDELIK	79C	DASP	e^+e^-
320 ± 70	[3] BALDINI-...	75	FRAG	e^+e^-
340 ± 90	[3] ESPOSITO	75B	FRAM	e^+e^-
360 ±100	[3] FORD	75	SPEC	e^+e^-

[1] From the cross sections of $e^+e^- \to e^+e^-$ and $e^+e^- \to$ hadrons near the $J/\psi(1S)$ peak.

[2] Based on the same dataset as ANASHIN 20 and correlated to the values reported there.

[3] Data redundant with branching ratios or partial widths above.

$\Gamma(\mu^+\mu^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_7\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
333 ± 4 OUR AVERAGE					
333.4± 2.5±4.4		ABLIKIM	16Q	BES3	3.773 $e^+e^- \to \mu^+\mu^-\gamma$
331.8± 5.2±6.3		ANASHIN	10	KEDR	3.097 $e^+e^- \to \mu^+\mu^-$
338.4± 5.8±7.1	13k	ADAMS	06A	CLEO	$e^+e^- \to \mu^+\mu^-\gamma$
330.1± 7.7±7.3	7.8k	AUBERT	04	BABR	$e^+e^- \to \mu^+\mu^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
510 ±90		DASP	75	DASP	e^+e^-
380 ±50		[1] ESPOSITO	75B	FRAM	e^+e^-

[1] Data redundant with branching ratios or partial widths above.

$\Gamma(\eta\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{11}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
2.3 ±0.4 OUR AVERAGE					
2.34±0.43±0.16	49	LEES	18	BABR	$e^+e^- \to \eta\pi^+\pi^-\gamma$
2.22±0.96±0.02	9	[1] AUBERT	07AU	BABR	10.6 $e^+e^- \to \eta\pi^+\pi^-\gamma$

[1] AUBERT 07AU reports $[\Gamma(J/\psi(1S) \to \eta\pi^+\pi^-) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\eta \to \pi^+\pi^-\pi^0)] = 0.51 \pm 0.22 \pm 0.03$ eV which we divide by our best value $B(\eta \to \pi^+\pi^-\pi^0) = (23.02 \pm 0.25) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\eta\pi^+\pi^-\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{12}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
64.8±11.1±0.4	200	[1] LEES	21C	BABR	$e^+e^- \to \gamma_{ISR}(\pi^+\pi^-4\pi^0)$

[1] LEES 21C reports $[\Gamma(J/\psi(1S) \to \eta\pi^+\pi^-\pi^0) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\eta \to 3\pi^0)] = 21.1 \pm 1.7 \pm 3.2$ eV which we divide by our best value $B(\eta \to 3\pi^0) = (32.57 \pm 0.21) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\eta\pi^+\pi^-3\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{13}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
26.9±5.7±0.1	101	[1] LEES	21C	BABR	$e^+e^- \to \gamma_{ISR}(\pi^+\pi^-3\pi^0\gamma\gamma)$

[1] LEES 21C reports $[\Gamma(J/\psi(1S) \to \eta\pi^+\pi^-3\pi^0) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\eta \to 2\gamma)] = 10.6 \pm 1.6 \pm 1.6$ eV which we divide by our best value $B(\eta \to 2\gamma) = (39.36 \pm 0.18) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\eta K^{\pm} K^0_S \pi^{\mp}) \times \Gamma(e^+ e^-)/\Gamma_{total}$ — $\Gamma_{17}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
7.3±1.4±0.4	44	LEES	17D	BABR	$e^+ e^- \rightarrow K^0_S K^{\pm} \pi^{\mp} \pi^0 \gamma$

$\Gamma(\rho^{\pm} \pi^{\mp} \pi^+ \pi^- 2\pi^0) \times \Gamma(e^+ e^-)/\Gamma_{total}$ — $\Gamma_{20}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
155±26±36	14k	LEES	21	BABR	10.6 $e^+ e^- \rightarrow 2(\pi^+ \pi^-) 3\pi^0 \gamma$

$\Gamma(\rho^+ \rho^- \pi^+ \pi^- \pi^0) \times \Gamma(e^+ e^-)/\Gamma_{total}$ — $\Gamma_{21}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
32±13±15	14k	LEES	21	BABR	10.6 $e^+ e^- \rightarrow 2(\pi^+ \pi^-) 3\pi^0 \gamma$

$\Gamma(\rho^{\mp} K^{\pm} K^0_S) \times \Gamma(e^+ e^-)/\Gamma_{total}$ — $\Gamma_{22}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
10.4±1.0±1.9	130	LEES	17D	BABR	$e^+ e^- \rightarrow K^0_S K^{\pm} \pi^{\mp} \pi^0 \gamma$

$\Gamma(\omega \pi^+ \pi^-) \times \Gamma(e^+ e^-)/\Gamma_{total}$ — $\Gamma_{35}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
53.6±5.0±0.4	788	[1] AUBERT	07AU	BABR	10.6 $e^+ e^- \rightarrow \omega \pi^+ \pi^- \gamma$

[1] AUBERT 07AU reports $[\Gamma(J/\psi(1S) \rightarrow \omega \pi^+ \pi^-) \times \Gamma(J/\psi(1S) \rightarrow e^+ e^-)/\Gamma_{total}] \times [B(\omega(782) \rightarrow \pi^+ \pi^- \pi^0)] = 47.8 \pm 3.1 \pm 3.2$ eV which we divide by our best value $B(\omega(782) \rightarrow \pi^+ \pi^- \pi^0) = (89.2 \pm 0.7) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\omega \pi^0 \pi^0) \times \Gamma(e^+ e^-)/\Gamma_{total}$ — $\Gamma_{36}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
27.8±3.5±0.2	398	[1] LEES	18E	BABR	10.6 $e^+ e^- \rightarrow \pi^+ \pi^- 3\pi^0 \gamma$

[1] LEES 18E reports $[\Gamma(J/\psi(1S) \rightarrow \omega \pi^0 \pi^0) \times \Gamma(J/\psi(1S) \rightarrow e^+ e^-)/\Gamma_{total}] \times [B(\omega(782) \rightarrow \pi^+ \pi^- \pi^0)] = 24.8 \pm 1.8 \pm 2.5$ eV which we divide by our best value $B(\omega(782) \rightarrow \pi^+ \pi^- \pi^0) = (89.2 \pm 0.7) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\omega 3\pi^0) \times \Gamma(e^+ e^-)/\Gamma_{total}$ — $\Gamma_{37}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
10.5±3.1±0.1	89	[1] LEES	21C	BABR	$e^+ e^- \rightarrow \gamma_{ISR} (\pi^+ \pi^- 4\pi^0)$

[1] LEES 21C reports $[\Gamma(J/\psi(1S) \rightarrow \omega 3\pi^0) \times \Gamma(J/\psi(1S) \rightarrow e^+ e^-)/\Gamma_{total}] \times [B(\omega(782) \rightarrow \pi^+ \pi^- \pi^0)] = 9.4 \pm 2.3 \pm 1.5$ eV which we divide by our best value $B(\omega(782) \rightarrow \pi^+ \pi^- \pi^0) = (89.2 \pm 0.7) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\omega \pi^+ \pi^- \pi^0) \times \Gamma(e^+ e^-)/\Gamma_{total}$ — $\Gamma_{40}\Gamma_5/\Gamma$

VALUE (10^{-2} keV)	EVTS	DOCUMENT ID		TECN	COMMENT
2.2±0.3±0.2	170	AUBERT	06D	BABR	10.6 $e^+ e^- \rightarrow \omega \pi^+ \pi^- \pi^0 \gamma$

$\Gamma(\omega\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{39}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
16.9±7.6±0.2	[1] LEES	21C	BABR	$e^+e^- \to \gamma_{ISR}(\pi^+\pi^-4\pi^0)$

[1] Different final state as in AUBERT 06. LEES 21C reports $[\Gamma(J/\psi(1S) \to \omega\eta) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\eta \to 3\pi^0)] \times [B(\omega(782) \to \pi^+\pi^-\pi^0)] = 4.9 \pm 2.1 \pm 0.7$ eV which we divide by our best values $B(\eta \to 3\pi^0) = (32.57 \pm 0.21) \times 10^{-2}$, $B(\omega(782) \to \pi^+\pi^-\pi^0) = (89.2 \pm 0.7) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

$\Gamma(\omega\pi^0\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{41}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
1.90±0.96±0.01	27	[1] LEES	18E	BABR	10.6 $e^+e^- \to \pi^+\pi^-\pi^0\pi^0\eta\gamma$

[1] LEES 18E reports $[\Gamma(J/\psi(1S) \to \omega\pi^0\eta) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\omega(782) \to \pi^+\pi^-\pi^0)] = 1.7 \pm 0.8 \pm 0.3$ eV which we divide by our best value $B(\omega(782) \to \pi^+\pi^-\pi^0) = (89.2 \pm 0.7) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\omega\pi^+\pi^-2\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{43}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
185±30±1	14k	[1] LEES	21	BABR	10.6 $e^+e^- \to 2(\pi^+\pi^-)3\pi^0\gamma$

[1] LEES 21 reports $[\Gamma(J/\psi(1S) \to \omega\pi^+\pi^-2\pi^0) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\omega(782) \to \pi^+\pi^-\pi^0)] = 165 \pm 9 \pm 25$ eV which we divide by our best value $B(\omega(782) \to \pi^+\pi^-\pi^0) = (89.2 \pm 0.7) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\omega K\overline{K}) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{53}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
3.70±1.98±0.03	24	[1] AUBERT	07AU	BABR	10.6 $e^+e^- \to \omega K^+K^-\gamma$

[1] AUBERT 07AU reports $[\Gamma(J/\psi(1S) \to \omega K\overline{K}) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\omega(782) \to \pi^+\pi^-\pi^0)] = 3.3 \pm 1.3 \pm 1.2$ eV which we divide by our best value $B(\omega(782) \to \pi^+\pi^-\pi^0) = (89.2 \pm 0.7) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(K^+K^*(892)^- + c.c.) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{61}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
29.0±1.7±1.3	AUBERT	08S	BABR	10.6 $e^+e^- \to K^+K^*(892)^-\gamma$

$\Gamma(K^+K^*(892)^- + c.c. \to K^+K^-\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{62}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
10.96±0.85±0.70	155	AUBERT	08S	BABR	10.6 $e^+e^- \to K^+K^-\pi^0\gamma$

$\Gamma(K^+K^*(892)^- + c.c. \to K^0K^\pm\pi^\mp + c.c.) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{63}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
16.76±1.70±1.00	89	AUBERT	08S	BABR	10.6 $e^+e^- \to K^0_S K^\pm\pi^\mp\gamma$

$\Gamma(K^0\overline{K}^*(892)^0 + c.c.) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{64}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
26.6±2.5±1.5	AUBERT	08S	BABR	10.6 $e^+e^- \to K^0\overline{K}^*(892)^0\gamma$

$\Gamma(K^0 \overline{K}^*(892)^0 + \text{c.c.} \to K^0 K^\pm \pi^\mp + \text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ — $\Gamma_{65}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
17.70±1.70±1.00	94	AUBERT	08S	BABR	10.6 $e^+e^- \to K^0_S K^\pm \pi^\mp \gamma$

$\Gamma(\overline{K}^*(892)^0 K^+ \pi^- + \text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ — $\Gamma_{66}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
42.6±4.8±7.2	99	[1] LEES	17D	BABR	$e^+e^- \to K^0_S K^\pm \pi^\mp \pi^0 \gamma$

[1] Dividing by 1/6 to account for B($K^*(892)^0 \to K^0_S \pi^0$)=1/6.

$\Gamma(K^*(892)^\pm K^\mp \pi^0) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ — $\Gamma_{67}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
22.8±2.8±6.8	80	[1] LEES	17D	BABR	$e^+e^- \to K^0_S K^\pm \pi^\mp \pi^0 \gamma$

[1] Dividing by 1/4 to account for B($K^*(892)^\pm \to K^0_S \pi^\pm$) = 1/4.

$\Gamma(K^*(892)^+ K^0_S \pi^- + \text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ — $\Gamma_{68}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
11.0±2.8 OUR AVERAGE					
9.2±1.2±3.2	64	[1] LEES	17D	BABR	$e^+e^- \to K^0_S K^\pm \pi^\mp \pi^0 \gamma$
14.8±4.8±1.2	53	[2] LEES	14H	BABR	$e^+e^- \to \pi^+\pi^- K^0_S K^0_S \gamma$

[1] Dividing by 1/2 to take into account B($K^*(892)^\pm \to K^\pm \pi^\mp$) = 1/2.
[2] Dividing by 1/4 to take into account B($K^*(892) \to K^0_S \pi$) = 1/4.

$\Gamma(K^*(892)^+ K^0_S \pi^- + \text{c.c.} \to K^0_S K^0_S \pi^+ \pi^-) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ — $\Gamma_{69}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
3.7±1.2±0.3	53	LEES	14H	BABR	$e^+e^- \to \pi^+\pi^- K^0_S K^0_S \gamma$

$\Gamma(K^*(892)^0 K^0_S \pi^0) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ — $\Gamma_{71}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
3.60±0.75±2.25	34	[1] LEES	17D	BABR	$e^+e^- \to K^0_S K^\pm \pi^\mp \pi^0 \gamma$

[1] Dividing by 2/3 to account for B($K^*(892)^0 \to K^+ \pi^-$) = 2/3.

$\Gamma(K^*(892)^0 \overline{K}^*(892)^0) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ — $\Gamma_{73}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
1.28±0.34±0.07	47 ± 12	[1] LEES	12F	BABR	10.6 $e^+e^- \to \pi^+\pi^- K^+ K^- \gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.28±0.40±0.11	25 ± 8	[1,2] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^+\pi^- K^+ K^- \gamma$

[1] Dividing by $(2/3)^2$ to take twice into account that B($K^{*0} \to K^+ \pi^-$) = 2/3 B($K^{*0} \to K\pi$).
[2] Superseded by LEES 12F.

$\Gamma(K^*(892)^\pm K^*(892)^\mp) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ — $\Gamma_{74}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
0.80±0.48±0.32	1 ± 5	[1] LEES	14H	BABR	$e^+e^- \to \pi^+\pi^- K^0_S K^0_S \gamma$

[1] Dividing by $(1/4)^2$ to take twice into account B($K^*(892) \to K^0_S \pi$) = 1/4.

$\Gamma\big(K_2^*(1430)^+ K_S^0 \pi^- + \text{c.c.}\big) \times \Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ $\Gamma_{84}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
20.1±9.8±0.5	35	[1,2] LEES	14H	BABR	$e^+e^- \to \pi^+\pi^- K_S^0 K_S^0 \gamma$

[1] Dividing by 1/4 to take into account $B(K^*(1430) \to K_S^0\pi) = 1/4\ B(K^*(1430) \to K\pi)$.

[2] LEES 14H reports $[\Gamma\big(J/\psi(1S) \to K_2^*(1430)^+ K_S^0 \pi^- + \text{c.c.}\big) \times \Gamma\big(J/\psi(1S) \to e^+e^-\big)/\Gamma_{\text{total}}] \times [B(K_2^*(1430) \to K\pi)] = 10.0 \pm 4.8 \pm 0.8$ eV which we divide by our best value $B(K_2^*(1430) \to K\pi) = (49.9 \pm 1.2) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(\overline{K}_2^*(1430)^0 K^*(892)^0 + \text{c.c.}\big) \times \Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ $\Gamma_{85}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
25.8±1.4±0.6	710	[1,2,3] LEES	12F	BABR	10.6 $e^+e^- \to \pi^+\pi^- K^+ K^- \gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
33 ±4 ±1	317	[2,4] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^+\pi^- K^+ K^- \gamma$

[1] LEES 12F reports $[\Gamma\big(J/\psi(1S) \to \overline{K}_2^*(1430)^0 K^*(892)^0 + \text{c.c.}\big) \times \Gamma\big(J/\psi(1S) \to e^+e^-\big)/\Gamma_{\text{total}}] \times [B(K_2^*(1430) \to K\pi)] = 12.89 \pm 0.54 \pm 0.41$ eV which we divide by our best value $B(K_2^*(1430) \to K\pi) = (49.9 \pm 1.2) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Dividing by 2/3 to take into account that $B(K^{*0} \to K^+\pi^-) = 2/3\ B(K^{*0} \to K\pi)$.

[3] The $K_2^*(1430)$ cannot be distinguished from the $K_0^*(1430)$.

[4] Superseded by LEES 12F. AUBERT 07AK reports $[\Gamma\big(J/\psi(1S) \to \overline{K}_2^*(1430)^0 K^*(892)^0 + \text{c.c.}\big) \times \Gamma\big(J/\psi(1S) \to e^+e^-\big)/\Gamma_{\text{total}}] \times [B(K_2^*(1430) \to K\pi)] = 16.4 \pm 1.1 \pm 1.4$ eV which we divide by our best value $B(K_2^*(1430) \to K\pi) = (49.9 \pm 1.2) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(K_2^*(1430)^- K^*(892)^+ + \text{c.c.}\big) \times \Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ $\Gamma_{86}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
18.6±16.1±0.4	8 ± 8	[1,2] LEES	14H	BABR	$e^+e^- \to \pi^+\pi^- K_S^0 K_S^0 \gamma$

[1] Dividing by $(1/4)^2$ to take into account $B(K^*(892) \to K_S^0\pi) = 1/4$ and $B(K^*(1430) \to K_S^0\pi) = 1/4\ B(K^*(1430) \to K\pi)$.

[2] LEES 14H reports $[\Gamma\big(J/\psi(1S) \to K_2^*(1430)^- K^*(892)^+ + \text{c.c.}\big) \times \Gamma\big(J/\psi(1S) \to e^+e^-\big)/\Gamma_{\text{total}}] \times [B(K_2^*(1430) \to K\pi)] = 9.28 \pm 8.0 \pm 0.32$ eV which we divide by our best value $B(K_2^*(1430) \to K\pi) = (49.9 \pm 1.2) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(K_2^*(1430)^- K^*(892)^+ + \text{c.c.} \to K^*(892)^+ K_S^0 \pi^- + \text{c.c.}\big) \times \Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ $\Gamma_{87}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
2.32±2.00±0.08	8 ± 8	[1] LEES	14H	BABR	$e^+e^- \to \pi^+\pi^- K_S^0 K_S^0 \gamma$

[1] Dividing by 1/4 to take into account $B(K^*(892) \to K_S^0\pi) = 1/4$.

$\Gamma\big(\overline{K}_2(1770)^0 K^*(892)^0 + \text{c.c.} \to K^*(892)^0 K^- \pi^+ + \text{c.c.}\big) \times \Gamma\big(e^+ e^-\big)/\Gamma_{\text{total}}$ — $\Gamma_{89}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
3.8±0.4±0.3	110 ± 14	[1] AUBERT 07AK	BABR	10.6 $e^+ e^- \to \pi^+ \pi^- K^+ K^- \gamma$

[1] Dividing by 2/3 to take into account that B($K^{*0} \to K^+ \pi^-$) = 2/3.

$\Gamma\big(\phi\pi^+\pi^-\big) \times \Gamma\big(e^+ e^-\big)/\Gamma_{\text{total}}$ — $\Gamma_{96}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
4.48±0.35 OUR AVERAGE				
4.46±0.49±0.05	181	[1] LEES 12F	BABR	10.6 $e^+ e^- \to K^+ K^- \pi^+ \pi^- \gamma$
4.51±0.48±0.05	254 ± 23	[2] SHEN 09	BELL	10.6 $e^+ e^- \to K^+ K^- \pi^+ \pi^- \gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5.3 ±0.7 ±0.1	103	[3] AUBERT,BE 06D	BABR	10.6 $e^+ e^- \to K^+ K^- \pi^+ \pi^- \gamma$

[1] LEES 12F reports [$\Gamma\big(J/\psi(1S) \to \phi\pi^+\pi^-\big) \times \Gamma\big(J/\psi(1S) \to e^+ e^-\big)/\Gamma_{\text{total}}$] × [B($\phi(1020) \to K^+ K^-$)] = 2.19 ± 0.23 ± 0.07 eV which we divide by our best value B($\phi(1020) \to K^+ K^-$) = (49.1 ± 0.5) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] SHEN 09 reports 4.50 ± 0.41 ± 0.26 eV from a measurement of [$\Gamma\big(J/\psi(1S) \to \phi\pi^+\pi^-\big) \times \Gamma\big(J/\psi(1S) \to e^+ e^-\big)/\Gamma_{\text{total}}$] × [B($\phi(1020) \to K^+ K^-$)] assuming B($\phi(1020) \to K^+ K^-$) = (49.2 ± 0.6) × 10^{-2}, which we rescale to our best value B($\phi(1020) \to K^+ K^-$) = (49.1 ± 0.5) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] Superseded by LEES 12F. AUBERT,BE 06D reports [$\Gamma\big(J/\psi(1S) \to \phi\pi^+\pi^-\big) \times \Gamma\big(J/\psi(1S) \to e^+ e^-\big)/\Gamma_{\text{total}}$] × [B($\phi(1020) \to K^+ K^-$)] = 2.61 ± 0.30 ± 0.18 eV which we divide by our best value B($\phi(1020) \to K^+ K^-$) = (49.1 ± 0.5) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(\phi\pi^0\pi^0\big) \times \Gamma\big(e^+ e^-\big)/\Gamma_{\text{total}}$ — $\Gamma_{97}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
2.77±0.57±0.03	45	[1] LEES 12F	BABR	10.6 $e^+ e^- \to K^+ K^- \pi^0 \pi^0 \gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
3.13±0.88±0.03	23	[2] AUBERT,BE 06D	BABR	10.6 $e^+ e^- \to K^+ K^- \pi^0 \pi^0 \gamma$

[1] LEES 12F reports [$\Gamma\big(J/\psi(1S) \to \phi\pi^0\pi^0\big) \times \Gamma\big(J/\psi(1S) \to e^+ e^-\big)/\Gamma_{\text{total}}$] × [B($\phi(1020) \to K^+ K^-$)] = 1.36 ± 0.27 ± 0.07 eV which we divide by our best value B($\phi(1020) \to K^+ K^-$) = (49.1 ± 0.5) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Superseded by LEES 12F. AUBERT,BE 06D reports [$\Gamma\big(J/\psi(1S) \to \phi\pi^0\pi^0\big) \times \Gamma\big(J/\psi(1S) \to e^+ e^-\big)/\Gamma_{\text{total}}$] × [B($\phi(1020) \to K^+ K^-$)] = 1.54 ± 0.40 ± 0.16 eV which we divide by our best value B($\phi(1020) \to K^+ K^-$) = (49.1 ± 0.5) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi 2(\pi^+\pi^-)) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{98}\Gamma_5/\Gamma$

VALUE (10^{-2} keV)	EVTS	DOCUMENT ID		TECN	COMMENT
0.96±0.19±0.01	35	[1] AUBERT	06D	BABR	10.6 $e^+e^- \to \phi 2(\pi^+\pi^-)\gamma$

[1] AUBERT 06D reports $[\Gamma(J/\psi(1S) \to \phi 2(\pi^+\pi^-)) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \to K^+K^-)] = (0.47 \pm 0.09 \pm 0.03) \times 10^{-2}$ keV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (49.1 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{99}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
6.1±2.7±0.4	6	[1] AUBERT	07AU	BABR	10.6 $e^+e^- \to \phi\eta\gamma$

[1] AUBERT 07AU quotes $\Gamma^{J/\psi}_{ee} \cdot B(J/\psi \to \phi\eta) \cdot B(\phi \to K^+K^-) \cdot B(\eta \to 3\pi) = 0.84 \pm 0.37 \pm 0.05$ eV.

$\Gamma(\phi f_0(980) \to \phi\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{103}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
1.44±0.19 OUR AVERAGE					
1.40±0.25±0.02	57 ± 9	[1] LEES	12F	BABR	10.6 $e^+e^- \to \pi^+\pi^-K^+K^-\gamma$
1.48±0.27±0.09	60±11	[2] SHEN	09	BELL	10.6 $e^+e^- \to K^+K^-\pi^+\pi^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.02±0.24±0.01	20 ± 5	[3] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^+\pi^-K^+K^-\gamma$

[1] LEES 12F reports $[\Gamma(J/\psi(1S) \to \phi f_0(980) \to \phi\pi^+\pi^-) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \to K^+K^-)] = 0.69 \pm 0.11 \pm 0.05$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (49.1 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Multiplied by 2/3 to take into account the $\phi\pi^+\pi^-$ mode only. Using $B(\phi \to K^+K^-) = (49.2 \pm 0.6)\%$.

[3] Superseded by LEES 12F. AUBERT 07AK reports $[\Gamma(J/\psi(1S) \to \phi f_0(980) \to \phi\pi^+\pi^-) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \to K^+K^-)] = 0.50 \pm 0.11 \pm 0.04$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (49.1 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi f_0(980) \to \phi\pi^0\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{104}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
0.98±0.26±0.01	16 ± 4	[1] LEES	12F	BABR	10.6 $e^+e^- \to \pi^0\pi^0K^+K^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.96±0.40±0.01	7.0 ± 2.8	[2] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^0\pi^0K^+K^-\gamma$

[1] LEES 12F reports $[\Gamma(J/\psi(1S) \to \phi f_0(980) \to \phi\pi^0\pi^0) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \to K^+K^-)] = 0.48 \pm 0.12 \pm 0.05$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (49.1 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Superseded by LEES 12F. AUBERT 07AK reports $[\Gamma(J/\psi(1S) \to \phi f_0(980) \to \phi\pi^0\pi^0) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \to K^+K^-)] = 0.47 \pm 0.19 \pm 0.05$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (49.1 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi f_2(1270)) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{109}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{1.79\pm0.32^{+0.02}_{-0.06}}$	61	[1,2,3] LEES	12F	BABR	$10.6\ e^+e^- \to \pi^+\pi^-K^+K^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$4.08\pm0.73^{+0.04}_{-0.14}$	44	[2,4] AUBERT	07AK	BABR	$10.6\ e^+e^- \to \pi^+\pi^-K^+K^-\gamma$

[1] LEES 12F reports $[\Gamma(J/\psi(1S) \to \phi f_2(1270)) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{\text{total}}] \times [B(f_2(1270) \to \pi\pi)] = 1.51 \pm 0.25 \pm 0.10$ eV which we divide by our best value $B(f_2(1270) \to \pi\pi) = (84.2^{+2.9}_{-0.9}) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Using $B(\phi \to K^+K^-) = (48.9 \pm 0.5)\%$.

[3] Using $\pi^+\pi^-$ invariant mass between 1.1 and 1.5 GeV. May include other sources such as $f_0(1370)$.

[4] Superseded by LEES 12F. AUBERT 07AK reports $[\Gamma(J/\psi(1S) \to \phi f_2(1270)) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{\text{total}}] \times [B(f_2(1270) \to \pi\pi)] = 3.44 \pm 0.55 \pm 0.28$ eV which we divide by our best value $B(f_2(1270) \to \pi\pi) = (84.2^{+2.9}_{-0.9}) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi f'_2(1525)) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{114}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{8.2\pm3.2\pm0.2}$	11	[1,2] LEES	14H	BABR	$e^+e^- \to K^0_S K^0_S K^+K^-\gamma$

[1] Dividing by 1/4 to take into account $B(f'_2(1525) \to K^0_S K^0_S) = 1/4\ B(f'_2(1525) \to K\overline{K})$ and using $B(\phi \to K^+K^-) = (48.9 \pm 0.5)\%$.

[2] LEES 14H reports $[\Gamma(J/\psi(1S) \to \phi f'_2(1525)) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{\text{total}}] \times [B(f'_2(1525) \to K\overline{K})] = 7.2 \pm 2.8 \pm 0.3$ eV which we divide by our best value $B(f'_2(1525) \to K\overline{K}) = (87.6 \pm 2.2) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi K^+K^-) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{120}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{4.60\pm0.62\pm0.05}$	163	[1] LEES	12F	BABR	$10.6\ e^+e^- \to K^+K^-K^+K^-\gamma$

[1] LEES 12F reports $[\Gamma(J/\psi(1S) \to \phi K^+K^-) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{\text{total}}] \times [B(\phi(1020) \to K^+K^-)] = 2.26 \pm 0.26 \pm 0.16$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (49.1 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi K^0_S K^0_S) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{121}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{3.26\pm0.84\pm0.04}$	29	[1] LEES	14H	BABR	$e^+e^- \to K^0_S K^0_S K^+K^-\gamma$

[1] LEES 14H reports $[\Gamma(J/\psi(1S) \to \phi K^0_S K^0_S) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{\text{total}}] \times [B(\phi(1020) \to K^+K^-)] = 1.6 \pm 0.4 \pm 0.1$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (49.1 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(f_2'(1525)K^+K^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{126}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
5.8±1.9±0.1	16	[1,2] LEES	14H	BABR	$e^+e^- \to K^0_S K^0_S K^+K^-\gamma$

[1] Dividing by 1/4 to take into account B($f_2'(1525) \to K^0_S K^0_S$) = 1/4 B($f_2'(1525) \to K\overline{K}$).

[2] LEES 14H reports [$\Gamma(J/\psi(1S) \to f_2'(1525)K^+K^-) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}$] $\times$ [B($f_2'(1525) \to K\overline{K}$)] = $5.12 \pm 1.68 \pm 0.20$ eV which we divide by our best value B($f_2'(1525) \to K\overline{K}$) = $(87.6 \pm 2.2) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(2(\pi^+\pi^-)\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{145}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
303±5±18	4990	AUBERT	07AU	BABR	10.6 $e^+e^- \to 2(\pi^+\pi^-)\pi^0\gamma$

$\Gamma(\pi^+\pi^-3\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{147}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
104 ±50 OUR AVERAGE		Error includes scale factor of 4.3.			
55.4±15.9± 0.5	14k	[1] LEES	21	BABR	10.6 $e^+e^- \to 2(\pi^+\pi^-)3\pi^0\gamma$
150.0± 4.0±15.0	2.3k	LEES	18E	BABR	10.6 $e^+e^- \to \pi^+\pi^-3\pi^0\gamma$

[1] LEES 21 reports [$\Gamma(J/\psi(1S) \to \pi^+\pi^-3\pi^0) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}$] $\times$ [$\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)/\Gamma_{total}$] = $19.2 \pm 4.5 \pm 3.2$ eV which we divide by our best value $\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)/\Gamma_{total} = 0.3468 \pm 0.0030$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\pi^+\pi^-4\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{148}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
35.8±4.4±5.4	340	LEES	21C	BABR	$e^+e^- \to \gamma_{ISR}(\pi^+\pi^-4\pi^0)$

$\Gamma(\rho^\pm\pi^\mp\pi^0\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{149}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
78.0±9.0±8.0	1.2k	LEES	18E	BABR	10.6 $e^+e^- \to \pi^+\pi^-3\pi^0\gamma$

$\Gamma(\rho^+\rho^-\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{150}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
33.0±5.0±3.3	529	LEES	18E	BABR	10.6 $e^+e^- \to \pi^+\pi^-3\pi^0\gamma$

$\Gamma(\pi^+\pi^-\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{151}\Gamma_5/\Gamma$

VALUE (keV)	DOCUMENT ID		TECN	COMMENT
0.1248±0.0019±0.0026	LEES	21B	BABR	10.5 $e^+e^- \to \pi^+\pi^-\pi^0\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.122 ±0.005 ±0.008	AUBERT,B	04N	BABR	10.6 $e^+e^- \to \pi^+\pi^-\pi^0\gamma$

$\Gamma(2(\pi^+\pi^-\pi^0)) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{152}\Gamma_5/\Gamma$

VALUE (10^{-2} keV)	EVTS	DOCUMENT ID		TECN	COMMENT
8.9±0.5±1.0	761	AUBERT	06D	BABR	10.6 $e^+e^- \to 2(\pi^+\pi^-\pi^0)\gamma$

$\Gamma(\pi^+\pi^-\pi^0 K^+ K^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{153}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
107.0±4.3±6.4	768	AUBERT 07AU	BABR	10.6 $e^+e^- \to K^+K^-\pi^+\pi^-\pi^0\gamma$

$\Gamma(2(\pi^+\pi^-)) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{155}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
20.4±0.9±0.4		LEES 12E	BABR	10.6 $e^+e^- \to 2\pi^+2\pi^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
19.5±1.4±1.3	270	[1] AUBERT 05D	BABR	10.6 $e^+e^- \to 2(\pi^+\pi^-)\gamma$

[1] Superseded by LEES 12E.

$\Gamma(3(\pi^+\pi^-)) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{156}\Gamma_5/\Gamma$

VALUE (10^{-2} keV)	EVTS	DOCUMENT ID	TECN	COMMENT
2.37±0.16±0.14	496	AUBERT 06D	BABR	10.6 $e^+e^- \to 3(\pi^+\pi^-)\gamma$

$\Gamma(2(\pi^+\pi^-)3\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{157}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
345±10±50	14k	LEES 21	BABR	10.6 $e^+e^- \to 2(\pi^+\pi^-)3\pi^0\gamma$

$\Gamma(2(\pi^+\pi^-)\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{159}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
13.1±2.4±0.1	85	[1] AUBERT 07AU	BABR	10.6 $e^+e^- \to 2(\pi^+\pi^-)\eta\gamma$

[1] AUBERT 07AU reports $[\Gamma(J/\psi(1S) \to 2(\pi^+\pi^-)\eta) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\eta \to 2\gamma)] = 5.16 \pm 0.85 \pm 0.39$ eV which we divide by our best value $B(\eta \to 2\gamma) = (39.36 \pm 0.18) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(2(\pi^+\pi^-\pi^0)\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{161}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
9.1±2.6±1.4	14k	LEES 21	BABR	10.6 $e^+e^- \to 2(\pi^+\pi^-)3\pi^0\gamma$

$\Gamma(\pi^+\pi^-\pi^0\pi^0\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{162}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
13.1± 2.7 OUR AVERAGE				
26.1±17.9±0.3	14k	[1] LEES 21	BABR	10.6 $e^+e^- \to 2(\pi^+\pi^-)3\pi^0\gamma$
12.8± 1.8±2.0	203	LEES 18E	BABR	10.6 $e^+e^- \to \pi^+\pi^-\pi^0\pi^0\eta\gamma$

[1] LEES 21 reports $[\Gamma(J/\psi(1S) \to \pi^+\pi^-\pi^0\pi^0\eta) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\eta \to \pi^+\pi^-\pi^0)] = 6 \pm 4 \pm 1$ eV which we divide by our best value $B(\eta \to \pi^+\pi^-\pi^0) = (23.02 \pm 0.25) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\rho^\pm\pi^\mp\pi^0\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{163}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
10.5±4.1±1.6	168	LEES 18E	BABR	10.6 $e^+e^- \to \pi^+\pi^-\pi^0\pi^0\eta\gamma$

$\Gamma(K^+K^-)$ × $\Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{164}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.78\pm0.11\pm0.05$	462	[1] LEES	15J	BABR	$e^+e^- \to K^+K^-\gamma$
$1.94\pm0.11\pm0.05$	462	[2] LEES	15J	BABR	$e^+e^- \to K^+K^-\gamma$
$1.42\pm0.23\pm0.08$	51	[3] LEES	13Q	BABR	$e^+e^- \to K^+K^-\gamma$

[1] $\sin\phi > 0$.
[2] $\sin\phi < 0$.
[3] Interference with non-resonant K^+K^- production not taken into account.

$\Gamma(K^0_S K^0_L \pi^0)$ × $\Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{170}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
$11.4\pm1.3\pm0.6$	182	LEES	17A	BABR	$e^+e^- \to K^0_S K^0_L \pi^0\gamma$

$\Gamma(K^*(892)^0\overline{K}^0 + \text{c.c.} \to K^0_S K^0_L \pi^0)$ × $\Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{171}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
$6.7\pm0.9\pm0.4$	106	LEES	17A	BABR	$e^+e^- \to K^0_S K^0_L \pi^0\gamma$

$\Gamma(K^*_2(1430)^0\overline{K}^0 + \text{c.c.} \to K^0_S K^0_L \pi^0)$ × $\Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{172}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
$2.4\pm0.7\pm0.1$	37	LEES	17A	BABR	$e^+e^- \to K^0_S K^0_L \pi^0\gamma$

$\Gamma(K^+K^-\pi^+\pi^-)$ × $\Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{173}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
$37.94\pm0.81\pm1.10$	3.1k	LEES	12F	BABR	10.6 $e^+e^- \to \pi^+\pi^-K^+K^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$36.3\pm1.3\pm2.1$	1.5k	[1] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^+\pi^-K^+K^-\gamma$
$33.6\pm2.7\pm2.7$	233	[2] AUBERT	05D	BABR	10.6 $e^+e^- \to K^+K^-\pi^+\pi^-\gamma$

[1] Superseded by LEES 12F.
[2] Superseded by AUBERT 07AK.

$\Gamma(K^+K^-\pi^0\pi^0)$ × $\Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{174}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
$11.75\pm0.81\pm0.90$	388	LEES	12F	BABR	10.6 $e^+e^- \to \pi^0\pi^0K^+K^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$13.6\pm1.1\pm1.3$	203	[1] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^0\pi^0K^+K^-\gamma$

[1] Superseded by LEES 12F.

$\Gamma(K^0_S K^0_L \pi^+\pi^-)$ × $\Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{175}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
$20.8\pm2.3\pm2.1$	248	LEES	14H	BABR	$e^+e^- \to \pi^+\pi^-K^0_S K^0_L\gamma$

$\Gamma(K^0_S K^0_L \pi^0\pi^0)$ × $\Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{176}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
$10.3\pm2.3\pm0.5$	47	LEES	17A	BABR	$e^+e^- \to K^0_S K^0_L \pi^0\pi^0\gamma$

$\Gamma(K^0_S K^0_L \eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{177}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
8.0±1.8±0.4	45	LEES	17A	BABR	$e^+e^- \rightarrow K^0_S K^0_L \eta\gamma$

$\Gamma(K^0_S K^0_S \pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{178}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
9.3±0.9±0.5	133	LEES	14H	BABR	$e^+e^- \rightarrow \pi^+\pi^- K^0_S K^0_S \gamma$

$\Gamma(K^\mp K^0_S \pi^\pm\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{179}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
31.7±1.9±1.8	393	LEES	17D	BABR	$e^+e^- \rightarrow K^0_S K^\pm \pi^\mp \pi^0 \gamma$

$\Gamma(K^+K^- 2(\pi^+\pi^-)) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{180}\Gamma_5/\Gamma$

VALUE (10^{-2} keV)	EVTS	DOCUMENT ID		TECN	COMMENT
2.75±0.23±0.17	205	AUBERT	06D	BABR	10.6 $e^+e^- \rightarrow K^+K^- 2(\pi^+\pi^-)\gamma$

$\Gamma(K^+K^-\pi^+\pi^-\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{181}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
25.9±3.9±0.1	73	[1] AUBERT	07AU	BABR	10.6 $e^+e^- \rightarrow K^+K^-\pi^+\pi^-\eta\gamma$

[1] AUBERT 07AU reports $[\Gamma(J/\psi(1S) \rightarrow K^+K^-\pi^+\pi^-\eta) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{total}] \times [B(\eta \rightarrow 2\gamma)] = 10.2 \pm 1.3 \pm 0.8$ eV which we divide by our best value $B(\eta \rightarrow 2\gamma) = (39.36 \pm 0.18) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(2(K^+K^-)) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{182}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
4.00±0.33±0.29	287 ± 24	LEES	12F	BABR	10.6 $e^+e^- \rightarrow 2(K^+K^-)\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
4.11±0.39±0.30	156 ± 15	[1] AUBERT	07AK	BABR	10.6 $e^+e^- \rightarrow 2(K^+K^-)\gamma$
4.0 ±0.7 ±0.6	38	[2] AUBERT	05D	BABR	10.6 $e^+e^- \rightarrow 2(K^+K^-)\gamma$

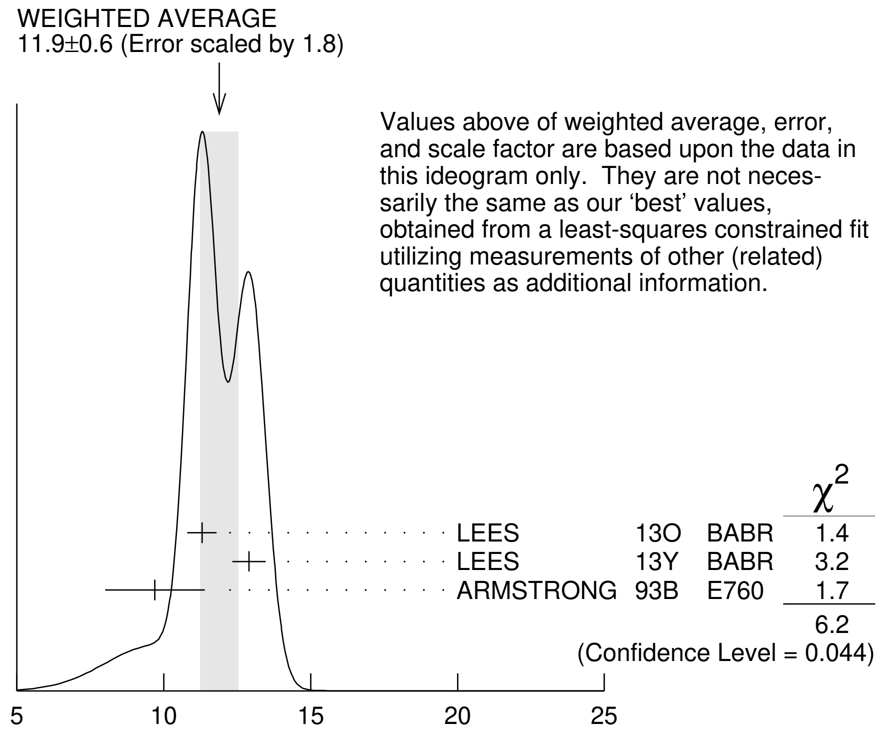
[1] Superseded by LEES 12F.
[2] Superseded by AUBERT 07AK.

$\Gamma(K^+K^-K^0_S K^0_S) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{183}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
2.3±0.4±0.1	29	LEES	14H	BABR	$e^+e^- \rightarrow K^0_S K^0_S K^+K^-\gamma$

$\Gamma(p\overline{p}) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{184}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
11.9±0.6 OUR AVERAGE Error includes scale factor of 1.8. See the ideogram below.					
11.3±0.4±0.3	821	[1] LEES	13O	BABR	$e^+e^- \rightarrow p\overline{p}\gamma$
12.9±0.4±0.4	918	[2] LEES	13Y	BABR	$e^+e^- \rightarrow p\overline{p}\gamma$
9.7±1.7		[3] ARMSTRONG	93B	E760	$\overline{p}p \rightarrow e^+e^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
12.0±0.6±0.5	438	[4] AUBERT	06B	BABR	$e^+e^- \rightarrow p\overline{p}\gamma$



[1] ISR photon reconstructed in the detector
[2] ISR photon undetected
[3] Using $\Gamma_{\text{total}} = 85.5^{+6.1}_{-5.8}$ MeV.
[4] Superseded by LEES 13O

$\Gamma(p\overline{p}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ (eV)

$\Gamma(\Lambda\overline{\Lambda}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ — $\Gamma_{200}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
10.7±0.9±0.7	AUBERT	07BD	BABR	10.6 $e^+e^- \to \Lambda\overline{\Lambda}\gamma$

$\Gamma(\Sigma^0\overline{\Sigma}^0) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ — $\Gamma_{210}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
6.4±1.2±0.6	AUBERT	07BD	BABR	10.6 $e^+e^- \to \Sigma^0\overline{\Sigma}^0\gamma$

$J/\psi(1S)$ BRANCHING RATIOS

For the first four branching ratios, see also the partial widths, and (partial widths) $\times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ above.

$\Gamma(\text{hadrons})/\Gamma_{\text{total}}$ — Γ_1/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.877±0.005 OUR AVERAGE				
0.878±0.005	BAI	95B	BES	e^+e^-
0.86 ±0.02	BOYARSKI	75	MRK1	e^+e^-

$\Gamma(\text{virtual}\gamma \to \text{hadrons})/\Gamma_{\text{total}}$ — Γ_2/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.135±0.003	[1,2] SETH	04	RVUE	e^+e^-

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

0.17 ±0.02	[1] BOYARSKI	75	MRK1	e^+e^-

[1] Included in $\Gamma(\text{hadrons})/\Gamma_{\text{total}}$.

[2] Using $B(J/\psi \to \ell^+\ell^-) = (5.90 \pm 0.09)\%$ from RPP-2002 and R = 2.28 ± 0.04 determined by a fit to data from BAI 00 and BAI 02C.

$\Gamma(ggg)/\Gamma_{\text{total}}$ — Γ_3/Γ

VALUE (units 10^{-2})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
64.1±1.0	6 M	[1] BESSON	08	CLEO	$\psi(2S) \to \pi^+\pi^- +$ hadrons

[1] Calculated using the value $\Gamma(\gamma gg)/\Gamma(ggg) = 0.137 \pm 0.001 \pm 0.016 \pm 0.004$ from BESSON 08 and the PDG 08 values of $B(\ell^+\ell^-)$, B(virtual $\gamma \to$ hadrons), and $B(\gamma\eta_c)$. The statistical error is negligible and the systematic error is partially correlated with that of $\Gamma(\gamma gg)/\Gamma_{\text{total}}$ measurement of BESSON 08.

$\Gamma(\gamma gg)/\Gamma_{\text{total}}$ — Γ_4/Γ

VALUE (units 10^{-2})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
8.79±1.05	200 k	[1] BESSON	08	CLEO	$\psi(2S) \to \pi^+\pi^-\gamma +$ hadrons

[1] Calculated using the value $\Gamma(\gamma gg)/\Gamma(ggg) = 0.137 \pm 0.001 \pm 0.016 \pm 0.004$ from BESSON 08 and the value of $\Gamma(ggg)/\Gamma_{\text{total}}$. The statistical error is negligible and the systematic error is partially correlated with that of $\Gamma(ggg)/\Gamma_{\text{total}}$ measurement of BESSON 08.

$\Gamma(\gamma gg)/\Gamma(ggg)$ — Γ_4/Γ_3

VALUE (units 10^{-2})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
13.7±0.1±0.7	6 M	BESSON	08	CLEO	$\psi(2S) \to \pi^+\pi^- J/\psi$

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

VALUE (units 10^{-2})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
5.971±0.032 OUR AVERAGE					
5.983±0.007±0.037	720k	ABLIKIM	13R	BES3	$\psi(2S) \to J/\psi\pi^+\pi^-$
5.945±0.067±0.042	15k	LI	05C	CLEO	$\psi(2S) \to J/\psi\pi^+\pi^-$
5.90 ±0.05 ±0.10		BAI	98D	BES	$\psi(2S) \to J/\psi\pi^+\pi^-$
6.09 ±0.33		BAI	95B	BES	e^+e^-
5.92 ±0.15 ±0.20		COFFMAN	92	MRK3	$\psi(2S) \to J/\psi\pi^+\pi^-$
6.9 ±0.9		BOYARSKI	75	MRK1	e^+e^-

$\Gamma(e^+e^-\gamma)/\Gamma_{\text{total}}$ — Γ_6/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
8.8±1.3±0.4	[1] ARMSTRONG	96	E760	$\bar{p}p \to e^+e^-\gamma$

[1] For $E_\gamma > 100$ MeV.

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

VALUE (units 10^{-2})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
5.961±0.033 OUR AVERAGE					
5.973±0.007±0.038	770k	ABLIKIM	13R	BES3	$\psi(2S) \to J/\psi\pi^+\pi^-$
5.960±0.065±0.050	17k	LI	05C	CLEO	$\psi(2S) \to J/\psi\pi^+\pi^-$
5.84 ±0.06 ±0.10		BAI	98D	BES	$\psi(2S) \to J/\psi\pi^+\pi^-$

6.08 ±0.33		BAI	95B	BES	e^+e^-
5.90 ±0.15 ±0.19		COFFMAN	92	MRK3	$\psi(2S) \to J/\psi\pi^+\pi^-$
6.9 ±0.9		BOYARSKI	75	MRK1	e^+e^-

$\Gamma(e^+e^-)/\Gamma(\mu^+\mu^-)$ — Γ_5/Γ_7

VALUE	DOCUMENT ID		TECN	COMMENT
1.0016±0.0031 OUR AVERAGE				
1.0022±0.0044±0.0048	[1] AULCHENKO	14	KEDR	3.097 $e^+e^- \to e^+e^-, \mu^+\mu^-$
1.0017±0.0017±0.0033	[2] ABLIKIM	13R	BES3	$\psi(2S) \to J/\psi\pi^+\pi^-$
1.002 ±0.021 ±0.013	[3] ANASHIN	10	KEDR	3.097 $e^+e^- \to e^+e^-, \mu^+\mu^-$
0.997 ±0.012 ±0.006	LI	05C	CLEO	$\psi(2S) \to J/\psi\pi^+\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.011 ±0.013 ±0.016	BAI	98D	BES	$\psi(2S) \to J/\psi\pi^+\pi^-$
1.00 ±0.07	BAI	95B	BES	e^+e^-
1.00 ±0.05	BOYARSKI	75	MRK1	e^+e^-
0.91 ±0.15	ESPOSITO	75B	FRAM	e^+e^-
0.93 ±0.10	FORD	75	SPEC	e^+e^-

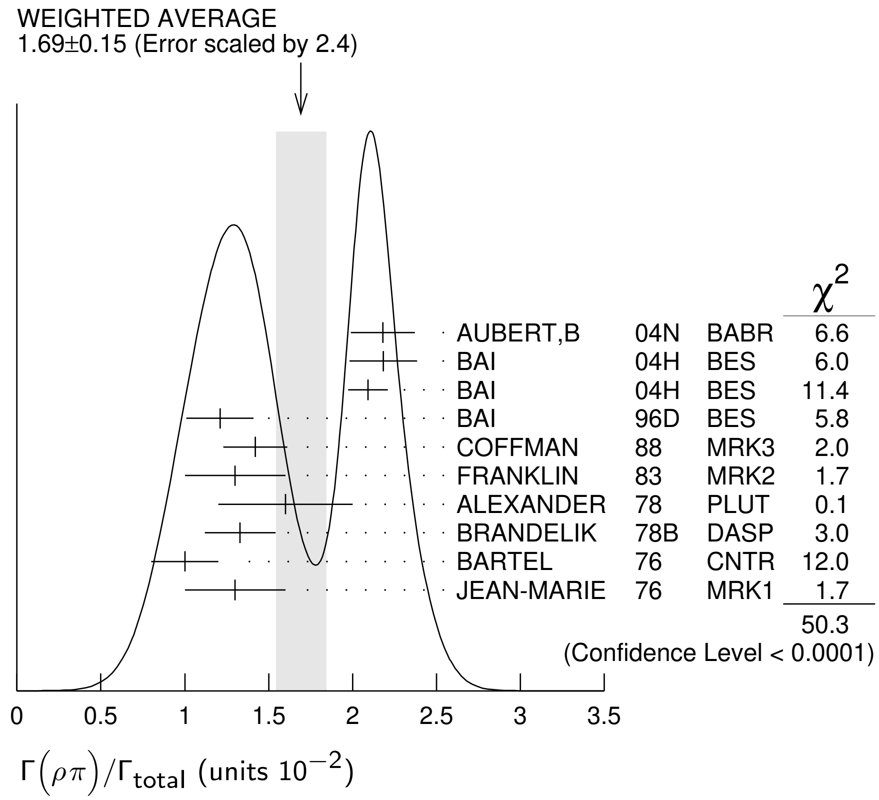
[1] From 235.3k $J/\psi \to e^+e^-$ and 156.6k $J/\psi \to \mu^+\mu^-$ observed events.
[2] Not independent of the corresponding measurements of Γ(e+ e-)/Γ_{total} and Γ(mu+ mu-)/Γ_{total}.
[3] Not independent of the corresponding measurements of $\Gamma(e^+e^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ and $\Gamma(\mu^+\mu^-) \times \Gamma(e^+e^-)/\Gamma_{total}$.

HADRONIC DECAYS

$\Gamma(\rho\pi)/\Gamma_{total}$ — Γ_8/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.69 ±0.15 OUR AVERAGE		Error includes scale factor of 2.4. See the ideogram below.			
2.18 ±0.19		[1,2] AUBERT,B	04N	BABR	10.6 $e^+e^- \to \pi^+\pi^-\pi^0\gamma$
2.184±0.005±0.201	220k	[2,3] BAI	04H	BES	$e^+e^- \to J/\psi \to \pi^+\pi^-\pi^0$
2.091±0.021±0.116		[2,4] BAI	04H	BES	$\psi(2S) \to \pi^+\pi^- J/\psi$
1.21 ±0.20		BAI	96D	BES	$e^+e^- \to \rho\pi$
1.42 ±0.01 ±0.19		COFFMAN	88	MRK3	e^+e^-
1.3 ±0.3	150	FRANKLIN	83	MRK2	e^+e^-
1.6 ±0.4	183	ALEXANDER	78	PLUT	e^+e^-
1.33 ±0.21		BRANDELIK	78B	DASP	e^+e^-
1.0 ±0.2	543	BARTEL	76	CNTR	e^+e^-
1.3 ±0.3	153	JEAN-MARIE	76	MRK1	e^+e^-

[1] From the ratio of $\Gamma(e^+e^-)$ B($\pi^+\pi^-\pi^0$) and $\Gamma(e^+e^-)$ B($\mu^+\mu^-$) (AUBERT 04).
[2] Not independent of their B($\pi^+\pi^-\pi^0$).
[3] From $J/\psi \to \pi^+\pi^-\pi^0$ events directly.
[4] Obtained comparing the rates for $\pi^+\pi^-\pi^0$ and $\mu^+\mu^-$, using J/ψ events produced via $\psi(2S) \to \pi^+\pi^- J/\psi$ and with B($J/\psi \to \mu^+\mu^-$) = 5.88 ± 0.10%.



$\Gamma(\rho\pi)/\Gamma(\pi^+\pi^-\pi^0)$ Γ_8/Γ_{151}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.142±0.011±0.026	20k	[1] LEES	17C	BABR	$J/\psi \to \pi^+\pi^-\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.331±0.033	20k	[2] LEES	17C	BABR	$J/\psi \to \pi^+\pi^-\pi^0$

[1] From a Dalitz plot analysis in an isobar model.
[2] From a Dalitz plot analysis in a Veneziano model.

$\Gamma(\rho^0\pi^0)/\Gamma(\rho\pi)$ Γ_9/Γ_8

VALUE	DOCUMENT ID		TECN	COMMENT
0.328±0.005±0.027	COFFMAN	88	MRK3	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.35 ±0.08	ALEXANDER	78	PLUT	e^+e^-
0.32 ±0.08	BRANDELIK	78B	DASP	e^+e^-
0.39 ±0.11	BARTEL	76	CNTR	e^+e^-
0.37 ±0.09	JEAN-MARIE	76	MRK1	e^+e^-

$\Gamma(a_2(1320)\rho)/\Gamma_{total}$ Γ_{10}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
10.9±2.2 OUR AVERAGE					
11.7±0.7±2.5	7584	AUGUSTIN	89	DM2	$J/\psi \to \rho^0\rho^\pm\pi^\mp$
8.4±4.5	36	VANNUCCI	77	MRK1	$e^+e^- \to 2(\pi^+\pi^-)\pi^0$

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

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
3.78±0.68	471	[1] ABLIKIM	19Q	BES3	$e^+e^- \to J/\psi \to \eta\pi^+\pi^-$

[1] From an energy scan of $e^+e^- \to J/\psi \to \eta\pi^+\pi^-$ assuming PDG 16 values for $\Gamma(e^+e^-)$, $\Gamma(\mu^+\mu^-)$, and Γ(total).

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

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.193±0.023 OUR AVERAGE					
0.194±0.017±0.029	299	JOUSSET	90	DM2	$J/\psi \to$ hadrons
0.193±0.013±0.029		COFFMAN	88	MRK3	$e^+e^- \to \pi^+\pi^-\eta$

$\Gamma(\eta\phi(2170) \to \eta\phi f_0(980) \to \eta\phi\pi^+\pi^-)/\Gamma_{total}$ — Γ_{15}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.20±0.14±0.37	471	ABLIKIM	15H	BES3	$e^+e^- \to J/\psi \to \phi\eta\pi^+\pi^-$

$\Gamma(\eta\phi(2170) \to \eta K^*(892)^0\overline{K}^*(892)^0)/\Gamma_{total}$ — Γ_{16}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.52 × 10⁻⁴	90	ABLIKIM	10C	BES2	$J/\psi \to \eta K^+\pi^-K^-\pi^+$

$\Gamma(\eta K^\pm K^0_S\pi^\mp)/\Gamma_{total}$ — Γ_{17}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
21.8±2.2±3.4	232 ± 23	ABLIKIM	08E	BES2	$e^+e^- \to J/\psi$

$\Gamma(\eta K^*(892)^0\overline{K}^*(892)^0)/\Gamma_{total}$ — Γ_{18}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.15±0.13±0.22	209	ABLIKIM	10C	BES2	$J/\psi \to \eta K^+\pi^-K^-\pi^+$

$\Gamma(\rho\eta'(958))/\Gamma_{total}$ — Γ_{19}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
8.1 ±0.8 OUR AVERAGE	Error includes scale factor of 1.6.				
7.90±0.19±0.49	3476	[1] ABLIKIM	17AK	BES3	$J/\psi \to \pi^+\pi^-\eta'$
8.3 ±3.0 ±1.2	19	JOUSSET	90	DM2	$J/\psi \to$ hadrons
11.4 ±1.4 ±1.6		COFFMAN	88	MRK3	$J/\psi \to \pi^+\pi^-\eta'$

[1] From a partial wave analysis of the decay $J/\psi \to \pi^+\pi^-\eta'$.

$\Gamma(\rho(1450)\pi \to \pi^+\pi^-\pi^0)/\Gamma(\pi^+\pi^-\pi^0)$ — Γ_{24}/Γ_{151}

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
10.9 ±1.7 ±2.7	20k	[1] LEES	17C	BABR	$J/\psi \to \pi^+\pi^-\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.80±0.27	20k	[2] LEES	17C	BABR	$J/\psi \to \pi^+\pi^-\pi^0$

[1] From a Dalitz plot analysis in an isobar model.
[2] From a Dalitz plot analysis in a Veneziano model.

$\Gamma\big(\rho(1450)^{\pm}\pi^{\mp} \to K^0_S K^{\pm}\pi^{\mp}\big)/\Gamma\big(K^0_S K^{\pm}\pi^{\mp}\big)$ — Γ_{25}/Γ_{169}

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
6.3±0.8±0.6	4k	[1] LEES	17C	BABR	$J/\psi \to K^0_S K^{\pm}\pi^{\mp}$

[1] From a Dalitz plot analysis in an isobar model.

$\Gamma\big(\rho(1450)^0\pi^0 \to K^+K^-\pi^0\big)/\Gamma\big(K^+K^-\pi^0\big)$ — Γ_{26}/Γ_{168}

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
9.3±2.0±0.6	2k	[1] LEES	17C	BABR	$J/\psi \to K^+K^-\pi^0$

[1] From a Dalitz plot analysis in an isobar model.

$\Gamma\big(\rho(1450)\eta'(958) \to \pi^+\pi^-\eta'(958)\big)/\Gamma_{\text{total}}$ — Γ_{27}/Γ

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
3.28±0.55±0.44	119	[1] ABLIKIM	17AK	BES3	$J/\psi \to \pi^+\pi^-\eta'$

[1] From a partial wave analysis of the decay $J/\psi \to \pi^+\pi^-\eta'$.

$\Gamma\big(\rho(1700)\pi \to \pi^+\pi^-\pi^0\big)/\Gamma\big(\pi^+\pi^-\pi^0\big)$ — Γ_{29}/Γ_{151}

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
8±2±5	20k	[1] LEES	17C	BABR	$J/\psi \to \pi^+\pi^-\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
22±6	20k	[2] LEES	17C	BABR	$J/\psi \to \pi^+\pi^-\pi^0$

[1] From a Dalitz plot analysis in an isobar model.
[2] From a Dalitz plot analysis in a Veneziano model.

$\Gamma\big(\rho(2150)\pi \to \pi^+\pi^-\pi^0\big)/\Gamma\big(\pi^+\pi^-\pi^0\big)$ — Γ_{31}/Γ_{151}

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
4± 1±20	20k	[1] LEES	17C	BABR	$J/\psi \to \pi^+\pi^-\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
600±250	20k	[2] LEES	17C	BABR	$J/\psi \to \pi^+\pi^-\pi^0$

[1] From a Dalitz plot analysis in an isobar model.
[2] From a Dalitz plot analysis in a Veneziano model.

$\Gamma\big(\rho_3(1690)\pi \to \pi^+\pi^-\pi^0\big)/\Gamma\big(\pi^+\pi^-\pi^0\big)$ — Γ_{32}/Γ_{151}

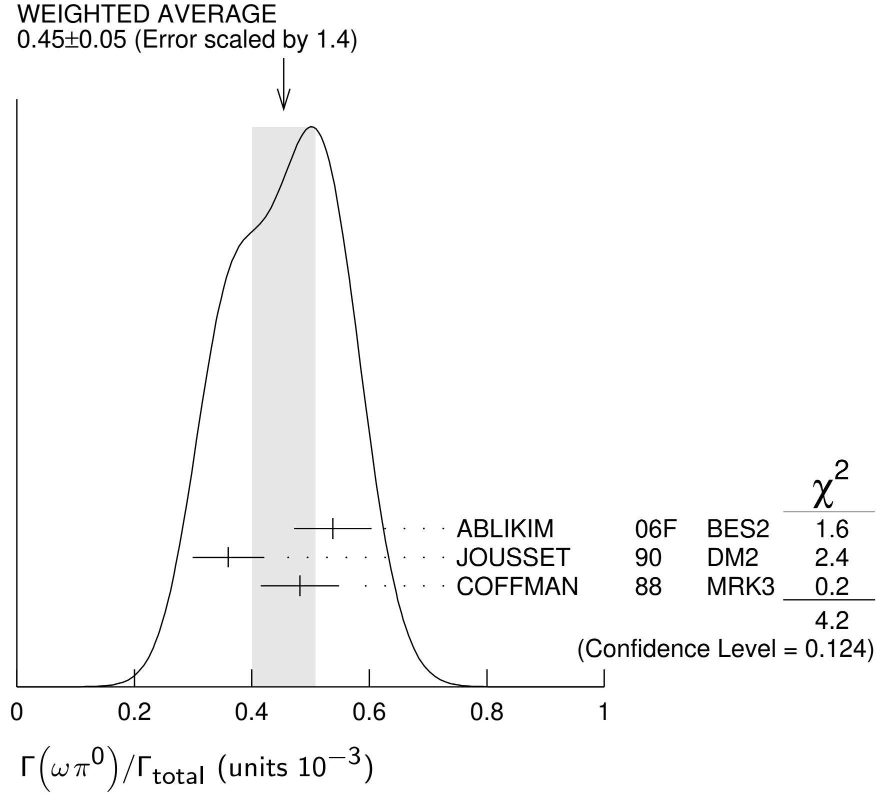
VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
4.0±0.8	20k	[1] LEES	17C	BABR	$J/\psi \to \pi^+\pi^-\pi^0$

[1] From a Dalitz plot analysis in a Veneziano model.

$\Gamma\big(\omega\pi^0\big)/\Gamma_{\text{total}}$ — Γ_{33}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.45 ±0.05 OUR AVERAGE	Error includes scale factor of 1.4. See the ideogram below.				
0.538±0.012±0.065	2090	[1] ABLIKIM	06F	BES2	$J/\psi \to \omega\pi^0$
0.360±0.028±0.054	222	JOUSSET	90	DM2	$J/\psi \to$ hadrons
0.482±0.019±0.064		COFFMAN	88	MRK3	$e^+e^- \to \pi^0\pi^+\pi^-\pi^0$

[1] Using $B(\omega \to \pi^+\pi^-\pi^0) = (89.1 \pm 0.7)\%$.



$\Gamma\left(\omega\pi^0 \to \pi^+\pi^-\pi^0\right)/\Gamma\left(\pi^+\pi^-\pi^0\right)$ Γ_{34}/Γ_{151}

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
8±3±2	20k	[1] LEES	17C	BABR	$J/\psi \to \pi^+\pi^-\pi^0$

[1] From a Dalitz plot analysis in an isobar model and significance 4.9 σ.

$\Gamma\left(\omega\pi^+\pi^-\right)/\Gamma_{total}$ Γ_{35}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
7.2±1.0 OUR AVERAGE					
7.0±1.6	18058	AUGUSTIN	89	DM2	$J/\psi \to 2(\pi^+\pi^-)\pi^0$
7.8±1.6	215	BURMESTER	77D	PLUT	e^+e^-
6.8±1.9	348	VANNUCCI	77	MRK1	$e^+e^- \to 2(\pi^+\pi^-)\pi^0$

$\Gamma\left(\omega\pi^0\pi^0\right)/\Gamma_{total}$ Γ_{36}/Γ

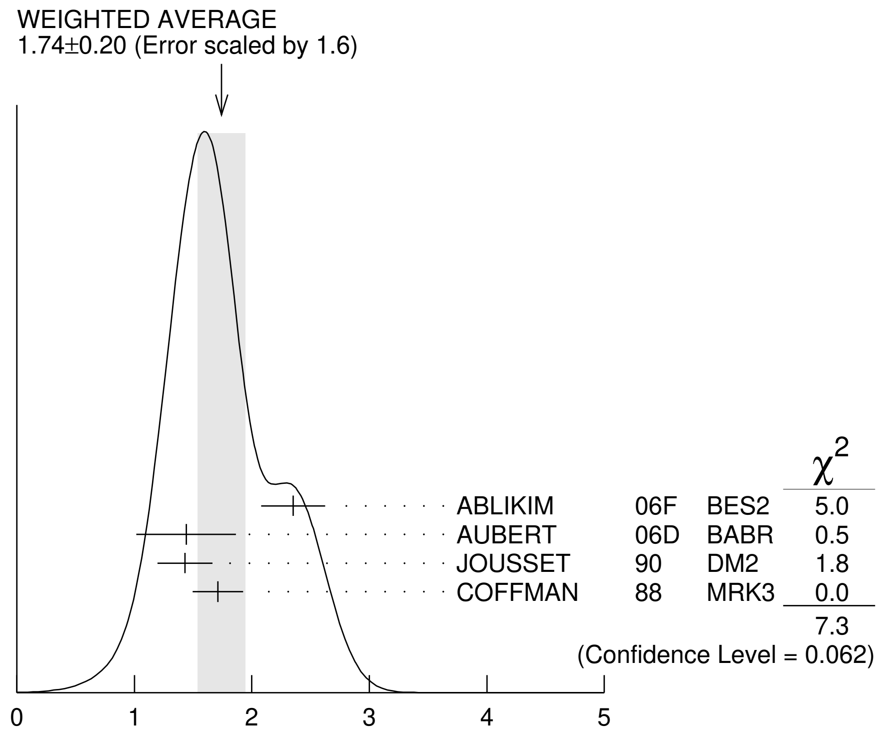
VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.4±0.3±0.7	509	AUGUSTIN	89	DM2	$J/\psi \to \pi^+\pi^- 3\pi^0$

$\Gamma\left(\omega f_2(1270)\right)/\Gamma_{total}$ Γ_{38}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
4.3±0.6 OUR AVERAGE					
4.3±0.2±0.6	5860	AUGUSTIN	89	DM2	e^+e^-
4.0±1.6	70	BURMESTER	77D	PLUT	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.9±0.8	81	VANNUCCI	77	MRK1	$e^+e^- \to 2(\pi^+\pi^-)\pi^0$

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

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.74 ±0.20 OUR AVERAGE		Error includes scale factor of 1.6. See the ideogram below.			
2.352±0.273	5k	[1] ABLIKIM	06F	BES2	$J/\psi \to \omega\eta$
1.44 ±0.40 ±0.14	13	[2] AUBERT	06D	BABR	10.6 $e^+e^- \to \omega\eta\gamma$
1.43 ±0.10 ±0.21	378	JOUSSET	90	DM2	$J/\psi \to$ hadrons
1.71 ±0.08 ±0.20		COFFMAN	88	MRK3	$e^+e^- \to 3\pi\eta$



[1] Using B($\eta \to 2\gamma$) = (39.43 ± 0.26)%, B($\eta \to \pi^+\pi^-\pi^0$) = 22.6 ± 0.4%, B($\eta \to \pi^+\pi^-\gamma$) = 4.68 ± 0.11%, and B($\omega \to \pi^+\pi^-\pi^0$) = (89.1 ± 0.7)%.

[2] Using $\Gamma(J/\psi \to e^+e^-)$ = 5.52 ± 0.14 ± 0.04 keV.

$\Gamma(\omega\eta)/\Gamma_{total}$ (units 10^{-3})

$\Gamma(\omega\pi^+\pi^+\pi^-\pi^-)/\Gamma_{total}$ — Γ_{42}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
85±34	140	VANNUCCI	77	MRK1	$e^+e^- \to 3(\pi^+\pi^-)\pi^0$

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

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.12±0.02±0.13	14k	[1] ABLIKIM	19AC	BES3	$J/\psi \to \omega\eta'\pi^+\pi^-$

[1] Using the decays $\omega \to \pi^+\pi^-\pi^0$ and $\eta' \to \eta\pi^+\pi^-$.

$\Gamma(\omega\eta'(958))/\Gamma_{total}$ — Γ_{45}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.89±0.18 OUR AVERAGE					
2.08±0.30±0.14	137	[1] ABLIKIM	17AK	BES3	$J/\psi \to \pi^+\pi^-\eta'$
2.26±0.43	218	[2] ABLIKIM	06F	BES2	$J/\psi \to \omega\eta'$

$1.8\ ^{+1.0}_{-0.8}\ \pm0.3$	6	JOUSSET	90	DM2	$J/\psi \to$ hadrons
$1.66\pm0.17\pm0.19$		COFFMAN	88	MRK3	$e^+e^- \to 3\pi\eta'$

[1] From a partial wave analysis of the decay $J/\psi \to \pi^+\pi^-\eta'$.
[2] Using $B(\eta' \to \pi^+\pi^-\eta) = (44.3 \pm 1.5)\%$, $B(\eta' \to \pi^+\pi^-\gamma) = 29.5 \pm 1.0\%$, $B(\eta \to 2\gamma) = 39.43 \pm 0.26\%$, and $B(\omega \to \pi^+\pi^-\pi^0) = (89.1 \pm 0.7)\%$.

$\Gamma(\omega f_0(980))/\Gamma_{total}$ Γ_{46}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
1.41±0.27±0.47	[1] AUGUSTIN	89	DM2	$J/\psi \to 2(\pi^+\pi^-)\pi^0$

[1] Assuming $B(f_0(980) \to \pi\pi) = 0.78$.

$\Gamma(\omega f_0(1710) \to \omega K\overline{K})/\Gamma_{total}$ Γ_{47}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
4.8±1.1±0.3	[1,2] FALVARD	88	DM2	$J/\psi \to$ hadrons

[1] Includes unknown branching fraction $f_0(1710) \to K\overline{K}$.
[2] Addition of $f_0(1710) \to K^+K^-$ and $f_0(1710) \to K^0\overline{K}^0$ branching ratios.

$\Gamma(\omega f_1(1420))/\Gamma_{total}$ Γ_{48}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{6.8^{+1.9}_{-1.6}\pm1.7}$	111^{+31}_{-26}	BECKER	87	MRK3	$e^+e^- \to$ hadrons

$\Gamma(\omega f_2'(1525))/\Gamma_{total}$ Γ_{49}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{<2.2\times10^{-4}}$	90	[1] VANNUCCI	77	MRK1	$e^+e^- \to \pi^+\pi^-\pi^0K^+K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2.8\times10^{-4}$	90	[1] FALVARD	88	DM2	$J/\psi \to$ hadrons

[1] Re-evaluated assuming $B(f_2'(1525) \to K\overline{K}) = 0.713$.

$\Gamma(\omega X(1835) \to \omega p\overline{p})/\Gamma_{total}$ Γ_{50}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{<3.9\times10^{-6}}$	95	ABLIKIM	13P	BES3	$J/\psi \to \gamma\pi^0p\overline{p}$

$\Gamma(\omega X(1835),\ X \to \eta'\pi^+\pi^-)/\Gamma_{total}$ Γ_{51}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{<6.2\times10^{-5}}$	[1] ABLIKIM	19AC	BES3	$J/\psi \to \omega\eta'\pi^+\pi^-$

[1] Using the decays $\omega \to \pi^+\pi^-\pi^0$ and $\eta' \to \eta\pi^+\pi^-$.

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

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
34 ±5 OUR AVERAGE					
$37.7\pm0.8\pm5.8$	1972 ± 41	ABLIKIM	08E	BES2	$e^+e^- \to J/\psi$
$29.5\pm1.4\pm7.0$	879 ± 41	BECKER	87	MRK3	$e^+e^- \to$ hadrons

$\Gamma(\omega K\overline{K})/\Gamma_{total}$ Γ_{53}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
19 ± 4 OUR AVERAGE					
$19.8\pm\ 2.1\pm3.9$		[1] FALVARD	88	DM2	$J/\psi \to$ hadrons

16 ±10	22	FELDMAN	77	MRK1	$e^+ e^-$

[1] Addition of $\omega K^+ K^-$ and $\omega K^0 \overline{K}^0$ branching ratios.

$\Gamma(\omega K^*(892)\overline{K}+\text{c.c.})/\Gamma_{\text{total}}$ Γ_{54}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
61 ± 9 OUR AVERAGE					
62.0± 6.8±10.6	899 ± 98	ABLIKIM	08E	BES2	$J/\psi \to \omega K^0_S K^\pm \pi^\mp$
65.3±10.2±13.5	176 ± 28	ABLIKIM	08E	BES2	$J/\psi \to \omega K^+ K^- \pi^0$
53 ±14 ±14	530 ± 140	BECKER	87	MRK3	$e^+ e^- \to$ hadrons

$\Gamma(\eta' K^{*\pm} K^\mp)/\Gamma_{\text{total}}$ Γ_{55}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
1.48±0.13 OUR AVERAGE				
1.50±0.02±0.19	[1] ABLIKIM	18AB	BES3	$J/\psi \to \eta' K^* \overline{K}$
1.47±0.03±0.17	[2] ABLIKIM	18AB	BES3	$J/\psi \to \eta' K^* \overline{K}$

[1] From $\eta' K^+ K^- \pi^0$.
[2] From $\eta' K^0_S K^\pm \pi^\mp$.

$\Gamma(\eta' K^{*0} \overline{K}^0+\text{c.c.})/\Gamma_{\text{total}}$ Γ_{56}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
1.66±0.03±0.21	[1] ABLIKIM	18AB	BES3	$J/\psi \to \eta' K^* \overline{K}$

[1] From $\eta' K^0_S K^\pm \pi^\mp$.

$\Gamma(\eta' h_1(1415) \to \eta' K^* \overline{K}+\text{c.c.})/\Gamma_{\text{total}}$ Γ_{57}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.16±0.12±0.29	1.1k	[1] ABLIKIM	18AB	BES3	$J/\psi \to \eta' h_1 \to \eta' K^* \overline{K}$

[1] From $\eta' K^0_S K^\pm \pi^\mp$.

$\Gamma(\eta' h_1(1415) \to \eta' K^{*\pm} K^\mp)/\Gamma_{\text{total}}$ Γ_{58}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.51±0.09±0.21	1.0k	[1] ABLIKIM	18AB	BES3	$J/\psi \to \eta' h_1 \to \eta' K^* \overline{K}$

[1] From $\eta' K^+ K^- \pi^0$.

$\Gamma(\overline{K} K^*(892)+\text{c.c.} \to K^0_S K^\pm \pi^\mp)/\Gamma(K^0_S K^\pm \pi^\mp)$ Γ_{60}/Γ_{169}

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
90.5±0.9±3.8	4k	[1] LEES	17C	BABR	$J/\psi \to K^0_S K^\pm \pi^\mp$

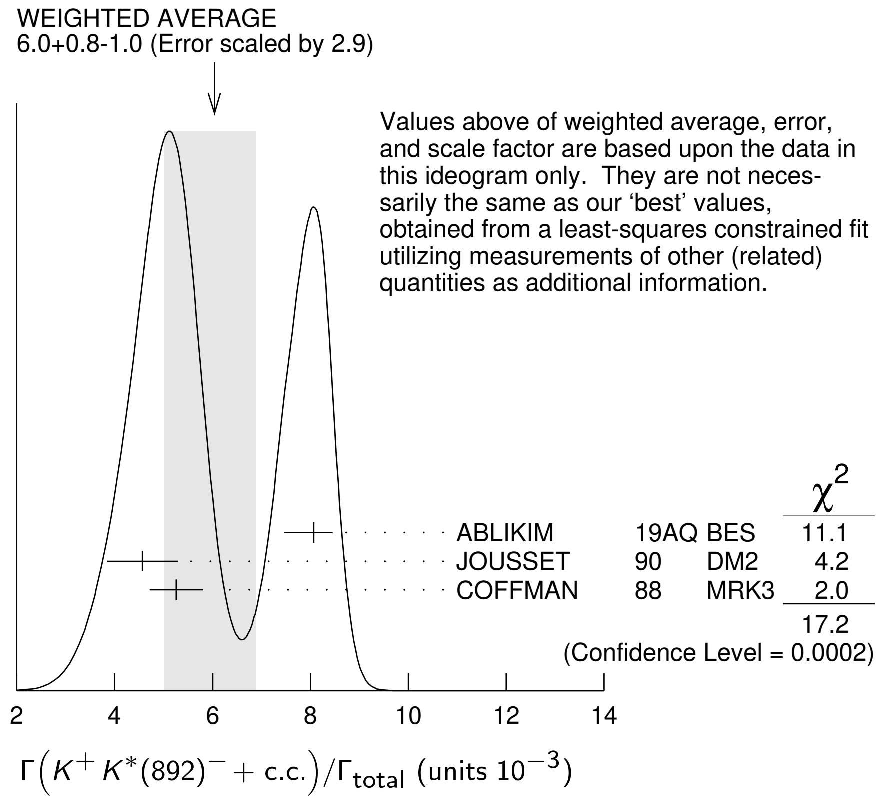
[1] From a Dalitz plot analysis in an isobar model.

$\Gamma(K^+ K^*(892)^- + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{61}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
6.0 $^{+0.8}_{-1.0}$ OUR AVERAGE Error includes scale factor of 2.9. See the ideogram below.					
$8.07 \pm 0.04 ^{+0.38}_{-0.61}$	183k	ABLIKIM	19AQ	BES	$J/\psi \to K^+ K^- \pi^0$
4.57±0.17±0.70	2285	JOUSSET	90	DM2	$J/\psi \to$ hadrons
5.26±0.13±0.53		COFFMAN	88	MRK3	$J/\psi \to K^\pm K^0_S \pi^\mp$, $K^+ K^- \pi^0$

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

2.6 ±0.6	24	FRANKLIN	83	MRK2	$J/\psi \rightarrow K^+ K^- \pi^0$
3.2 ±0.6	48	VANNUCCI	77	MRK1	$J/\psi \rightarrow K^\pm K^0_S \pi^\mp$
4.1 ±1.2	39	BRAUNSCH...	76	DASP	$J/\psi \rightarrow K^\pm X$



$\Gamma\left(K^+ K^*(892)^- + \text{c.c.} \rightarrow K^+ K^- \pi^0\right)/\Gamma_{\text{total}}$ — Γ_{62}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$2.69 \pm 0.01 ^{+0.13}_{-0.20}$	183k	ABLIKIM	19AQ	BES	$J/\psi \rightarrow K^+ K^- \pi^0$

$\Gamma\left(K^+ K^*(892)^- + \text{c.c.} \rightarrow K^+ K^- \pi^0\right)/\Gamma\left(K^+ K^- \pi^0\right)$ — Γ_{62}/Γ_{168}

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
92.4±1.5±3.4	2k	[1] LEES	17C	BABR	$J/\psi \rightarrow K^+ K^- \pi^0$

[1] From a Dalitz plot analysis in an isobar model.

$\Gamma\left(K^0 \overline{K}^*(892)^0 + \text{c.c.}\right)/\Gamma_{\text{total}}$ — Γ_{64}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
4.2 ±0.4 OUR AVERAGE					
3.96±0.15±0.60	1192	JOUSSET	90	DM2	$J/\psi \rightarrow$ hadrons
4.33±0.12±0.45		COFFMAN	88	MRK3	$J/\psi \rightarrow K^\pm K^0_S \pi^\mp$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.7 ±0.6	45	VANNUCCI	77	MRK1	$J/\psi \rightarrow K^\pm K^0_S \pi^\mp$

$\Gamma(\overline{K}^*(892)^0 K^+ \pi^- + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{66}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •			
seen	[1] ABLIKIM 06C	BES2	$J/\psi \to \overline{K}^*(892)^0 K^+ \pi^-$

[1] A $K_0^*(700)$ is observed by ABLIKIM 06C in the $K^+\pi^-$ mass spectrum of the $\overline{K}^*(892)^0 K^+ \pi^-$ final state against the $\overline{K}^*(892)$. A corresponding branching fraction of the $J/\psi(1S)$ is not presented.

$\Gamma(K^*(892)^0 K_S^0 \to \gamma K_S^0 K_S^0)/\Gamma_{\text{total}}$ — Γ_{70}/Γ

VALUE (units 10^{-6})	DOCUMENT ID	TECN	COMMENT
$\mathbf{6.28^{+0.16}_{-0.17}{}^{+0.59}_{-0.52}}$	ABLIKIM 18AA	BES3	$J/\psi \to \gamma K_S^0 K_S^0$

$\Gamma(K^*(892)^\pm K^*(700)^\mp)/\Gamma_{\text{total}}$ — Γ_{72}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
$\mathbf{1.09 \pm 0.18^{+0.94}_{-0.54}}$	655	ABLIKIM 10E	BES2	$J/\psi \to K^\pm K_S^0 \pi^\mp \pi^0$

$\Gamma(K^*(892)^0 \overline{K}^*(892)^0)/\Gamma_{\text{total}}$ — Γ_{73}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<5	90	VANNUCCI 77	MRK1	$e^+e^- \to \pi^+\pi^- K^+ K^-$

$\Gamma(K^*(892)^\pm K^*(892)^\mp)/\Gamma_{\text{total}}$ — Γ_{74}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
$\mathbf{1.00 \pm 0.19^{+0.11}_{-0.32}}$	323	ABLIKIM 10E	BES2	$J/\psi \to K^\pm K_S^0 \pi^\mp \pi^0$

$\Gamma(K_1(1400)^\pm K^\mp)/\Gamma_{\text{total}}$ — Γ_{75}/Γ

VALUE (units 10^{-3})	DOCUMENT ID	TECN	COMMENT
3.8±0.8±1.2	[1] BAI 99C	BES	e^+e^-

[1] Assuming B($K_1(1400) \to K^*\pi$)=0.94 ± 0.06

$\Gamma(K^*(1410)\overline{K} + \text{c.c} \to K^\pm K^\mp \pi^0)/\Gamma(K^+ K^- \pi^0)$ — Γ_{77}/Γ_{168}

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
2.3±1.1±0.7	2k	[1] LEES 17C	BABR	$J/\psi \to K^+ K^- \pi^0$

[1] From a Dalitz plot analysis in an isobar model.

$\Gamma(K^*(1410)\overline{K} + \text{c.c.} \to K_S^0 K^\pm \pi^\mp)/\Gamma(K_S^0 K^\pm \pi^\mp)$ — Γ_{78}/Γ_{169}

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
1.5±0.5±0.9	4k	[1] LEES 17C	BABR	$J/\psi \to K_S^0 K^\pm \pi^\mp$

[1] From a Dalitz plot analysis in an isobar model.

$\Gamma(K_2^*(1430)\overline{K} + \text{c.c.} \to K^\pm K^\mp \pi^0)/\Gamma(K^+ K^- \pi^0)$ — Γ_{80}/Γ_{168}

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
3.5±1.3±0.9	2k	[1] LEES 17C	BABR	$J/\psi \to K^+ K^- \pi^0$

[1] From a Dalitz plot analysis in an isobar model.

$\Gamma\big(K_2^*(1430)\overline{K}+\text{c.c.}\to K_S^0 K^\pm\pi^\mp\big)/\Gamma\big(K_S^0 K^\pm\pi^\mp\big)$ — Γ_{81}/Γ_{169}

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
7.1±1.3±1.2	4k	[1] LEES	17C	BABR	$J/\psi \to K_S^0 K^\pm \pi^\mp$

[1] From a Dalitz plot analysis in an isobar model.

$\Gamma\big(\overline{K}_2^*(1430)K+\text{c.c.}\big)/\Gamma_{\text{total}}$ — Γ_{82}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<40 × 10^−4	90	VANNUCCI	77	MRK1	$e^+e^- \to K^0\overline{K}_2^{*0}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<66\times10^{-4}$	90	BRAUNSCH...	76	DASP	$e^+e^- \to K^\pm\overline{K}_2^{*\mp}$

$\Gamma\big(K_2^*(1430)^+K^-+\text{c.c.}\to K^+K^-\pi^0\big)/\Gamma_{\text{total}}$ — Γ_{83}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$2.69\pm0.04^{+0.25}_{-0.19}$	183k	ABLIKIM	19AQ	BES	$J/\psi \to K^+K^-\pi^0$

$\Gamma\big(\overline{K}_2^*(1430)^0K^*(892)^0+\text{c.c.}\big)/\Gamma_{\text{total}}$ — Γ_{85}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
6.7±2.6	40	VANNUCCI	77	MRK1	$e^+e^- \to \pi^+\pi^-K^+K^-$

$\Gamma\big(K_2^*(1430)^0\overline{K}_2^*(1430)^0\big)/\Gamma_{\text{total}}$ — Γ_{88}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<29 × 10^−4	90	VANNUCCI	77	MRK1	$e^+e^- \to \pi^+\pi^-K^+K^-$

$\Gamma\big(K_2^*(1980)^+K^-+\text{c.c.}\to K^+K^-\pi^0\big)/\Gamma_{\text{total}}$ — Γ_{90}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$1.1\pm0.1^{+0.6}_{-0.1}$	183k	ABLIKIM	19AQ	BES	$J/\psi \to K^+K^-\pi^0$

$\Gamma\big(K_4^*(2045)^+K^-+\text{c.c.}\to K^+K^-\pi^0\big)/\Gamma_{\text{total}}$ — Γ_{91}/Γ

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
$6.2\pm0.7^{+2.8}_{-1.4}$	183k	ABLIKIM	19AQ	BES	$J/\psi \to K^+K^-\pi^0$

$\Gamma\big(K_1(1270)^\pm K^\mp\big)/\Gamma_{\text{total}}$ — Γ_{92}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<3.0 × 10^−3	90	[1] BAI	99C	BES	e^+e^-

[1] Assuming B($K_1(1270) \to K\rho$)=0.42 ± 0.06

$\Gamma\big(K_1(1270)K_S^0\to\gamma K_S^0K_S^0\big)/\Gamma_{\text{total}}$ — Γ_{93}/Γ

VALUE (units 10^{-7})	DOCUMENT ID		TECN	COMMENT
$8.54^{+1.07}_{-1.20}{}^{+2.35}_{-2.13}$	ABLIKIM	18AA	BES3	$J/\psi \to \gamma K_S^0K_S^0$

$\Gamma\big(a_2(1320)^\pm\pi^\mp\big)/\Gamma_{\text{total}}$ — Γ_{94}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<43 × 10^−4	90	BRAUNSCH...	76	DASP	e^+e^-

$\Gamma(\phi\pi^0)/\Gamma_{total}$ — Γ_{95}/Γ

The two different fit values of ABLIKIM 15K below have the same statistical significance of 6.4 σ and cannot be distinguished at this moment.

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
2.94 ±0.16 ±0.16		0.8k	[1] ABLIKIM	15K	BES3	$e^+e^- \to J/\psi \to K^+K^-\gamma\gamma$
0.124±0.033±0.030		35 ± 9	[2] ABLIKIM	15K	BES3	$e^+e^- \to J/\psi \to K^+K^-\gamma\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<6.4	90		[3] ABLIKIM	05B	BES2	$e^+e^- \to J/\psi \to \phi\gamma\gamma$
<6.8	90		COFFMAN	88	MRK3	$e^+e^- \to K^+K^-\pi^0$

[1] Corresponding to one of the two fit solutions with $\delta = (-95.9 \pm 1.5)^\circ$ for the phase angle between the resonant $J/\psi \to \phi\pi^0$ and non-phi $J/\psi \to K^+K^-\pi^0$ contributions.

[2] Corresponding to one of the two fit solutions with $\delta = (-152.1 \pm 7.7)^\circ$ for the phase angle between the resonant $J/\psi \to \phi\pi^0$ and non-phi $J/\psi \to K^+K^-\pi^0$ contributions.

[3] Superseded by ABLIKIM 15K.

$\Gamma(\phi\pi^+\pi^-)/\Gamma_{total}$ — Γ_{96}/Γ

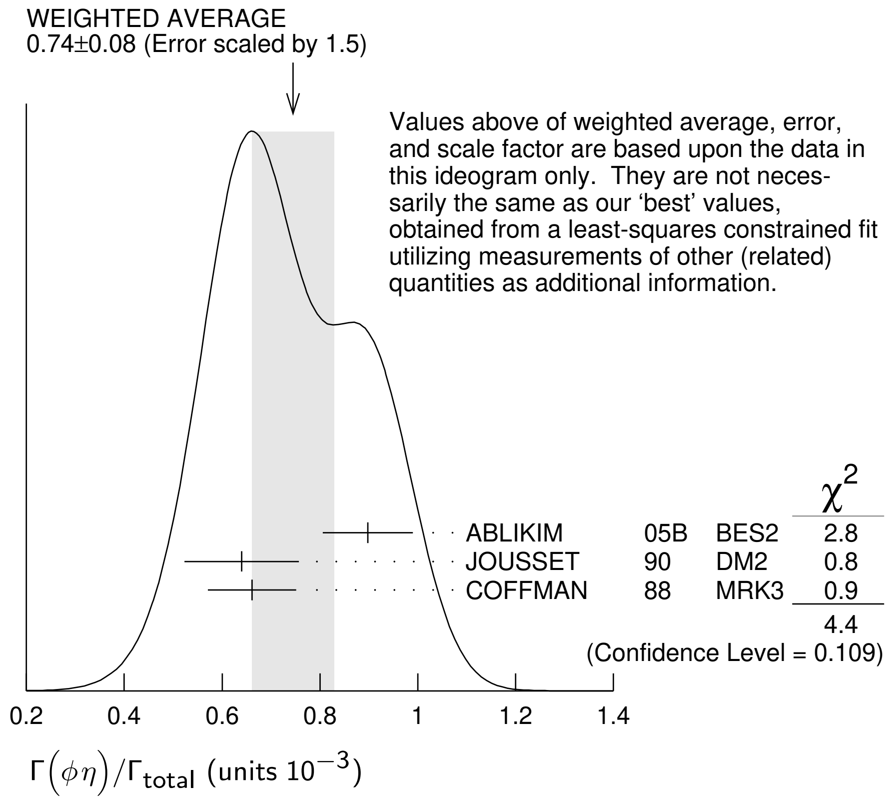
VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.94±0.15 OUR AVERAGE		Error includes scale factor of 1.7.			
1.09±0.02±0.13		ABLIKIM	05	BES2	$J/\psi \to \phi\pi^+\pi^-$
0.78±0.03±0.12		FALVARD	88	DM2	$J/\psi \to$ hadrons
2.1 ±0.9	23	FELDMAN	77	MRK1	e^+e^-

$\Gamma(\phi 2(\pi^+\pi^-))/\Gamma_{total}$ — Γ_{98}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
16.0±1.0±3.0	FALVARD	88	DM2	$J/\psi \to$ hadrons

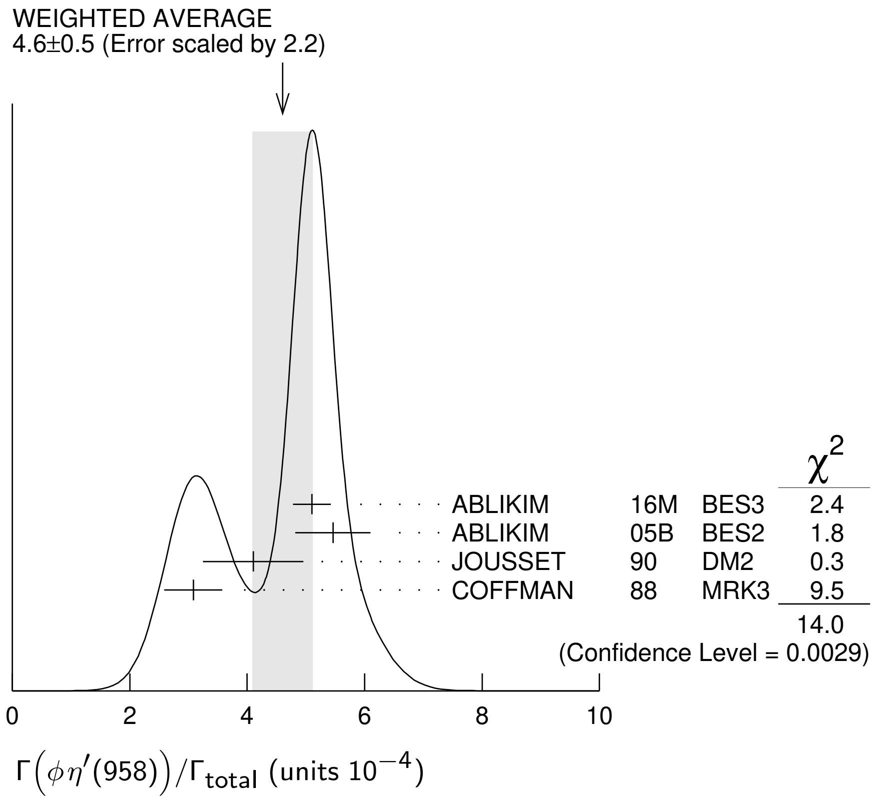
$\Gamma(\phi\eta)/\Gamma_{total}$ — Γ_{99}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.74 ±0.08 OUR AVERAGE		Error includes scale factor of 1.5. See the ideogram below.			
0.898±0.024±0.089		ABLIKIM	05B	BES2	$e^+e^- \to J/\psi \to$ hadr
0.64 ±0.04 ±0.11	346	JOUSSET	90	DM2	$J/\psi \to$ hadrons
0.661±0.045±0.078		COFFMAN	88	MRK3	$e^+e^- \to K^+K^-\eta$



$\Gamma(\phi\eta'(958))/\Gamma_{\text{total}}$ Γ_{100}/Γ

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
4.6 ±0.5 OUR AVERAGE			Error includes scale factor of 2.2. See the ideogram below.			
5.10±0.03±0.32		31k	ABLIKIM	16M	BES3	$e^+e^- \to J/\psi \to$ hadrons
5.46±0.31±0.56			ABLIKIM	05B	BES2	$e^+e^- \to J/\psi \to$ hadrons
4.1 ±0.3 ±0.8		167	JOUSSET	90	DM2	$J/\psi \to$ hadrons
3.08±0.34±0.36			COFFMAN	88	MRK3	$e^+e^- \to K^+K^-\eta'$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<13	90		VANNUCCI	77	MRK1	e^+e^-



$\Gamma(\phi\eta\eta')/\Gamma_{\text{total}}$ $\qquad\qquad$ Γ_{101}/Γ

VALUE (units 10^{-4})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.32±0.06±0.16	2.2k	[1] ABLIKIM	19AN	BES3	$e^+ e^- \to J/\psi \to$ hadrons

[1] Including contributions from intermediate resonances. Evidence for an intermediate resonance at M ≈ 2 GeV and Γ ≈ 150 MeV decaying to $\phi\eta'$ with $J^P = 1^+$ or $J^P = 1^-$, and B($J/\psi \to \eta X$) × B($X \to \phi\eta'$) ≈ 10^{-4}.

$\Gamma(\phi f_0(980))/\Gamma_{\text{total}}$ $\qquad\qquad$ Γ_{102}/Γ

VALUE (units 10^{-4})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
3.2±0.9 OUR AVERAGE	Error includes scale factor of 1.9.				
4.6±0.4±0.8		[1] FALVARD	88	DM2	$J/\psi \to$ hadrons
2.6±0.6	50	[1] GIDAL	81	MRK2	$J/\psi \to K^+ K^- K^+ K^-$

[1] Assuming B($f_0(980) \to \pi\pi$) = 0.78.

$\Gamma(\phi\pi^0 f_0(980) \to \phi\pi^0\pi^+\pi^-)/\Gamma_{\text{total}}$ $\qquad\qquad$ Γ_{105}/Γ

VALUE (units 10^{-6})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
4.50±0.80±0.61	355	ABLIKIM	15P	BES3	$J/\psi \to K^+ K^- 3\pi$

$\Gamma(\phi\pi^0 f_0(980) \to \phi\pi^0 p^0\pi^0)/\Gamma_{\text{total}}$ $\qquad\qquad$ Γ_{106}/Γ

VALUE (units 10^{-6})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.67±0.50±0.24	70	ABLIKIM	15P	BES3	$J/\psi \to K^+ K^- 3\pi$

$\Gamma(\phi f_0(980)\eta \to \eta\phi\pi^+\pi^-)/\Gamma_{total}$ — Γ_{107}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
3.23±0.75±0.73	52	ABLIKIM	08F	BES	$J/\psi \to \eta\phi f_0(980)$

$\Gamma(\phi a_0(980)^0 \to \phi\eta\pi^0)/\Gamma_{total}$ — Γ_{108}/Γ

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
4.37±1.35	[1] ABLIKIM	18D	BES3	$J/\psi \to \phi\eta\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5.0 ±2.7 ±2.5	[2] ABLIKIM	11D	BES3	$J/\psi \to \phi\eta\pi^0$

[1] Assuming constructive interference between $a_0(980) - f_0(980)$ mixing and electromagnetic decay. Destructive interference gives a value of $(4.93 \pm 1.77) \times 10^{-6}$ for this branching fraction.

[2] Assuming $a_0(980) - f_0(980)$ mixing and isospin breaking via γ^* and $K^* K$ loops.

$\Gamma(\phi f_2(1270))/\Gamma_{total}$ — Γ_{109}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
< 0.45	90	FALVARD	88	DM2	$J/\psi \to$ hadrons
< 0.37	90	VANNUCCI	77	MRK1	$e^+e^- \to \pi^+\pi^-K^+K^-$

$\Gamma(\phi f_1(1285))/\Gamma_{total}$ — Γ_{110}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.6±0.5 OUR AVERAGE					
3.4±1.8±1.5	1.1k	[1] ABLIKIM	15H	BES3	$e^+e^- \to J/\psi \to \phi\eta\pi^+\pi^-$
3.2±0.6±0.4		JOUSSET	90	DM2	$J/\psi \to \phi 2(\pi^+\pi^-)$
2.1±0.5±0.4	25	[2] JOUSSET	90	DM2	$J/\psi \to \phi\eta\pi^+\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.6±0.2±0.1	16	BECKER	87	MRK3	$J/\psi \to \phi K\overline{K}\pi$

[1] ABLIKIM 15H reports $[\Gamma(J/\psi(1S) \to \phi f_1(1285))/\Gamma_{total}] \times [B(f_1(1285) \to \eta\pi^+\pi^-)] = (1.20 \pm 0.6 \pm 0.14) \times 10^{-4}$ which we divide by our best value $B(f_1(1285) \to \eta\pi^+\pi^-) = (35 \pm 15) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] We attribute to the $f_1(1285)$ the signal observed in the $\pi^+\pi^-\eta$ invariant mass distribution at 1297 MeV.

$\Gamma(\phi f_1(1285) \to \phi\pi^0 f_0(980) \to \phi\pi^0\pi^+\pi^-)/\Gamma_{total}$ — Γ_{111}/Γ

VALUE (units 10^{-7})	EVTS	DOCUMENT ID		TECN	COMMENT
9.36±2.31±1.54	78	ABLIKIM	15P	BES3	$J/\psi \to K^+K^-3\pi$

$\Gamma(\phi f_1(1285) \to \phi\pi^0 f_0(980) \to \phi 3\pi^0)/\Gamma_{total}$ — Γ_{112}/Γ

VALUE (units 10^{-7})	EVTS	DOCUMENT ID		TECN	COMMENT
2.08±1.63±1.47	9	ABLIKIM	15P	BES3	$J/\psi \to K^+K^-3\pi$

$\Gamma(\phi\eta(1405) \to \phi\eta\pi^+\pi^-)/\Gamma_{total}$ — Γ_{113}/Γ

VALUE (units 10^{-5})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
2.01±0.58±0.82		172	[1] ABLIKIM	15H	BES3	$e^+e^- \to J/\psi \to \phi\eta\pi^+\pi^-$

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

<17	90	[2] FALVARD	88	DM2	$J/\psi \to$ hadrons

[1] With 3.6 σ significance.
[2] Includes unknown branching fraction $\eta(1405) \to \eta\pi\pi$.

$\Gamma(\phi f_2'(1525))/\Gamma_{total}$ Γ_{114}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
8 ±4 OUR AVERAGE Error includes scale factor of 2.7.					
$12.3 \pm 0.6 \pm 2.0$		[1,2] FALVARD	88	DM2	$J/\psi \to$ hadrons
4.8 ± 1.8	46	[1] GIDAL	81	MRK2	$J/\psi \to K^+ K^- K^+ K^-$

[1] Re-evaluated using $B(f_2'(1525) \to K\overline{K}) = 0.713$.
[2] Including interference with $f_0(1710)$.

$\Gamma(\phi X(1835) \to \phi p\overline{p})/\Gamma_{total}$ Γ_{115}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.1 \times 10^{-7}$	90	[1] ABLIKIM	16K	BES3	$J/\psi \to p\overline{p}K^0_S K^0_L$, $p\overline{p}K^+K^-$

[1] Upper limit applies to any $p\overline{p}$ mass enhancement near threshold.

$\Gamma(\phi X(1835) \to \phi\eta\pi^+\pi^-)/\Gamma_{total}$ Γ_{116}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.8 \times 10^{-4}$	90	ABLIKIM	15H	BES3	$e^+e^- \to J/\psi \to \phi\eta\pi^+\pi^-$

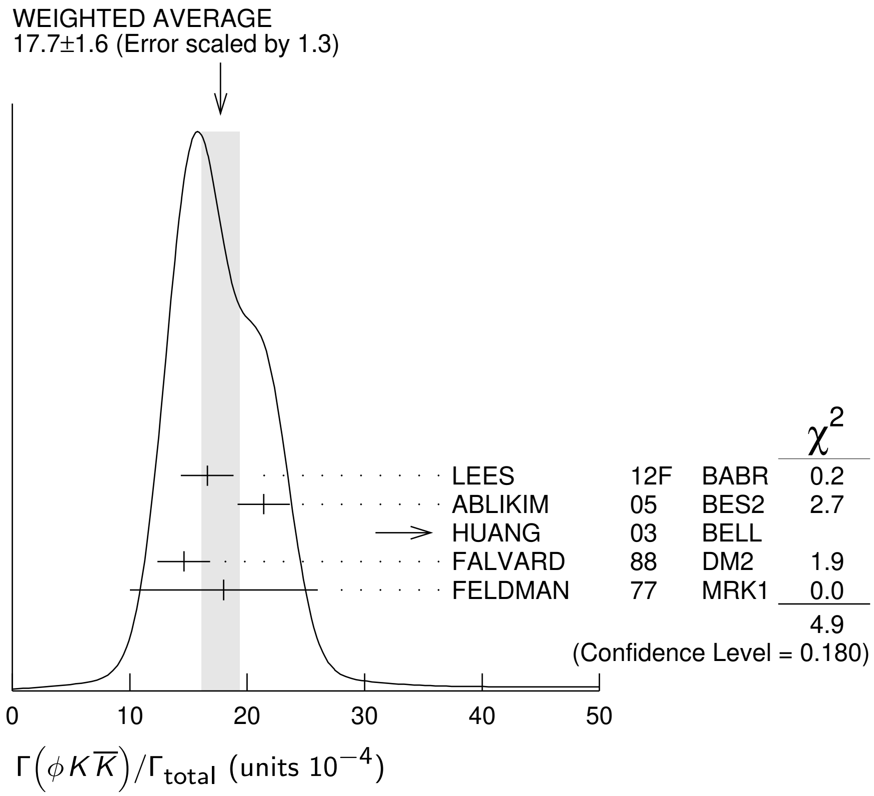
$\Gamma(\phi X(1870) \to \phi\eta\pi^+\pi^-)/\Gamma_{total}$ Γ_{117}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6.13 \times 10^{-5}$	90	ABLIKIM	15H	BES3	$e^+e^- \to J/\psi \to \phi\eta\pi^+\pi^-$

$\Gamma(\phi K\overline{K})/\Gamma_{total}$ Γ_{118}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
17.7± 1.6 OUR AVERAGE Error includes scale factor of 1.3. See the ideogram below.					
$16.6 \pm 1.9 \pm 1.2$	163 ± 19	LEES	12F	BABR	$10.6\ e^+e^- \to 2(K^+K^-)\gamma$
$21.4 \pm 0.4 \pm 2.2$		ABLIKIM	05	BES2	$J/\psi \to \phi\pi^+\pi^-$
$48\ ^{+20}_{-16} \pm 6$	$9.0^{+3.7}_{-3.0}$	[1,2] HUANG	03	BELL	$B^+ \to (\phi K^+K^-)K^+$
$14.6 \pm 0.8 \pm 2.1$		[3] FALVARD	88	DM2	$J/\psi \to$ hadrons
18 ± 8	14	FELDMAN	77	MRK1	e^+e^-

[1] We have multiplied K^+K^- measurement by 2 to obtain $K\overline{K}$.
[2] Using $B(B^+ \to J/\psi K^+) = (1.01 \pm 0.05) \times 10^{-3}$.
[3] Addition of ϕK^+K^- and $\phi K^0\overline{K}^0$ branching ratios.



$\Gamma(\phi f_0(1710) \rightarrow \phi K\overline{K})/\Gamma_{total}$ Γ_{119}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
3.6±0.2±0.6	[1,2] FALVARD	88	DM2	$J/\psi \rightarrow$ hadrons

[1] Including interference with $f_2'(1525)$.
[2] Includes unknown branching fraction $f_0(1710) \rightarrow K\overline{K}$.

$\Gamma(\phi K^{\pm} K^0_S \pi^{\mp})/\Gamma_{total}$ Γ_{122}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
7.2±0.8 OUR AVERAGE					
7.4±0.6±1.4	227 ± 19	ABLIKIM	08E	BES2	$e^+e^- \rightarrow J/\psi$
7.4±0.9±1.1		FALVARD	88	DM2	$J/\psi \rightarrow$ hadrons
7 ±0.6±1.0	163 ± 15	BECKER	87	MRK3	$e^+e^- \rightarrow$ hadrons

$\Gamma(\phi K^*(892)\overline{K} + \text{c.c.})/\Gamma_{total}$ Γ_{123}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
21.8±2.3 OUR AVERAGE					
20.8±2.7±3.9	195 ± 25	ABLIKIM	08E	BES2	$J/\psi \rightarrow \phi K^0_S K^{\pm}\pi^{\mp}$
29.6±3.7±4.7	238 ± 30	ABLIKIM	08E	BES2	$J/\psi \rightarrow \phi K^+ K^- \pi^0$
20.7±2.4±3.0		FALVARD	88	DM2	$J/\psi \rightarrow$ hadrons
20 ±3 ±3	155 ± 20	BECKER	87	MRK3	$e^+e^- \rightarrow$ hadrons

$\Gamma(b_1(1235)^{\pm}\pi^{\mp})/\Gamma_{total}$ Γ_{124}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
30±5 OUR AVERAGE					
31±6	4600	AUGUSTIN	89	DM2	$J/\psi \rightarrow 2(\pi^+\pi^-)\pi^0$
29±7	87	BURMESTER	77D	PLUT	e^+e^-

$\Gamma(b_1(1235)^0\pi^0)/\Gamma_{total}$ Γ_{125}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
23±3±5	229	AUGUSTIN	89	DM2	e^+e^-

$\Gamma(\Delta(1232)^+\overline{p})/\Gamma_{total}$ Γ_{127}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.1 × 10^{-3}	90	HENRARD	87	DM2	e^+e^-

$\Gamma(\Delta(1232)^{++}\overline{p}\pi^-)/\Gamma_{total}$ Γ_{128}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.58±0.23±0.40	332	EATON	84	MRK2	e^+e^-

$\Gamma(\Delta(1232)^{++}\overline{\Delta}(1232)^{--})/\Gamma_{total}$ Γ_{129}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.10±0.09±0.28	233	EATON	84	MRK2	e^+e^-

$\Gamma(\overline{\Sigma}(1385)^0 pK^-)/\Gamma_{total}$ Γ_{130}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.51±0.26±0.18	89	EATON	84	MRK2	e^+e^-

$\Gamma(\Sigma(1385)^0\overline{\Lambda}+\text{c.c.})/\Gamma_{total}$ Γ_{131}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.82 × 10^{-5}	90	ABLIKIM	13F	BES3	$J/\psi \to p\overline{p}\pi^+\pi^-\gamma\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.2 × 10^{-3}	90	HENRARD	87	DM2	e^+e^-

$\Gamma(\Sigma(1385)^-\overline{\Sigma}^+\text{(or c.c.)})/\Gamma_{total}$ Γ_{132}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.31±0.05 OUR AVERAGE					
0.30±0.03±0.07	74 ± 8	HENRARD	87	DM2	$e^+e^- \to \Sigma^{*-}$
0.34±0.04±0.07	77 ± 9	HENRARD	87	DM2	$e^+e^- \to \Sigma^{*+}$
0.29±0.11±0.10	26	EATON	84	MRK2	$e^+e^- \to \Sigma^{*-}$
0.31±0.11±0.11	28	EATON	84	MRK2	$e^+e^- \to \Sigma^{*+}$

$\Gamma(\Sigma(1385)^-\overline{\Sigma}(1385)^+\text{(or c.c.)})/\Gamma_{total}$ Γ_{133}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.16 ±0.05 OUR AVERAGE					
1.096±0.012±0.071	43k	ABLIKIM	16L	BES3	$J/\psi \to \Sigma(1385)^-\overline{\Sigma}(1385)^+$
1.258±0.014±0.078	53k	ABLIKIM	16L	BES3	$J/\psi \to \Sigma(1385)^+\overline{\Sigma}(1385)^-$
1.23 ±0.07 ±0.30	0.8k	ABLIKIM	12P	BES2	$J/\psi \to \Sigma(1385)^-\overline{\Sigma}(1385)^+$
1.50 ±0.08 ±0.38	1k	ABLIKIM	12P	BES2	$J/\psi \to \Sigma(1385)^+\overline{\Sigma}(1385)^-$
1.00 ±0.04 ±0.21	0.6k	HENRARD	87	DM2	$e^+e^- \to \Sigma^{*-}$
1.19 ±0.04 ±0.25	0.7k	HENRARD	87	DM2	$e^+e^- \to \Sigma^{*+}$
0.86 ±0.18 ±0.22	56	EATON	84	MRK2	$e^+e^- \to \Sigma^{*-}$
1.03 ±0.24 ±0.25	68	EATON	84	MRK2	$e^+e^- \to \Sigma^{*+}$

$\Gamma(\Sigma(1385)^0 \overline{\Sigma}(1385)^0)/\Gamma_{total}$ — Γ_{134}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.071±0.009±0.082	103k	ABLIKIM	17E	BES3	$e^+ e^- \rightarrow J/\psi \rightarrow$ hadrons

$\Gamma(\Lambda(1520)\overline{\Lambda}+$ c.c. $\rightarrow \gamma \Lambda \overline{\Lambda})/\Gamma_{total}$ — Γ_{135}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<4.1 × 10^{-6}	90	ABLIKIM	12B	BES3	$J/\psi \rightarrow \Lambda \overline{\Lambda} \gamma$

$\Gamma(\overline{\Lambda}(1520)\Lambda+$ c.c.$)/\Gamma_{total}$ — Γ_{136}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.80 × 10^{-3}	90	LU	19	BELL	$B^+ \rightarrow \overline{p} \Lambda K^+ K^+$

$\Gamma(\Xi^0 \overline{\Xi}^0)/\Gamma_{total}$ — Γ_{137}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.17 ±0.04 OUR AVERAGE					
1.165±0.004±0.043	135k	ABLIKIM	17E	BES3	$e^+ e^- \rightarrow J/\psi \rightarrow$ hadrons
1.20 ±0.12 ±0.21	206	ABLIKIM	08O	BES2	$e^+ e^- \rightarrow J/\psi$

$\Gamma(\Xi(1530)^- \overline{\Xi}^+ +$ c.c.$)/\Gamma_{total}$ — Γ_{138}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.318±0.008 OUR AVERAGE					
0.317±0.002±0.008	70k	ABLIKIM	20	BES3	$e^+ e^- \rightarrow J/\psi$
0.59 ±0.09 ±0.12	75	HENRARD	87	DM2	$e^+ e^-$

$\Gamma(\Xi(1530)^0 \overline{\Xi}^0)/\Gamma_{total}$ — Γ_{139}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.32±0.12±0.07	24 ± 9	HENRARD	87	DM2	$e^+ e^-$

$\Gamma(\Theta(1540)\overline{\Theta}(1540) \rightarrow K^0_S p K^- \overline{n}+$ c.c.$)/\Gamma_{total}$ — Γ_{140}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.1 × 10^{-5}	90	BAI	04G	BES2	$e^+ e^-$

$\Gamma(\Theta(1540) K^- \overline{n} \rightarrow K^0_S p K^- \overline{n})/\Gamma_{total}$ — Γ_{141}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.1 × 10^{-5}	90	BAI	04G	BES2	$e^+ e^-$

$\Gamma(\Theta(1540) K^0_S \overline{p} \rightarrow K^0_S \overline{p} K^+ n)/\Gamma_{total}$ — Γ_{142}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.6 × 10^{-5}	90	BAI	04G	BES2	$e^+ e^-$

$\Gamma(\overline{\Theta}(1540) K^+ n \rightarrow K^0_S \overline{p} K^+ n)/\Gamma_{total}$ — Γ_{143}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<5.6 × 10^{-5}	90	BAI	04G	BES2	$e^+ e^-$

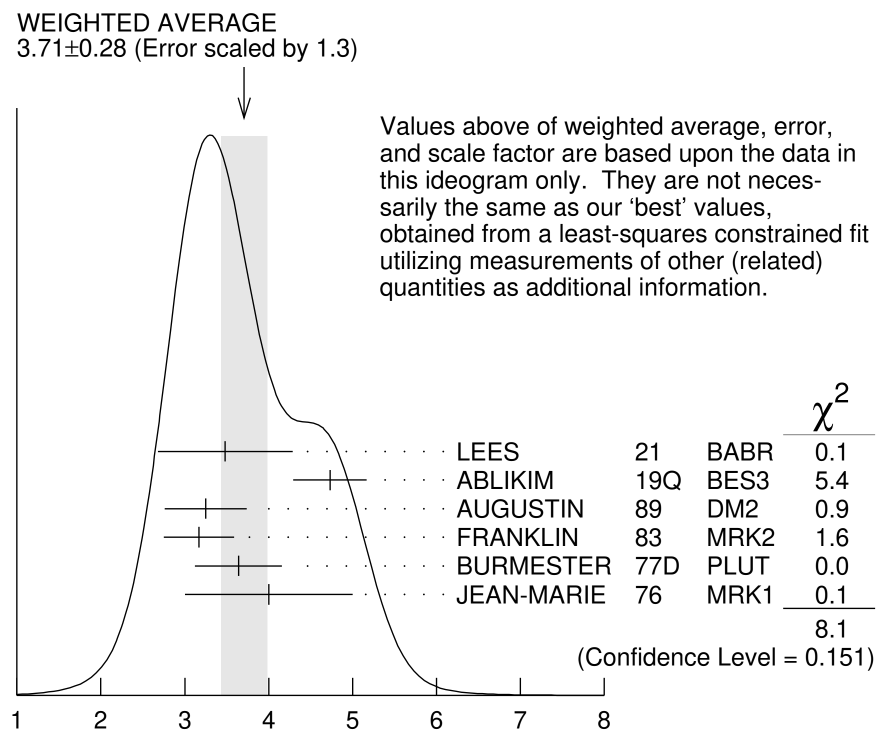
$\Gamma(\overline{\Theta}(1540) K^0_S p \rightarrow K^0_S p K^- \overline{n})/\Gamma_{total}$ — Γ_{144}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.1 × 10^{-5}	90	BAI	04G	BES2	$e^+ e^-$

STABLE HADRONS

$\Gamma(2(\pi^+\pi^-)\pi^0)/\Gamma_{\text{total}}$ Γ_{145}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.71±0.28 OUR AVERAGE	Error includes scale factor of 1.3. See the ideogram below.				
3.5 ±0.8 ±0.1	14k	[1] LEES	21	BABR	10.6 $e^+e^- \to 2(\pi^+\pi^-)3\pi^0\gamma$
4.73±0.44	228k	[2] ABLIKIM	19Q	BES3	$J/\psi \to 2(\pi^+\pi^-)\pi^0$
3.25±0.49	46055	AUGUSTIN	89	DM2	$J/\psi \to 2(\pi^+\pi^-)\pi^0$
3.17±0.42	147	FRANKLIN	83	MRK2	$e^+e^- \to$ hadrons
3.64±0.52	1500	BURMESTER	77D	PLUT	e^+e^-
4 ±1	675	JEAN-MARIE	76	MRK1	e^+e^-



[1] LEES 21 reports $[\Gamma(J/\psi(1S) \to 2(\pi^+\pi^-)\pi^0)/\Gamma_{\text{total}}] \times [\Gamma(\psi(2S) \to e^+e^-)] \times [B(\psi(2S) \to J/\psi(1S)\pi^0\pi^0)] = (14.8 \pm 2.6 \pm 2.2) \times 10^{-3}$ keV which we divide by our best values $\Gamma(\psi(2S) \to e^+e^-) = 2.33 \pm 0.04$ keV, $B(\psi(2S) \to J/\psi(1S)\pi^0\pi^0) = (18.24 \pm 0.31) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

[2] From an energy scan of $e^+e^- \to J/\psi \to 2(\pi^+\pi^-)\pi^0$, assuming PDG 16 values for $\Gamma(e^+e^-)$, $\Gamma(\mu^+\mu^-)$, and Γ(total), and for a phase difference between strong and electromagnetic amplitudes of $(84.9 \pm 3.6)^\circ$. An alternative solution is (4.85 ± 0.45)% with a phase of $(-84.7 \pm 3.1)^\circ$.

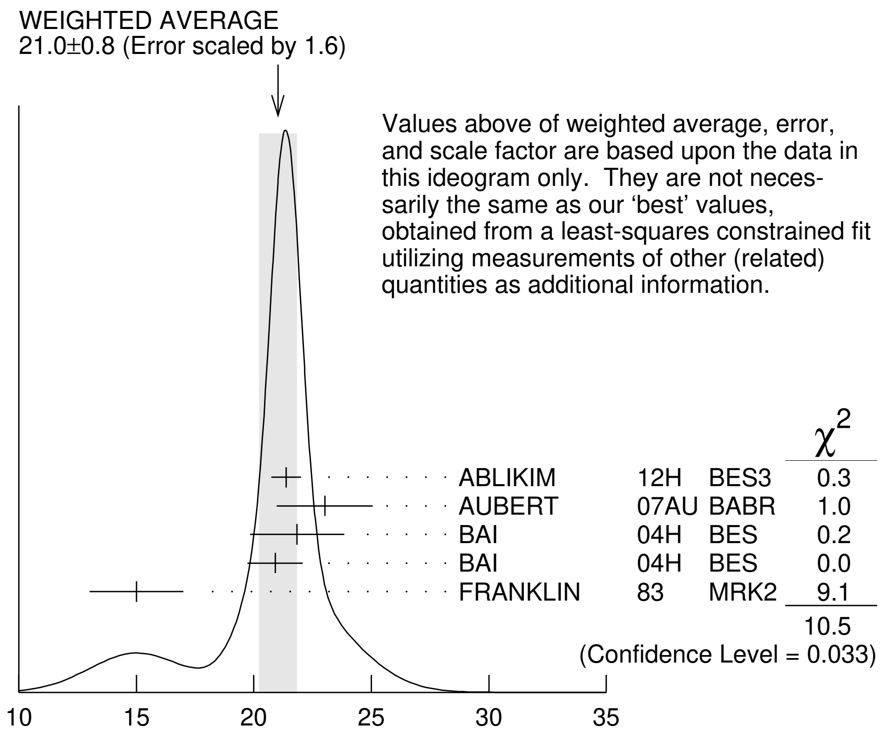
$\Gamma(2(\pi^+\pi^-)\pi^0)/\Gamma_{\text{total}}$ (units 10^{-2})

$\Gamma(3(\pi^+\pi^-)\pi^0)/\Gamma_{\text{total}}$ Γ_{146}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.029±0.006 OUR AVERAGE					
0.028±0.009	11	FRANKLIN	83	MRK2	$e^+e^- \to$ hadrons
0.029±0.007	181	JEAN-MARIE	76	MRK1	e^+e^-

$\Gamma(\pi^+\pi^-\pi^0)/\Gamma_{total}$ Γ_{151}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
21.0 ±0.8 OUR AVERAGE		Error includes scale factor of 1.6. See the ideogram below.		
$21.37 \pm 0.04 ^{+0.64}_{-0.62}$	1.8M	[1,2] ABLIKIM 12H	BES3	$e^+e^- \to J/\psi$
$23.0 \pm 2.0 \pm 0.4$	256	[3] AUBERT 07AU	BABR	$10.6\ e^+e^- \to J/\psi\pi^+\pi^-\gamma$
$21.84 \pm 0.05 \pm 2.01$	220k	[1,4] BAI 04H	BES	e^+e^-
$20.91 \pm 0.21 \pm 1.16$		[4,5] BAI 04H	BES	e^+e^-
15 ± 2	168	FRANKLIN 83	MRK2	e^+e^-



[1] From $J/\psi \to \pi^+\pi^-\pi^0$ events directly.

[2] The quoted systematic error includes a contribution of 1.23% (added in quadrature) from the uncertainty on the number of J/ψ events.

[3] AUBERT 07AU reports $[\Gamma(J/\psi(1S) \to \pi^+\pi^-\pi^0)/\Gamma_{total}] \times [\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) \times \Gamma(\psi(2S) \to e^+e^-)/\Gamma_{total}] = (18.6 \pm 1.2 \pm 1.1) \times 10^{-3}$ keV which we divide by our best value $\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) \times \Gamma(\psi(2S) \to e^+e^-)/\Gamma_{total} = 0.808 \pm 0.013$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] Mostly $\rho\pi$, see also $\rho\pi$ subsection.

[5] Obtained comparing the rates for $\pi^+\pi^-\pi^0$ and $\mu^+\mu^-$, using J/ψ events produced via $\psi(2S) \to \pi^+\pi^- J/\psi$ and with $B(J/\psi \to \mu^+\mu^-) = 5.88 \pm 0.10\%$.

$\Gamma(\pi^+\pi^-\pi^0)/\Gamma_{total}$ (units 10^{-3})

$\Gamma(\pi^+\pi^-\pi^0 K^+K^-)/\Gamma_{total}$ Γ_{153}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
1.2±0.3	309	VANNUCCI 77	MRK1	e^+e^-

$\Gamma(\pi^+\pi^-)/\Gamma_{total}$ Γ_{154}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.47±0.14 OUR AVERAGE					
1.47±0.13±0.13	140	[1] METREVELI	12		$\psi(2S) \to 2(\pi^+\pi^-)$
1.58±0.20±0.15	84	BALTRUSAIT...	85D	MRK3	e^+e^-
1.0 ±0.5	5	BRANDELIK	78B	DASP	e^+e^-
1.6 ±1.6	1	VANNUCCI	77	MRK1	e^+e^-

[1] Obtained by analyzing CLEO-c data but not authored by the CLEO Collaboration.

$\Gamma(2(\pi^+\pi^-))/\Gamma_{total}$ Γ_{155}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.57±0.30 OUR AVERAGE					
3.53±0.12±0.29	1107	[1] ABLIKIM	05H	BES2	$e^+e^- \to \psi(2S) \to J/\psi\pi^+\pi^-$, $J/\psi \to 2(\pi^+\pi^-)$
4.0 ±1.0	76	JEAN-MARIE	76	MRK1	e^+e^-

[1] Computed using $B(J/\psi \to \mu^+\mu^-) = 0.0588 \pm 0.0010$.

$\Gamma(3(\pi^+\pi^-))/\Gamma_{total}$ Γ_{156}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
40±20	32	JEAN-MARIE	76	MRK1	e^+e^-

$\Gamma(4(\pi^+\pi^-)\pi^0)/\Gamma_{total}$ Γ_{158}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
90±30	13	JEAN-MARIE	76	MRK1	e^+e^-

$\Gamma(2(\pi^+\pi^-)\eta)/\Gamma_{total}$ Γ_{159}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.29±0.28 OUR AVERAGE					
3.1 ±1.5 ±0.1	14k	[1] LEES	21	BABR	10.6 $e^+e^- \to 2(\pi^+\pi^-)3\pi^0\gamma$
2.26±0.08±0.27	4.8k	ABLIKIM	05C	BES2	$e^+e^- \to 2(\pi^+\pi^-)\eta$

[1] LEES 21 reports $[\Gamma(J/\psi(1S) \to 2(\pi^+\pi^-)\eta)/\Gamma_{total}] \times [\Gamma(J/\psi(1S) \to e^+e^-)] \times [B(\eta \to 3\pi^0)] = (5.6 \pm 2.6 \pm 0.8) \times 10^{-3}$ keV which we divide by our best values $\Gamma(J/\psi(1S) \to e^+e^-) = 5.53 \pm 0.10$ keV, $B(\eta \to 3\pi^0) = (32.57 \pm 0.21) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

$\Gamma(3(\pi^+\pi^-)\eta)/\Gamma_{total}$ Γ_{160}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
7.24±0.96±1.11	616	ABLIKIM	05C	BES2	$e^+e^- \to 3(\pi^+\pi^-)\eta$

$\Gamma(K^+K^-)/\Gamma_{total}$ Γ_{164}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.86±0.09±0.19	1k	[1] METREVELI	12		$\psi(2S) \to \pi^+\pi^-K^+K^-$

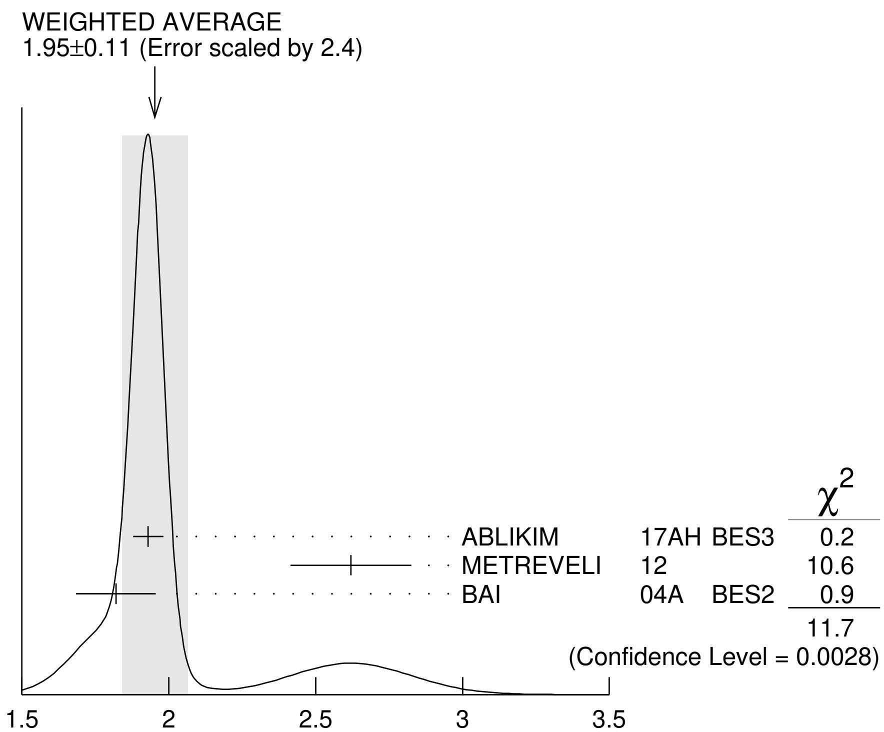
• • • We do not use the following data for averages, fits, limits, etc. • • •

$2.39 \pm 0.24 \pm 0.22$	107	[2] BALTRUSAIT...	85D	MRK3	$e^+ e^-$
2.2 ± 0.9	6	[2] BRANDELIK	79C	DASP	$e^+ e^-$

[1] Obtained by analyzing CLEO-c data but not authored by the CLEO Collaboration.
[2] Interference with non-resonant $K^+ K^-$ production not taken into account.

$\Gamma(K^0_S K^0_L)/\Gamma_{\text{total}}$ Γ_{165}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.95±0.11 OUR AVERAGE		Error includes scale factor of 2.4. See the ideogram below.			
$1.93 \pm 0.01 \pm 0.05$	110k	ABLIKIM	17AH	BES3	$J/\psi \to K^0_S K^0_L \to \pi^+ \pi^- X$
$2.62 \pm 0.15 \pm 0.14$	0.3k	[1] METREVELI	12		$\psi(2S) \to \pi^+ \pi^- K^0_S K^0_L$
$1.82 \pm 0.04 \pm 0.13$	2.1k	[2] BAI	04A	BES2	$J/\psi \to K^0_S K^0_L \to \pi^+ \pi^- X$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.18 \pm 0.12 \pm 0.18$		JOUSSET	90	DM2	$J/\psi \to$ hadrons
$1.01 \pm 0.16 \pm 0.09$	74	BALTRUSAIT...	85D	MRK3	$e^+ e^-$



[1] Obtained by analyzing CLEO-c data but not authored by the CLEO Collaboration.
[2] Using $B(K^0_S \to \pi^+ \pi^-) = 0.6868 \pm 0.0027$.

$\Gamma(K^0_S K^0_L)/\Gamma_{\text{total}}$ Γ_{165}/Γ

$\Gamma(K^0_S K^0_S)/\Gamma_{\text{total}}$ Γ_{166}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.4 \times 10^{-8}$	95	[1] ABLIKIM	17AH	BES3	$J/\psi \to K^0_S K^0_S \to \pi^+ \pi^- \pi^+ \pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1 \times 10^{-6}$	95	[1] BAI	04D	BES	$e^+ e^-$

$<5.2 \times 10^{-6}$	90	[1] BALTRUSAIT...	85C	MRK3	$e^+ e^-$

[1] Forbidden by CP.

$\Gamma(K\overline{K}\pi)/\Gamma_{\text{total}}$ — Γ_{167}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
61 ±10 OUR AVERAGE					
55.2±12.0	25	FRANKLIN	83	MRK2	$e^+ e^- \rightarrow K^+ K^- \pi^0$
78.0±21.0	126	VANNUCCI	77	MRK1	$e^+ e^- \rightarrow K^0_S K^{\pm} \pi^{\mp}$

$\Gamma(K^+ K^- \pi^0)/\Gamma_{\text{total}}$ — Γ_{168}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.88±0.01±0.12	183k	ABLIKIM	19AQ	BES	$J/\psi \rightarrow K^+ K^- \pi^0$

$\Gamma(K^+ K^- \pi^0)/\Gamma(\pi^+ \pi^- \pi^0)$ — $\Gamma_{168}/\Gamma_{151}$

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
12.0±0.3±0.9	23k	LEES	17C	BABR	$J/\psi \rightarrow h^+ h^- \pi^0$

$\Gamma(K^0_S K^{\pm} \pi^{\mp})/\Gamma(\pi^+ \pi^- \pi^0)$ — $\Gamma_{169}/\Gamma_{151}$

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
26.5±0.5±2.1	24k	LEES	17C	BABR	$J/\psi \rightarrow h^0 h^+ h^-$

$\Gamma(K^+ K^- \pi^+ \pi^-)/\Gamma_{\text{total}}$ — Γ_{173}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
7.2±2.3	205	VANNUCCI	77	MRK1	$e^+ e^-$

$\Gamma(K^+ K^- 2(\pi^+ \pi^-))/\Gamma_{\text{total}}$ — Γ_{180}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
31±13	30	VANNUCCI	77	MRK1	$e^+ e^-$

$\Gamma(2(K^+ K^-))/\Gamma_{\text{total}}$ — Γ_{182}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.4^{+0.5}_{-0.4}\pm0.2$	$11.0^{+4.3}_{-3.5}$	[1] HUANG	03	BELL	$B^+ \rightarrow 2(K^+ K^-) K^+$
0.7±0.3		VANNUCCI	77	MRK1	$e^+ e^-$

[1] Using B($B^+ \rightarrow J/\psi K^+$) = $(1.01 \pm 0.05) \times 10^{-3}$.

$\Gamma(p\overline{p})/\Gamma_{\text{total}}$ — Γ_{184}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.120±0.029 OUR AVERAGE					
2.112±0.004±0.031	314k	ABLIKIM	12C	BES3	$e^+ e^-$
2.17 ±0.16 ±0.04	317	[1] WU	06	BELL	$B^+ \rightarrow p\overline{p}K^+$
2.26 ±0.01 ±0.14	63316	BAI	04E	BES2	$e^+ e^- \rightarrow J/\psi$
1.97 ±0.22	99	BALDINI	98	FENI	$e^+ e^-$
1.91 ±0.04 ±0.30		PALLIN	87	DM2	$e^+ e^-$

2.16 $\pm$0.07 $\pm$0.15	1420	EATON	84	MRK2	e^+e^-
2.5 $\pm$0.4	133	BRANDELIK	79C	DASP	e^+e^-
2.0 $\pm$0.5		BESCH	78	BONA	e^+e^-
2.2 $\pm$0.2	331	[2] PERUZZI	78	MRK1	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.0 $\pm$0.3	48	ANTONELLI	93	SPEC	e^+e^-

[1] WU 06 reports $[\Gamma(J/\psi(1S) \to p\overline{p})/\Gamma_{total}] \times [B(B^+ \to J/\psi(1S)K^+)] = (2.21 \pm 0.13 \pm 0.10) \times 10^{-6}$ which we divide by our best value $B(B^+ \to J/\psi(1S)K^+) = (1.020 \pm 0.019) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

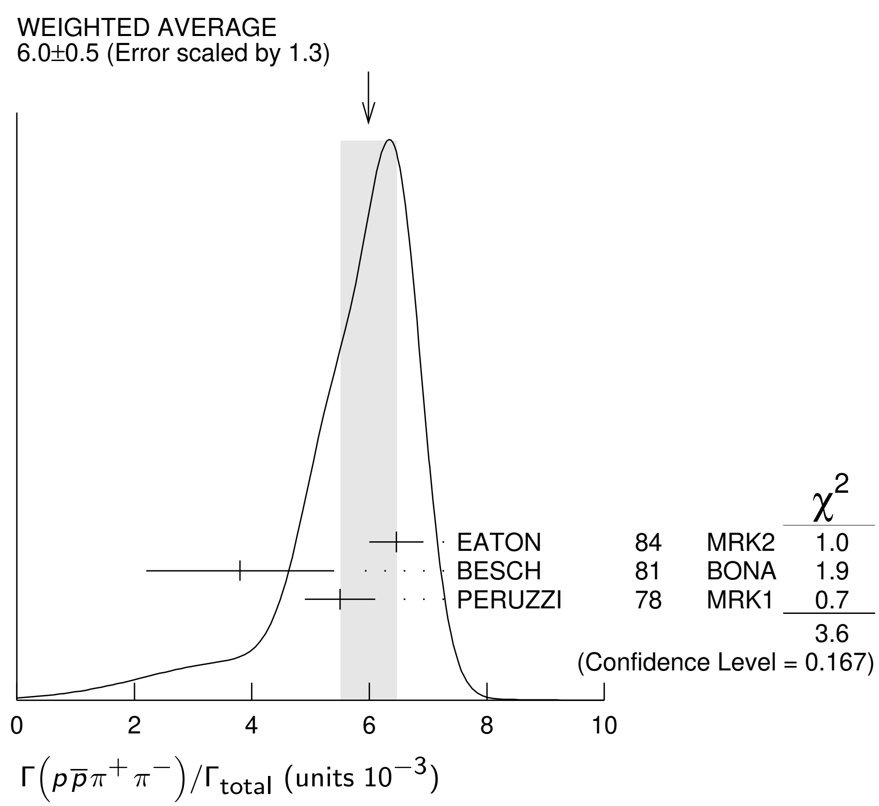
[2] Assuming angular distribution $(1+\cos^2\theta)$.

$\Gamma(p\overline{p}\pi^0)/\Gamma_{total}$ Γ_{185}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.19$\pm$0.08 OUR AVERAGE	Error includes scale factor of 1.1.				
1.33$\pm$0.02$\pm$0.11	11k	ABLIKIM	09B	BES2	e^+e^-
1.13$\pm$0.09$\pm$0.09	685	EATON	84	MRK2	e^+e^-
1.4 $\pm$0.4		BRANDELIK	79C	DASP	e^+e^-
1.00$\pm$0.15	109	PERUZZI	78	MRK1	e^+e^-

$\Gamma(p\overline{p}\pi^+\pi^-)/\Gamma_{total}$ Γ_{186}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
6.0 $\pm$0.5 OUR AVERAGE	Error includes scale factor of 1.3. See the ideogram below.				
6.46$\pm$0.17$\pm$0.43	1435	EATON	84	MRK2	e^+e^-
3.8 $\pm$1.6	48	BESCH	81	BONA	e^+e^-
5.5 $\pm$0.6	533	PERUZZI	78	MRK1	e^+e^-



$\Gamma(p\overline{p}\pi^+\pi^-\pi^0)/\Gamma_{total}$ — Γ_{187}/Γ

Including $p\overline{p}\pi^+\pi^-\gamma$ and excluding ω, η, η'

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.3 ±0.9 OUR AVERAGE	Error includes scale factor of 1.9.				
3.36±0.65±0.28	364	EATON	84	MRK2	e^+e^-
1.6 ±0.6	39	PERUZZI	78	MRK1	e^+e^-

$\Gamma(p\overline{p}\eta)/\Gamma_{total}$ — Γ_{188}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.00±0.12 OUR AVERAGE					
1.91±0.02±0.17	13k	[1] ABLIKIM	09	BES2	e^+e^-
2.03±0.13±0.15	826	EATON	84	MRK2	e^+e^-
2.5 ±1.2		BRANDELIK	79C	DASP	e^+e^-
2.3 ±0.4	197	PERUZZI	78	MRK1	e^+e^-

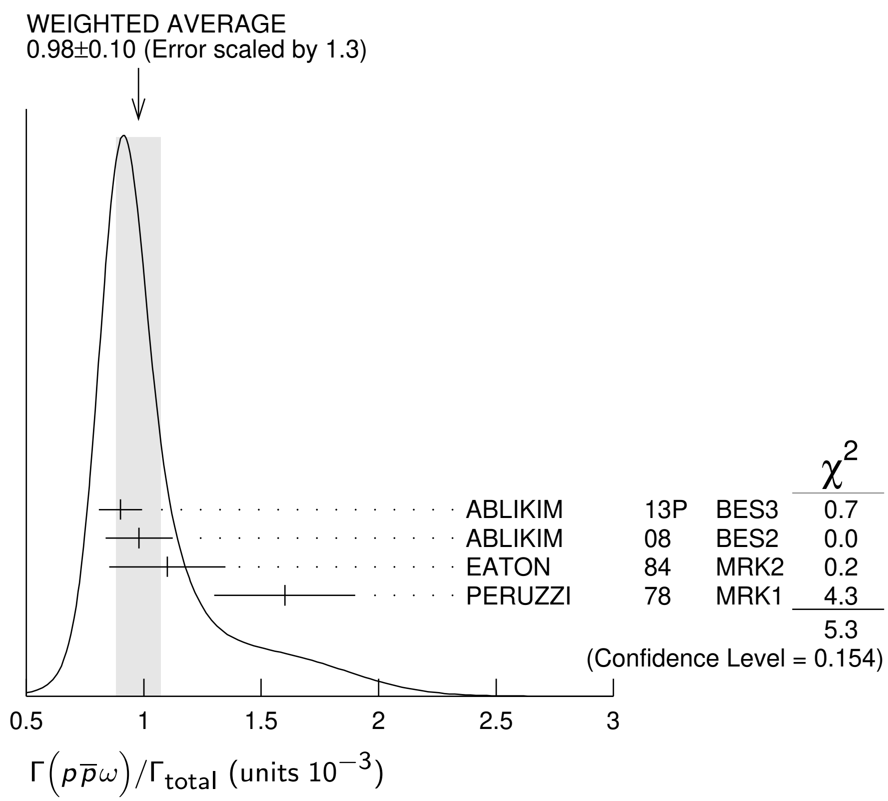
[1] From the combination of $p\overline{p}\eta \to p\overline{p}\gamma\gamma$ and $p\overline{p}\eta \to p\overline{p}\pi^+\pi^-\pi^0$ channels.

$\Gamma(p\overline{p}\rho)/\Gamma_{total}$ — Γ_{189}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.31 × 10^{-3}	90	EATON	84	MRK2	$e^+e^- \to$ hadronsγ

$\Gamma(p\overline{p}\omega)/\Gamma_{total}$ — Γ_{190}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.98±0.10 OUR AVERAGE	Error includes scale factor of 1.3. See the ideogram below.				
0.90±0.02±0.09	2670	ABLIKIM	13P	BES3	e^+e^-
0.98±0.03±0.14	2449	ABLIKIM	08	BES2	e^+e^-
1.10±0.17±0.18	486	EATON	84	MRK2	e^+e^-
1.6 ±0.3	77	PERUZZI	78	MRK1	e^+e^-



$\Gamma(p\overline{p}\eta'(958))/\Gamma_{total}$ — Γ_{191}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.129±0.014 OUR AVERAGE	Error includes scale factor of 2.0.				
0.126±0.002±0.007	16k	[1] ABLIKIM	19N	BES3	e^+e^-
0.200±0.023±0.028	265 ± 31	[2] ABLIKIM	09	BES2	e^+e^-
0.68 ±0.23 ±0.17	19	EATON	84	MRK2	e^+e^-
1.8 ±0.6	19	PERUZZI	78	MRK1	e^+e^-

[1] From the combination of $p\overline{p}\eta' \rightarrow p\overline{p}\pi^+\pi^-\eta$ and $p\overline{p}\eta' \rightarrow p\overline{p}\pi^+\pi^-\gamma$ channels.
[2] From the combination of $p\overline{p}\eta' \rightarrow p\overline{p}\pi^+\pi^-\eta$ and $p\overline{p}\eta' \rightarrow p\overline{p}\gamma\rho^0$ channels.

$\Gamma(p\overline{p}a_0(980) \rightarrow p\overline{p}\pi^0\eta)/\Gamma_{total}$ — Γ_{192}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
6.8±1.2±1.3	ABLIKIM	14N	BES3	$e^+e^- \rightarrow J/\psi$

$\Gamma(p\overline{p}\phi)/\Gamma_{total}$ — Γ_{193}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
0.519±0.033 OUR AVERAGE					
0.523±0.006±0.033	14k	ABLIKIM	16K	BES3	$J/\psi \rightarrow p\overline{p}K^0_S K^0_L$, $p\overline{p}K^+K^-$
0.45 ±0.13 ±0.07		FALVARD	88	DM2	$J/\psi \rightarrow$ hadrons

$\Gamma(p\overline{n}\pi^-)/\Gamma_{total}$ — Γ_{194}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.12±0.09 OUR AVERAGE					
2.36±0.02±0.21	59k	ABLIKIM	06K	BES2	$J/\psi \rightarrow p\pi^-\overline{n}$
2.47±0.02±0.24	55k	ABLIKIM	06K	BES2	$J/\psi \rightarrow \overline{p}\pi^+n$
2.02±0.07±0.16	1288	EATON	84	MRK2	$e^+e^- \rightarrow p\pi^-$
1.93±0.07±0.16	1191	EATON	84	MRK2	$e^+e^- \rightarrow \overline{p}\pi^+$
1.7 ±0.7	32	BESCH	81	BONA	$e^+e^- \rightarrow p\pi^-$
1.6 ±1.2	5	BESCH	81	BONA	$e^+e^- \rightarrow \overline{p}\pi^+$
2.16±0.29	194	PERUZZI	78	MRK1	$e^+e^- \rightarrow p\pi^-$
2.04±0.27	204	PERUZZI	78	MRK1	$e^+e^- \rightarrow \overline{p}\pi^+$

$\Gamma(n\overline{n})/\Gamma_{total}$ — Γ_{195}/Γ

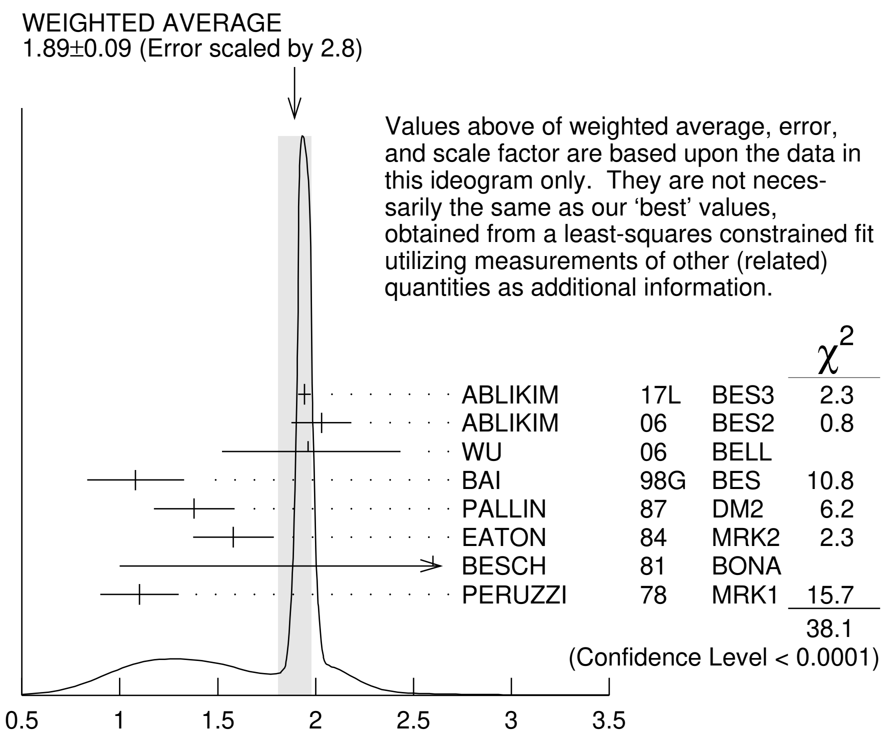
VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.09±0.16 OUR AVERAGE					
2.07±0.01±0.17	36k	ABLIKIM	12C	BES3	e^+e^-
2.31±0.49	79	BALDINI	98	FENI	e^+e^-
1.8 ±0.9		BESCH	78	BONA	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.90±0.55	40	ANTONELLI	93	SPEC	e^+e^-

$\Gamma(n\overline{n}\pi^+\pi^-)/\Gamma_{total}$ — Γ_{196}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.8±3.6	5	BESCH	81	BONA	e^+e^-

$\Gamma(\Lambda\overline{\Lambda})/\Gamma_{total}$ Γ_{200}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.89 ±0.09 OUR AVERAGE		Error includes scale factor of 2.8. See the ideogram below.			
1.943±0.003±0.033	441k	ABLIKIM	17L	BES3	e^+e^-
2.03 ±0.03 ±0.15	8887	ABLIKIM	06	BES2	$J/\psi \to \Lambda\overline{\Lambda}$
1.96 $^{+0.47}_{-0.44}$ ±0.04	46	[1] WU	06	BELL	$B^+ \to \Lambda\overline{\Lambda}K^+$
1.08 ±0.06 ±0.24	631	BAI	98G	BES	e^+e^-
1.38 ±0.05 ±0.20	1847	PALLIN	87	DM2	e^+e^-
1.58 ±0.08 ±0.19	365	EATON	84	MRK2	e^+e^-
2.6 ±1.6	5	BESCH	81	BONA	e^+e^-
1.1 ±0.2	196	PERUZZI	78	MRK1	e^+e^-



[1] WU 06 reports $[\Gamma(J/\psi(1S) \to \Lambda\overline{\Lambda})/\Gamma_{total}] \times [B(B^+ \to J/\psi(1S)K^+)] = (2.00^{+0.34}_{-0.29} \pm 0.34) \times 10^{-6}$ which we divide by our best value $B(B^+ \to J/\psi(1S)K^+) = (1.020 \pm 0.019) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\Lambda\overline{\Lambda})/\Gamma_{total}$ (units 10^{-3})

$\Gamma(\Lambda\overline{\Lambda}\pi^0)/\Gamma_{total}$ Γ_{201}/Γ

VALUE (units 10^{-5})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
3.78±0.27±0.30		323	[1] ABLIKIM	13F	BES3	$J/\psi \to p\overline{p}\pi^+\pi^-\gamma\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
< 6.4	90		[2] ABLIKIM	07H	BES2	$e^+e^- \to \psi(2S)$
23 ±7 ±8		11	BAI	98G	BES	e^+e^-
22 ±5 ±5		19	HENRARD	87	DM2	e^+e^-

[1] Using $B(\Lambda \to \pi^- p) = 63.9\%$ and $B(\pi^0 \to \gamma\gamma) = 98.8\%$.
[2] Using $B(\Lambda \to \pi^- p) = 63.9\%$.

$\Gamma(\Lambda\overline{\Lambda}\pi^+\pi^-)/\Gamma_{total}$ — Γ_{202}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
4.30±0.13±0.99	2.4k	ABLIKIM	12P	BES2	J/ψ

$\Gamma(\Lambda\overline{\Lambda}\eta)/\Gamma_{total}$ — Γ_{203}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
16.2±1.7 OUR AVERAGE					
15.7±0.80±1.54	454	[1] ABLIKIM	13F	BES3	$J/\psi \to p\overline{p}\pi^+\pi^-\gamma\gamma$
26.2±6.0 ±4.4	44	[2] ABLIKIM	07H	BES2	$e^+e^- \to \psi(2S)$

[1] Using B($\Lambda \to \pi^- p$) = 63.9% and B($\eta \to \gamma\gamma$) = 39.31%.
[2] Using B($\Lambda \to \pi^- p$) = 63.9% and B($\eta \to \gamma\gamma$) = 39.4%.

$\Gamma(\Lambda\overline{\Sigma}^-\pi^+\text{(or c.c.)})/\Gamma_{total}$ — Γ_{204}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.83 ±0.07 OUR AVERAGE Error includes scale factor of 1.2.					
0.770±0.051±0.083	335	[1] ABLIKIM	07H	BES2	$e^+e^- \to \overline{\Lambda}\Sigma^+\pi^-$
0.747±0.056±0.076	254	[1] ABLIKIM	07H	BES2	$e^+e^- \to \Lambda\overline{\Sigma}^-\pi^+$
0.90 ±0.06 ±0.16	225 ± 15	HENRARD	87	DM2	$e^+e^- \to \overline{\Lambda}\Sigma^+\pi^-$
1.11 ±0.06 ±0.20	342 ± 18	HENRARD	87	DM2	$e^+e^- \to \Lambda\overline{\Sigma}^-\pi^+$
1.53 ±0.17 ±0.38	135	EATON	84	MRK2	$e^+e^- \to \overline{\Lambda}\Sigma^+\pi^-$
1.38 ±0.21 ±0.35	118	EATON	84	MRK2	$e^+e^- \to \Lambda\overline{\Sigma}^-\pi^+$

[1] Using B($\Lambda \to \pi^- p$) = 63.9% and B($\Sigma^+ \to \pi^0 p$) = 51.6%.

$\Gamma(pK^-\overline{\Lambda}\text{+c.c.})/\Gamma_{total}$ — Γ_{205}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.86±0.11 OUR AVERAGE					
$0.84^{+0.17}_{-0.15}\pm0.02$	45	[1] LU	19	BELL	$B^+ \to \overline{p}\Lambda K^+K^+$
0.89±0.07±0.14	307	EATON	84	MRK2	e^+e^-

[1] LU 19 reports $(8.32^{+1.63}_{-1.45} \pm 0.49) \times 10^{-4}$ from a measurement of [$\Gamma(J/\psi(1S) \to pK^-\overline{\Lambda}\text{+c.c.})/\Gamma_{total}$] × [B($B^+ \to J/\psi(1S)K^+$)] assuming B($B^+ \to J/\psi(1S)K^+$) = $(1.026 \pm 0.031) \times 10^{-3}$, which we rescale to our best value B($B^+ \to J/\psi(1S)K^+$) = $(1.020 \pm 0.019) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(pK^-\overline{\Sigma}^0)/\Gamma_{total}$ — Γ_{206}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.29±0.06±0.05	90	EATON	84	MRK2	e^+e^-

$\Gamma(\overline{\Lambda}nK^0_S\text{+ c.c.})/\Gamma_{total}$ — Γ_{207}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
6.46±0.20±1.07	1058	[1] ABLIKIM	08C	BES2	$e^+e^- \to J/\psi$

[1] Using B($\overline{\Lambda} \to \overline{p}\pi^+$) = 63.9% and B($K^0_S \to \pi^+\pi^-$) = 69.2%.

$\Gamma(\Lambda\overline{\Sigma}\text{+ c.c.})/\Gamma_{total}$ — Γ_{208}/Γ

VALUE (units 10^{-5})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
2.83±0.23 OUR AVERAGE						
2.74±0.24±0.22		234 ± 21	[1] ABLIKIM	12B	BES3	$J/\psi \to \Lambda\overline{\Sigma}^0$

2.92±0.22±0.24	308 ± 24	[2] ABLIKIM	12B	BES3	$J/\psi \to \overline{\Lambda}\Sigma^0$

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

<18		[2] HENRARD	87	DM2	$J/\psi \to \overline{\Lambda}\Sigma^0$
<15	90	PERUZZI	78	MRK1	$e^+e^- \to \Lambda X$

[1] ABLIKIM 12B quotes B($J/\psi \to \Lambda\overline{\Sigma}^0$) which we multiply by 2.
[2] ABLIKIM 12B and HENRARD 87 quote results for B($J/\psi \to \overline{\Lambda}\Sigma^0$) which we multiply by 2.

$\Gamma(\Sigma^+\overline{\Sigma}^-)/\Gamma_{total}$ — Γ_{209}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.07 ±0.04 OUR AVERAGE					
1.061±0.004±0.036	87k	ABLIKIM	21AT	BES3	$J/\psi \to p\pi^0\overline{p}\pi^0$
1.50 ±0.10 ±0.22	399	ABLIKIM	08O	BES2	$e^+e^- \to J/\psi$

$\Gamma(\Sigma^0\overline{\Sigma}^0)/\Gamma_{total}$ — Γ_{210}/Γ

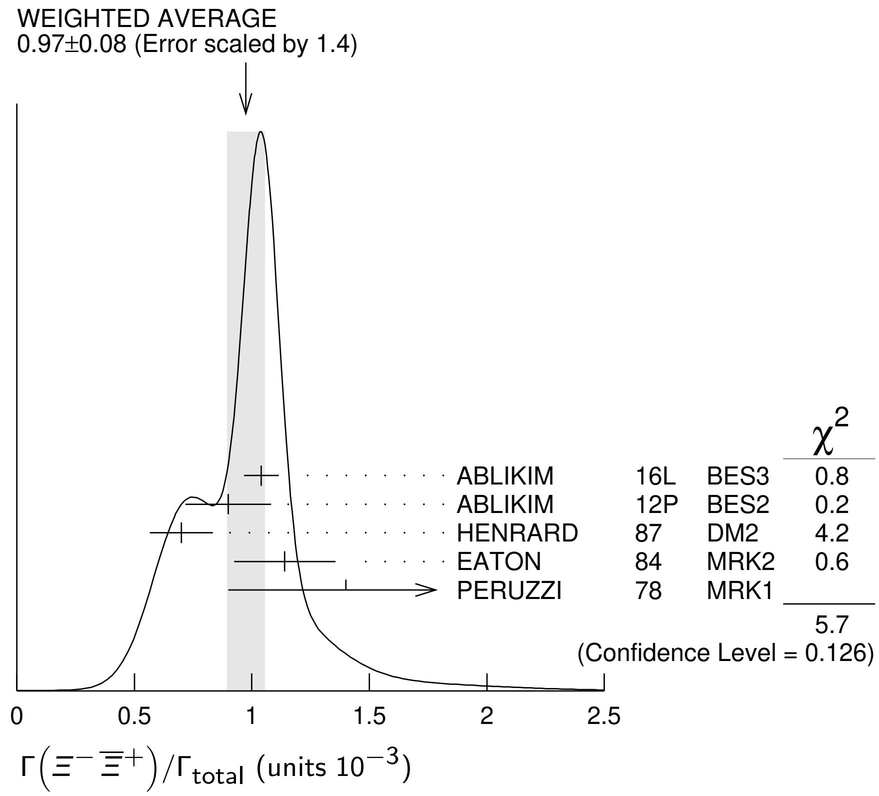
VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.172±0.032 OUR AVERAGE	Error includes scale factor of 1.4.				
1.164±0.004±0.023	111k	ABLIKIM	17L	BES3	$J/\psi \to \Sigma^0\overline{\Sigma}^0$
1.33 ±0.04 ±0.11	1.7k	ABLIKIM	06	BES2	$J/\psi \to \Sigma^0\overline{\Sigma}^0$
1.06 ±0.04 ±0.23	884	PALLIN	87	DM2	$e^+e^- \to \Sigma^0\overline{\Sigma}^0$
1.58 ±0.16 ±0.25	90	EATON	84	MRK2	$e^+e^- \to \Sigma^0\overline{\Sigma}^0$
1.3 ±0.4	52	PERUZZI	78	MRK1	$e^+e^- \to \Sigma^0\overline{\Sigma}^0$

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

2.4 ±2.6	3	BESCH	81	BONA	$e^+e^- \to \Sigma^+\overline{\Sigma}^-$

$\Gamma(\Xi^-\overline{\Xi}^+)/\Gamma_{total}$ — Γ_{211}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.97 ±0.08 OUR AVERAGE	Error includes scale factor of 1.4. See the ideogram below.				
1.040±0.006±0.074	43k	ABLIKIM	16L	BES3	$J/\psi \to \Xi^-\overline{\Xi}^+$
0.90 ±0.03 ±0.18	961	ABLIKIM	12P	BES2	$J/\psi \to \Xi^-\overline{\Xi}^+$
0.70 ±0.06 ±0.12	132	HENRARD	87	DM2	$e^+e^- \to \Xi^-\overline{\Xi}^+$
1.14 ±0.08 ±0.20	194	EATON	84	MRK2	$e^+e^- \to \Xi^-\overline{\Xi}^+$
1.4 ±0.5	51	PERUZZI	78	MRK1	$e^+e^- \to \Xi^-\overline{\Xi}^+$



RADIATIVE DECAYS

$\Gamma\left(\gamma\eta_c(1S)\right)/\Gamma_{total}$ Γ_{212}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
1.7 ±0.4 OUR AVERAGE Error includes scale factor of 1.5.				
$2.00\pm0.31\pm0.02$		[1] MITCHELL 09	CLEO	$e^+e^- \to \gamma X$
1.27 ± 0.36		GAISER 86	CBAL	$J/\psi \to \gamma X$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
seen		ANASHIN 14	KEDR	$J/\psi \to \gamma\eta_c$
0.79 ± 0.20	273 ± 43	[2] AUBERT 06E	BABR	$B^\pm \to K^\pm X_{c\overline{c}}$
seen	16	BALTRUSAIT...84	MRK3	$J/\psi \to 2\phi\gamma$

[1] MITCHELL 09 reports $(1.98 \pm 0.09 \pm 0.30) \times 10^{-2}$ from a measurement of $[\Gamma\left(J/\psi(1S) \to \gamma\eta_c(1S)\right)/\Gamma_{total}] \times [B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)]$ assuming $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (35.04 \pm 0.07 \pm 0.77) \times 10^{-2}$, which we rescale to our best value $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (34.68 \pm 0.30) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Calculated by the authors using an average of $B(J/\psi \to \gamma\eta_c) \times B(\eta_c \to K\overline{K}\pi)$ from BALTRUSAITIS 86, BISELLO 91, BAI 04 and $B(\eta_c \to K\overline{K}\pi) = (8.5 \pm 1.8)\%$ from AUBERT 06E.

$\Gamma\left(\gamma\eta_c(1S) \to 3\gamma\right)/\Gamma_{total}$ Γ_{213}/Γ

VALUE (units 10^{-6})	EVTS	DOCUMENT ID	TECN	COMMENT
$\mathbf{3.8^{+1.3}_{-1.0}}$ **OUR AVERAGE** Error includes scale factor of 1.1.				
$4.5\pm1.2\pm0.6$	33 ± 9	ABLIKIM 13I	BES3	$\psi(2S) \to \pi^+\pi^- J/\psi$
$1.2^{+2.7}_{-1.1}\pm0.3$	$1.2^{+2.8}_{-1.1}$	ADAMS 08	CLEO	$\psi(2S) \to \pi^+\pi^- J/\psi$

$\Gamma(\gamma\eta_c(1S) \to \gamma\eta\eta\eta')/\Gamma_{total}$ — Γ_{214}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
4.86±0.62±0.45	137	ABLIKIM	21C	BES3	$J/\psi(1S) \to \gamma\eta\eta\eta'$

$\Gamma(3\gamma)/\Gamma_{total}$ — Γ_{215}/Γ

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
11.6±2.2 OUR AVERAGE						
11.3±1.8±2.0		113 ± 18	ABLIKIM	13I	BES3	$\psi(2S) \to \pi^+\pi^- J/\psi$
12 ±3 ±2		$24.2^{+7.2}_{-6.0}$	ADAMS	08	CLEO	$\psi(2S) \to \pi^+\pi^- J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<55	90		PARTRIDGE	80	CBAL	e^+e^-

$\Gamma(4\gamma)/\Gamma_{total}$ — Γ_{216}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<9 × 10⁻⁶	90	ADAMS	08	CLEO	$\psi(2S) \to \pi^+\pi^- J/\psi$

$\Gamma(5\gamma)/\Gamma_{total}$ — Γ_{217}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<15 × 10⁻⁶	90	ADAMS	08	CLEO	$\psi(2S) \to \pi^+\pi^- J/\psi$

$\Gamma(\gamma\pi^0)/\Gamma_{total}$ — Γ_{218}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
3.56±0.17 OUR AVERAGE					
3.59±0.20±0.03	1.6k	[1] ABLIKIM	18O	BES3	$\psi(2S) \to \pi^+\pi^-\gamma\gamma\gamma$
3.63±0.36±0.13		PEDLAR	09	CLE3	$J/\psi \to \pi^0\gamma$
$3.13^{+0.65}_{-0.47}$	586	ABLIKIM	06E	BES2	$J/\psi \to \pi^0\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.6 ±1.1 ±0.7		BLOOM	83	CBAL	e^+e^-
7.3 ±4.7	10	BRANDELIK	79C	DASP	e^+e^-

[1] ABLIKIM 18O reports $[\Gamma(J/\psi(1S) \to \gamma\pi^0)/\Gamma_{total}] \times [B(\pi^0 \to 2\gamma)] = (3.57 \pm 0.12 \pm 0.16) \times 10^{-5}$ from a measurement of $[\Gamma(J/\psi(1S) \to \gamma\pi^0)/\Gamma_{total}] \times [B(\pi^0 \to 2\gamma)] \times [B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)]$ assuming $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (34.49 \pm 0.30) \times 10^{-2}$, which we rescale to our best values $B(\pi^0 \to 2\gamma) = (98.823 \pm 0.034) \times 10^{-2}$, $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (34.68 \pm 0.30) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

$\Gamma(\gamma\pi^0\pi^0)/\Gamma_{total}$ — Γ_{219}/Γ

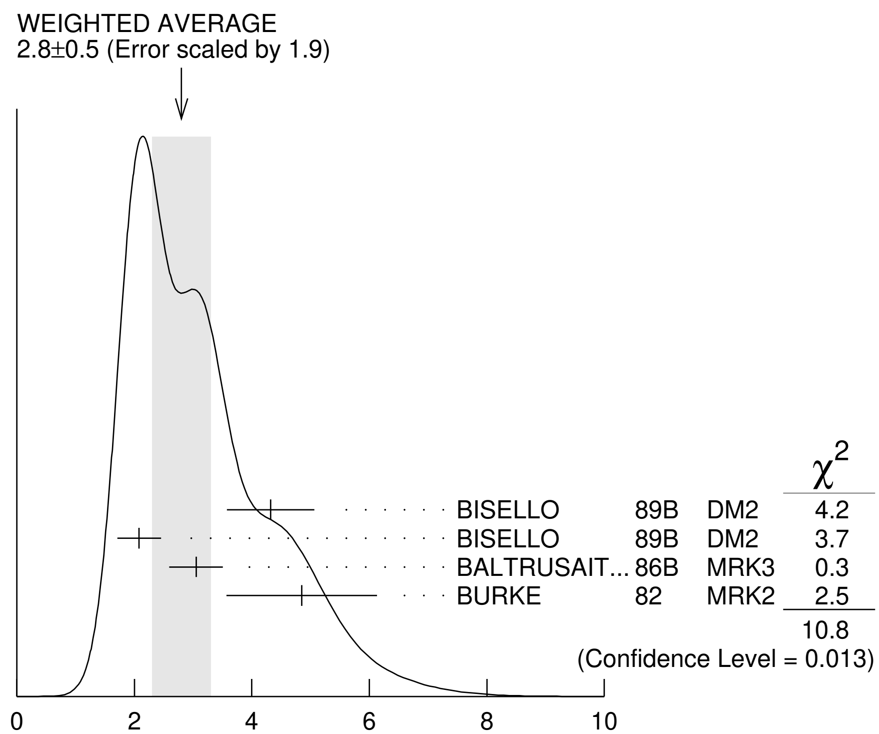
VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
1.15±0.05	[1] ABLIKIM	15AE	BES3	$J/\psi \to \gamma\pi^0\pi^0$

[1] The uncertainty is systematic as statistical is netligible.

$\Gamma(\gamma 2\pi^+ 2\pi^-)/\Gamma_{total}$ — Γ_{220}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
2.8 ±0.5 OUR AVERAGE Error includes scale factor of 1.9. See the ideogram below.				
4.32±0.14±0.73	[1] BISELLO	89B	DM2	$J/\psi \to 4\pi\gamma$
2.08±0.13±0.35	[2] BISELLO	89B	DM2	$J/\psi \to 4\pi\gamma$
3.05±0.08±0.45	[2] BALTRUSAIT...	86B	MRK3	$J/\psi \to 4\pi\gamma$

$4.85 \pm 0.45 \pm 1.20$	[3] BURKE	82	MRK2	$e^+ e^-$



[1] 4π mass less than 3.0 GeV.
[2] 4π mass less than 2.0 GeV.
[3] 4π mass less than 2.5 GeV.
$\Gamma(\gamma 2\pi^+ 2\pi^-)/\Gamma_{total}$ (units 10^{-3})

$\Gamma(\gamma f_2(1270) f_2(1270))/\Gamma_{total}$ — Γ_{221}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$9.5 \pm 0.7 \pm 1.6$	646 ± 45	ABLIKIM	04M	BES	$J/\psi \to \gamma 2\pi^+ 2\pi^-$

$\Gamma(\gamma f_2(1270) f_2(1270)(\text{non resonant}))/\Gamma_{total}$ — Γ_{222}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
$8.2 \pm 0.8 \pm 1.7$	[1] ABLIKIM	04M	BES	$J/\psi \to \gamma 2\pi^+ 2\pi^-$

[1] Subtracting contribution from intermediate $\eta_c(1S)$ decays.

$\Gamma(\gamma \pi^+ \pi^- 2\pi^0)/\Gamma_{total}$ — Γ_{223}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
$8.3 \pm 0.2 \pm 3.1$	[1] BALTRUSAIT...	86B	MRK3	$J/\psi \to 4\pi\gamma$

[1] 4π mass less than 2.0 GeV.

$\Gamma(\gamma K^0_S K^0_S)/\Gamma_{total}$ — Γ_{224}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
8.1 ± 0.4	ABLIKIM	18AA	BES3	$J/\psi \to \gamma K^0_S K^0_S$

$\Gamma(\gamma (K\overline{K}\pi)\,[J^{PC} = 0^{-+}])/\Gamma_{\text{total}}$ — Γ_{225}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.7 ±0.4 OUR AVERAGE	Error includes scale factor of 2.1.			
0.58±0.03±0.20	[1] BAI	00D	BES	$J/\psi \to \gamma K^{\pm} K^0_S \pi^{\mp}$
2.1 ±0.1 ±0.7	[2] BAI	00D	BES	$J/\psi \to \gamma K^{\pm} K^0_S \pi^{\mp}$

[1] For a broad structure around 1800 MeV.
[2] For a broad structure around 2040 MeV.

$\Gamma(\gamma K^+ K^- \pi^+ \pi^-)/\Gamma_{\text{total}}$ — Γ_{226}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.1±0.1±0.6	1516	BAI	00B	BES	$J/\psi \to \gamma K^+ K^0 \pi^+ \pi^-$

$\Gamma(\gamma K^*(892)\overline{K}^*(892))/\Gamma_{\text{total}}$ — Γ_{227}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
4.0±0.3±1.3	320	[1] BAI	00B	BES	$J/\psi \to \gamma K^+ K^0 \pi^+ \pi^-$

[1] Summed over all charges.

$\Gamma(\gamma\eta)/\Gamma_{\text{total}}$ — Γ_{228}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.085±0.018 OUR AVERAGE					
1.067±0.005±0.023	87.9k	ABLIKIM	21AM	BES3	$e^+ e^- \to J/\psi$
1.12 ±0.05 ±0.01	18.6k	[1] ABLIKIM	18O	BES3	$\psi(2S) \to \pi^+ \pi^- \gamma\gamma\gamma$
1.101±0.029±0.022		PEDLAR	09	CLE3	$J/\psi \to \eta\gamma$
1.123±0.089	11k	ABLIKIM	06E	BES2	$J/\psi \to \eta\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.88 ±0.08 ±0.11		BLOOM	83	CBAL	$e^+ e^-$
0.82 ±0.10		BRANDELIK	79C	DASP	$e^+ e^-$
1.3 ±0.4	21	BARTEL	77	CNTR	$e^+ e^-$

[1] ABLIKIM 18O reports $[\Gamma(J/\psi(1S) \to \gamma\eta)/\Gamma_{\text{total}}] \times [B(\eta \to 2\gamma)] = (4.42 \pm 0.04 \pm 0.18) \times 10^{-4}$ from a measurement of $[\Gamma(J/\psi(1S) \to \gamma\eta)/\Gamma_{\text{total}}] \times [B(\eta \to 2\gamma)] \times [B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)]$ assuming $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (34.49 \pm 0.30) \times 10^{-2}$, which we rescale to our best values $B(\eta \to 2\gamma) = (39.36 \pm 0.18) \times 10^{-2}$, $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (34.68 \pm 0.30) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

$\Gamma(\gamma\eta\pi^0)/\Gamma_{\text{total}}$ — Γ_{229}/Γ

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
21.4±1.8±2.5	596	ABLIKIM	16P	BES3	$J/\psi \to 5\gamma$

$\Gamma(\gamma a_0(980)^0 \to \gamma\eta\pi^0)/\Gamma_{\text{total}}$ — Γ_{233}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.5 \times 10^{-6}$	95	ABLIKIM	16P	BES3	$J/\psi \to 5\gamma$

$\Gamma(\gamma a_2(1320)^0 \to \gamma\eta\pi^0)/\Gamma_{\text{total}}$ — Γ_{234}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6.6 \times 10^{-6}$	95	ABLIKIM	16P	BES3	$J/\psi \to 5\gamma$

$\Gamma(\gamma\eta\pi\pi)/\Gamma_{\text{total}}$ Γ_{235}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
6.1 ±1.0 OUR AVERAGE				
5.85±0.3±1.05	[1] EDWARDS	83B	CBAL	$J/\psi \to \eta\pi^+\pi^-$
7.8 ±1.2±2.4	[1] EDWARDS	83B	CBAL	$J/\psi \to \eta 2\pi^0$

[1] Broad enhancement at 1700 MeV.

$\Gamma(\gamma\eta_2(1870) \to \gamma\eta\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{236}/Γ

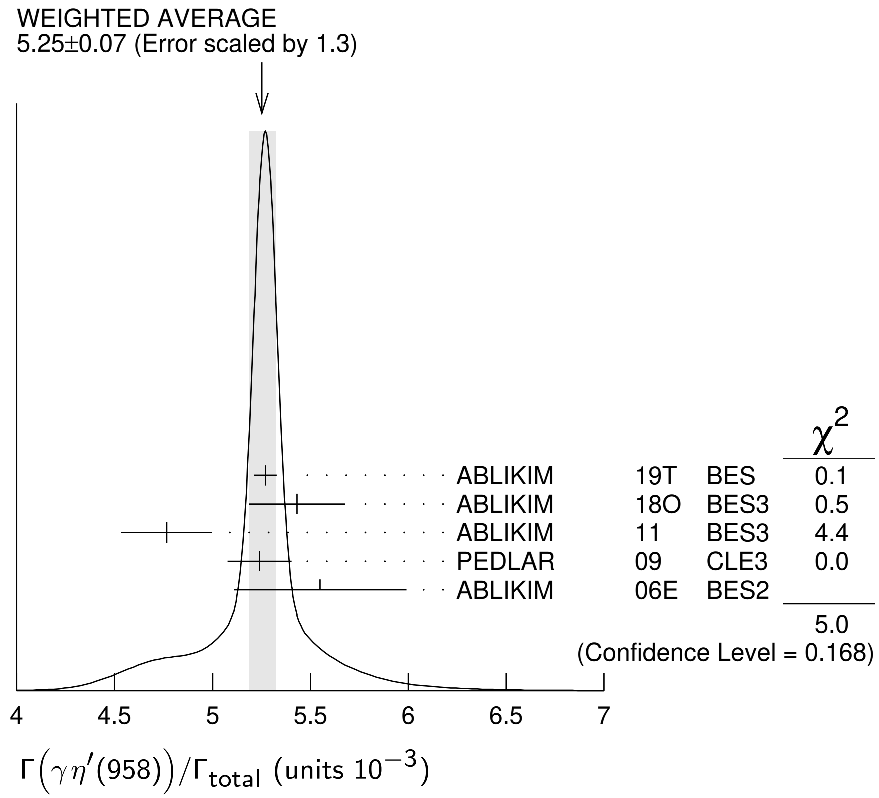
VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
6.2±2.2±0.9	BAI	99	BES	$J/\psi \to \gamma\eta\pi^+\pi^-$

$\Gamma(\gamma\eta'(958))/\Gamma_{\text{total}}$ Γ_{237}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
5.25±0.07 OUR AVERAGE	Error includes scale factor of 1.3. See the ideogram below.				
5.27±0.03±0.05	36k	ABLIKIM	19T	BES	$J/\psi \to \gamma\eta'$
5.43±0.23±0.09	5.0k	[1] ABLIKIM	18O	BES3	$\psi(2S) \to \pi^+\pi^-\gamma\gamma\gamma$
4.77±0.22±0.06		[2] ABLIKIM	11	BES3	$J/\psi \to \eta'\gamma$
5.24±0.12±0.11		PEDLAR	09	CLE3	$J/\psi \to \eta'\gamma$
5.55±0.44	35k	ABLIKIM	06E	BES2	$J/\psi \to \eta'\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
4.50±0.14±0.53		BOLTON	92B	MRK3	$J/\psi \to \gamma\pi^+\pi^-\eta$, $\eta \to \gamma\gamma$
4.30±0.31±0.71		BOLTON	92B	MRK3	$J/\psi \to \gamma\pi^+\pi^-\eta$, $\eta \to \pi^+\pi^-\pi^0$
4.04±0.16±0.85	622	AUGUSTIN	90	DM2	$J/\psi \to \gamma\eta\pi^+\pi^-$
4.39±0.09±0.66	2420	AUGUSTIN	90	DM2	$J/\psi \to \gamma\gamma\pi^+\pi^-$
4.1 ±0.3 ±0.6		BLOOM	83	CBAL	$e^+e^- \to 3\gamma +$ hadrons
2.9 ±1.1	6	BRANDELIK	79C	DASP	$e^+e^- \to 3\gamma$
2.4 ±0.7	57	BARTEL	76	CNTR	$e^+e^- \to 2\gamma\rho$

[1] ABLIKIM 18O reports $[\Gamma(J/\psi(1S) \to \gamma\eta'(958))/\Gamma_{\text{total}}] \times [B(\eta'(958) \to \gamma\gamma)] = (1.26 \pm 0.02 \pm 0.05) \times 10^{-4}$ from a measurement of $[\Gamma(J/\psi(1S) \to \gamma\eta'(958))/\Gamma_{\text{total}}] \times [B(\eta'(958) \to \gamma\gamma)] \times [B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)]$ assuming $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (34.49 \pm 0.30) \times 10^{-2}$, which we rescale to our best values $B(\eta'(958) \to \gamma\gamma) = (2.307 \pm 0.033) \times 10^{-2}$, $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (34.68 \pm 0.30) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

[2] ABLIKIM 11 reports $(4.84 \pm 0.03 \pm 0.24) \times 10^{-3}$ from a measurement of $[\Gamma(J/\psi(1S) \to \gamma\eta'(958))/\Gamma_{\text{total}}]$ / $[B(\eta'(958) \to \pi^+\pi^-\eta)]$ / $[B(\eta \to 2\gamma)]$ assuming $B(\eta'(958) \to \pi^+\pi^-\eta) = (43.2 \pm 0.7) \times 10^{-2}$,$B(\eta \to 2\gamma) = (39.31 \pm 0.20) \times 10^{-2}$, which we rescale to our best values $B(\eta'(958) \to \pi^+\pi^-\eta) = (42.5 \pm 0.5) \times 10^{-2}$, $B(\eta \to 2\gamma) = (39.36 \pm 0.18) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.



$\Gamma(\gamma f_0(500) \to \gamma\pi\pi)/\Gamma_{total}$ Γ_{230}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
10.5 ± 2.0	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_0(500) \to \gamma K\overline{K})/\Gamma_{total}$ Γ_{231}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5 ± 5	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_0(500) \to \gamma\eta\eta)/\Gamma_{total}$ Γ_{232}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4 ± 3	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_0(980) \to \gamma\pi\pi)/\Gamma_{total}$ Γ_{238}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.3 ± 0.2	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_0(980) \to \gamma K\overline{K})/\Gamma_{total}$ Γ_{239}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.8 ± 0.3	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma\rho\rho)/\Gamma_{total}$ — Γ_{240}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
4.5 ±0.8 OUR AVERAGE					
4.7 ±0.3 ±0.9		[1] BALTRUSAIT...	86B	MRK3	$J/\psi \to 4\pi\gamma$
3.75±1.05±1.20		[2] BURKE	82	MRK2	$J/\psi \to 4\pi\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.09	90	[3] BISELLO	89B		$J/\psi \to 4\pi\gamma$

[1] 4π mass less than 2.0 GeV.
[2] 4π mass less than 2.0 GeV. We have multiplied $2\rho^0$ measurement by 3 to obtain 2ρ.
[3] 4π mass in the range 2.0–25 GeV.

$\Gamma(\gamma\rho\omega)/\Gamma_{total}$ — Γ_{241}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5.4 \times 10^{-4}$	90	ABLIKIM	08A	BES2	$e^+e^- \to J/\psi$

$\Gamma(\gamma\rho\phi)/\Gamma_{total}$ — Γ_{242}/Γ

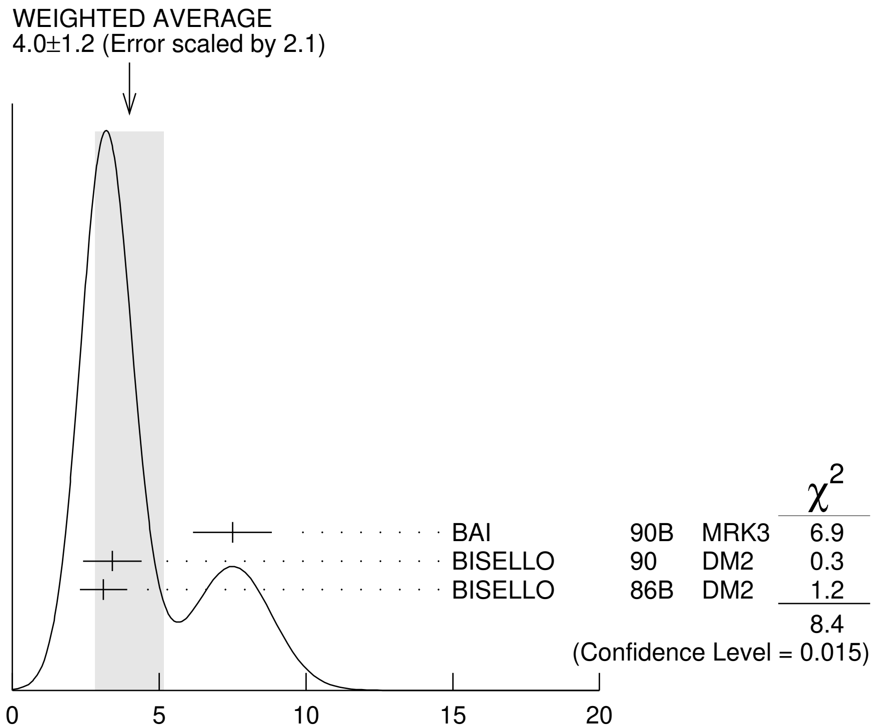
VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<8.8 \times 10^{-5}$	90	ABLIKIM	08A	BES2	$e^+e^- \to J/\psi$

$\Gamma(\gamma\omega\omega)/\Gamma_{total}$ — Γ_{243}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.61±0.33 OUR AVERAGE					
6.0 ±4.8 ±1.8		ABLIKIM	08A	BES2	$J/\psi \to \gamma\omega\pi^+\pi^-$
1.41±0.2 ±0.42	120 ± 17	BISELLO	87	SPEC	e^+e^-, hadronsγ
1.76±0.09±0.45		BALTRUSAIT...	85C	MRK3	$e^+e^- \to$ hadronsγ

$\Gamma(\gamma\phi\phi)/\Gamma_{total}$ — Γ_{244}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
4.0±1.2 OUR AVERAGE Error includes scale factor of 2.1. See the ideogram below.					
7.5±0.6±1.2	168	BAI	90B	MRK3	$J/\psi \to \gamma 4K$
3.4±0.8±0.6	33 ± 7	[1] BISELLO	90	DM2	$J/\psi \to \gamma K^+K^-K^0_S K^0_L$
3.1±0.7±0.4		[1] BISELLO	86B	DM2	$J/\psi \to \gamma K^+K^-K^+K^-$

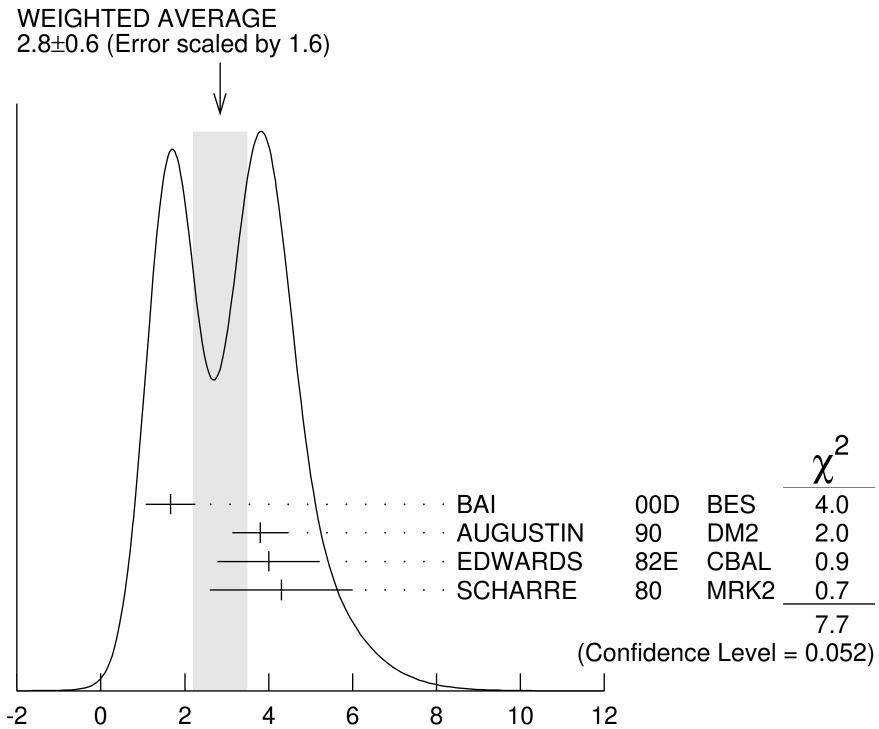


[1] $\phi\phi$ mass less than 2.9 GeV, η_c excluded.
$\Gamma(\gamma\phi\phi)/\Gamma_{total}$ (units 10^{-4})

$\Gamma(\gamma\eta(1405/1475) \to \gamma K\overline{K}\pi)/\Gamma_{total}$ Γ_{245}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
2.8 ±0.6 OUR AVERAGE	Error includes scale factor of 1.6. See the ideogram below.			
1.66±0.1 ±0.58	[1,2] BAI	00D	BES	$J/\psi \to \gamma K^{\pm} K^0_S \pi^{\mp}$
3.8 ±0.3 ±0.6	[3] AUGUSTIN	90	DM2	$J/\psi \to \gamma K\overline{K}\pi$
4.0 ±0.7 ±1.0	[3] EDWARDS	82E	CBAL	$J/\psi \to K^+ K^- \pi^0 \gamma$
4.3 ±1.7	[3,4] SCHARRE	80	MRK2	$e^+ e^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.78±0.21±0.33	[3,5,6] AUGUSTIN	92	DM2	$J/\psi \to \gamma K\overline{K}\pi$
0.83±0.13±0.18	[3,7,8] AUGUSTIN	92	DM2	$J/\psi \to \gamma K\overline{K}\pi$
$0.66^{+0.17}_{-0.16}{}^{+0.24}_{-0.15}$	[3,6,9] BAI	90C	MRK3	$J/\psi \to \gamma K^0_S K^{\pm} \pi^{\mp}$
$1.03^{+0.21}_{-0.18}{}^{+0.26}_{-0.19}$	[3,8,10] BAI	90C	MRK3	$J/\psi \to \gamma K^0_S K^{\pm} \pi^{\mp}$

[1] Interference with the $J/\psi(1S)$ radiative transition to the broad $K\overline{K}\pi$ pseudoscalar state around 1800 is $(0.15 \pm 0.01 \pm 0.05) \times 10^{-3}$.
[2] Interference with $J/\psi \to \gamma f_1(1420)$ is $(-0.03 \pm 0.01 \pm 0.01) \times 10^{-3}$.
[3] Includes unknown branching fraction $\eta(1405) \to K\overline{K}\pi$.
[4] Corrected for spin-zero hypothesis for $\eta(1405)$.
[5] From fit to the $a_0(980)\pi$ 0^{-+} partial wave.
[6] $a_0(980)\pi$ mode.
[7] From fit to the $K^*(892)K$ 0^{-+} partial wave.
[8] $K^* K$ mode.
[9] From $a_0(980)\pi$ final state.
[10] From $K^*(890)K$ final state.



$\Gamma\big(\gamma\eta(1405/1475) \to \gamma K\overline{K}\pi\big)/\Gamma_{\text{total}}$ (units 10^{-3})

$\Gamma\big(\gamma\eta(1405/1475) \to \gamma\gamma\rho^0\big)/\Gamma_{\text{total}}$ Γ_{246}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
0.78±0.20 OUR AVERAGE	Error includes scale factor of 1.8.			
1.07±0.17±0.11	[1] BAI	04J	BES2	$J/\psi \to \gamma\gamma\pi^+\pi^-$
0.64±0.12±0.07	[1] COFFMAN	90	MRK3	$J/\psi \to \gamma\gamma\pi^+\pi^-$

[1] Includes unknown branching fraction $\eta(1405) \to \gamma\rho^0$.

$\Gamma\big(\gamma\eta(1405/1475) \to \gamma\eta\pi^+\pi^-\big)/\Gamma_{\text{total}}$ Γ_{247}/Γ

VALUE (units 10^{-4})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
3.0 ±0.5 OUR AVERAGE					
2.6 ±0.7 ±0.4		BAI	99	BES	$J/\psi \to \gamma\eta\pi^+\pi^-$
3.38±0.33±0.64		[1] BOLTON	92B	MRK3	$J/\psi \to \gamma\eta\pi^+\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
7.0 ±0.6 ±1.1	261	[2] AUGUSTIN	90	DM2	$J/\psi \to \gamma\eta\pi^+\pi^-$

[1] Via $a_0(980)\pi$.

[2] Includes unknown branching fraction to $\eta\pi^+\pi^-$.

$\Gamma\big(\gamma\eta(1405/1475) \to \gamma\rho^0\rho^0\big)/\Gamma_{\text{total}}$ Γ_{248}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.7 ±0.4 OUR AVERAGE	Error includes scale factor of 1.3.			
2.1 ±0.4	BUGG	95	MRK3	$J/\psi \to \gamma\pi^+\pi^-\pi^+\pi^-$
1.36±0.38	[1,2] BISELLO	89B	DM2	$J/\psi \to 4\pi\gamma$

[1] Estimated by us from various fits.

[2] Includes unknown branching fraction to $\rho^0\rho^0$.

$\Gamma(\gamma\eta(1405/1475) \rightarrow \gamma\gamma\phi)/\Gamma_{total}$ — Γ_{249}/Γ

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<82	95		BAI	04J	BES2	$J/\psi \rightarrow \gamma\gamma K^+ K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$7.03\pm0.92\pm0.91$		1.3k	[1] ABLIKIM	18I	BES3	$J/\psi \rightarrow \gamma\gamma\phi(1020)$
$10.36\pm1.51\pm1.54$		1.9k	[2] ABLIKIM	18I	BES3	$J/\psi \rightarrow \gamma\gamma\phi(1020)$

[1] Constructive interference between the $X(1835)$ and $\eta(1405)/\eta(1475)$ is assumed in a fit to the $\gamma\phi$ invariant mass.
[2] Destructive interference between the $X(1835)$ and $\eta(1405)/\eta(1475)$ is assumed in a fit to the $\gamma\phi$ invariant mass.

$\Gamma(\gamma\eta(1405) \rightarrow \gamma\gamma\gamma)/\Gamma_{total}$ — Γ_{250}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.63 \times 10^{-6}$	90	ABLIKIM	18O	BES3	$\psi(2S) \rightarrow \pi^+\pi^-\gamma\gamma\gamma$

$\Gamma(\gamma\eta(1475) \rightarrow \gamma\gamma\gamma)/\Gamma_{total}$ — Γ_{251}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.86 \times 10^{-6}$	90	ABLIKIM	18O	BES3	$\psi(2S) \rightarrow \pi^+\pi^-\gamma\gamma\gamma$

$\Gamma(\gamma\eta(1760) \rightarrow \gamma\rho^0\rho^0)/\Gamma_{total}$ — Γ_{252}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.13 ± 0.09	[1,2] BISELLO	89B	DM2	$J/\psi \rightarrow 4\pi\gamma$

[1] Estimated by us from various fits.
[2] Includes unknown branching fraction to $\rho^0\rho^0$.

$\Gamma(\gamma\eta(1760) \rightarrow \gamma\omega\omega)/\Gamma_{total}$ — Γ_{253}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$1.98\pm0.08\pm0.32$	1045	ABLIKIM	06H	BES	$J/\psi \rightarrow \gamma\omega\omega$

$\Gamma(\gamma\eta(1760) \rightarrow \gamma\gamma\gamma)/\Gamma_{total}$ — Γ_{254}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<4.80 \times 10^{-6}$	90	ABLIKIM	18O	BES3	$\psi(2S) \rightarrow \pi^+\pi^-\gamma\gamma\gamma$

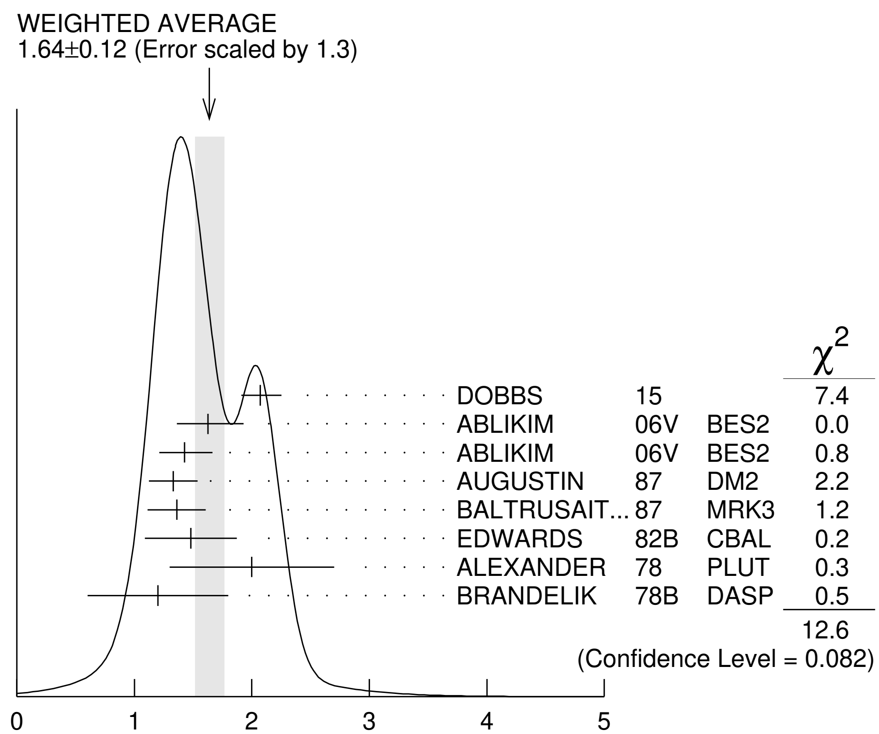
$\Gamma(\gamma\eta(2225))/\Gamma_{total}$ — Γ_{255}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$3.14^{+0.50}_{-0.19}$ OUR AVERAGE					
$2.40\pm0.10^{+2.47}_{-0.18}$		[1,2] ABLIKIM	16N	BES3	$J/\psi \rightarrow \gamma K^+ K^- K^+ K^-$
$4.4\pm0.4\pm0.8$	196	[2] ABLIKIM	08I	BES	$J/\psi \rightarrow \gamma K^+ K^- K^0_S K^0_L$
$3.3\pm0.8\pm0.5$		[2] BAI	90B	MRK3	$J/\psi \rightarrow \gamma K^+ K^- K^+ K^-$
$2.7\pm0.6\pm0.6$		[2] BAI	90B	MRK3	$J/\psi \rightarrow \gamma K^+ K^- K^0_S K^0_L$
$2.4^{+1.5}_{-1.0}$		[3,4] BISELLO	89B	DM2	$J/\psi \rightarrow 4\pi\gamma$

[1] From a partial wave analysis of $J/\psi \rightarrow \gamma\phi\phi$ that also finds significant signals for for $\eta(2100)$, 0^{-+} phase space, $f_0(2100)$, $f_2(2010)$, $f_2(2300)$, $f_2(2340)$, and a previously unseen 0^{-+} state $X(2500)$ (M = $2470^{+15}_{-19}{}^{+101}_{-23}$ MeV, $\Gamma = 230^{+64}_{-35}{}^{+56}_{-33}$ MeV).
[2] Includes unknown branching fraction to $\phi\phi$.
[3] Estimated by us from various fits.
[4] Includes unknown branching fraction to $\rho^0\rho^0$.

$\Gamma(\gamma f_2(1270))/\Gamma_{total}$ Γ_{256}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
1.64±0.12 OUR AVERAGE		Error includes scale factor of 1.3. See the ideogram below.		
$2.07\pm0.16^{+0.02}_{-0.07}$	2.4k	[1,2] DOBBS 15		$J/\psi \to \gamma\pi\pi$
$1.63\pm0.26^{+0.02}_{-0.06}$		[3] ABLIKIM 06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^+\pi^-$
$1.42\pm0.21^{+0.01}_{-0.05}$		[4] ABLIKIM 06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^0\pi^0$
$1.33\pm0.05\pm0.20$		[5] AUGUSTIN 87	DM2	$J/\psi \to \gamma\pi^+\pi^-$
$1.36\pm0.09\pm0.23$		[5] BALTRUSAIT...87	MRK3	$J/\psi \to \gamma\pi^+\pi^-$
$1.48\pm0.25\pm0.30$	178	EDWARDS 82B	CBAL	$e^+e^- \to 2\pi^0\gamma$
$2.0\ \pm0.7$	35	ALEXANDER 78	PLUT	e^+e^-
$1.2\ \pm0.6$	30	[6] BRANDELIK 78B	DASP	$e^+e^- \to \pi^+\pi^-\gamma$



[1] Using CLEO-c data but not authored by the CLEO Collaboration.

[2] DOBBS 15 reports $[\Gamma(J/\psi(1S) \to \gamma f_2(1270))/\Gamma_{total}] \times [B(f_2(1270) \to \pi\pi)] = (1.744 \pm 0.052 \pm 0.122) \times 10^{-3}$ which we divide by our best value $B(f_2(1270) \to \pi\pi) = (84.2^{+2.9}_{-0.9}) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] ABLIKIM 06V reports $[\Gamma(J/\psi(1S) \to \gamma f_2(1270))/\Gamma_{total}] \times [B(f_2(1270) \to \pi\pi)] = (1.371 \pm 0.010 \pm 0.222) \times 10^{-3}$ which we divide by our best value $B(f_2(1270) \to \pi\pi) = (84.2^{+2.9}_{-0.9}) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] ABLIKIM 06V reports $[\Gamma(J/\psi(1S) \to \gamma f_2(1270))/\Gamma_{total}] \times [B(f_2(1270) \to \pi\pi)] = (1.200 \pm 0.027 \pm 0.174) \times 10^{-3}$ which we divide by our best value $B(f_2(1270) \to \pi\pi) = (84.2^{+2.9}_{-0.9}) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[5] Estimated using B($f_2(1270) \to \pi\pi$)=0.843 ± 0.012. The errors do not contain the uncertainty in the $f_2(1270)$ decay.

[6] Restated by us to take account of spread of E1, M2, E3 transitions.

$\Gamma(\gamma f_2(1270))/\Gamma_{total}$ (units 10^{-3})

$\Gamma(\gamma f_2(1270) \to \gamma K^0_S K^0_S)/\Gamma_{total}$ — Γ_{257}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$2.58^{+0.08+0.59}_{-0.09-0.20}$	ABLIKIM	18AA	BES3	$J/\psi \to \gamma K^0_S K^0_S$

$\Gamma(\gamma f_1(1285))/\Gamma_{total}$ — Γ_{258}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.61 ±0.08 OUR AVERAGE				
0.69 ±0.16 ±0.20	[1] BAI	04J	BES2	$J/\psi \to \gamma\gamma\rho^0$
0.61 ±0.04 ±0.21	[2] BAI	00D	BES	$J/\psi \to \gamma K^\pm K^0_S \pi^\mp$
0.45 ±0.09 ±0.17	[3] BAI	99	BES	$J/\psi \to \gamma\eta\pi^+\pi^-$
0.625±0.063±0.103	[4] BOLTON	92	MRK3	$J/\psi \to \gamma f_1(1285)$
0.70 ±0.08 ±0.16	[5] BOLTON	92B	MRK3	$J/\psi \to \gamma\eta\pi^+\pi^-$

[1] Assuming B($f_1(1285) \to \rho^0\gamma$) = 0.055 ± 0.013.

[2] Assuming $\Gamma(f_1(1285) \to K\overline{K}\pi)/\Gamma_{total}$ = 0.090 ± 0.004.

[3] Assuming $\Gamma(f_1(1285) \to \eta\pi\pi)/\Gamma_{total}$ =0.5 ± 0.18.

[4] Obtained summing the sequential decay channels
B($J/\psi \to \gamma f_1(1285), f_1(1285) \to \pi\pi\pi\pi$) = (1.44 ± 0.39 ± 0.27) × 10^{-4};
B($J/\psi \to \gamma f_1(1285), f_1(1285) \to a_0(980)\pi, a_0(980) \to \eta\pi$) = (3.90 ± 0.42 ± 0.87) × 10^{-4};
B($J/\psi \to \gamma f_1(1285), f_1(1285) \to a_0(980)\pi, a_0(980) \to K\overline{K}$) = (0.66 ± 0.26 ± 0.29) × 10^{-4};
B($J/\psi \to \gamma f_1(1285), f_1(1285) \to \gamma\rho^0$) = (0.25 ± 0.07 ± 0.03) × 10^{-4}.

[5] Using B($f_1(1285) \to a_0(980)\pi$) = 0.37, and including unknown branching ratio for $a_0(980) \to \eta\pi$.

$\Gamma(\gamma f_0(1370) \to \gamma\pi\pi)/\Gamma_{total}$ — Γ_{259}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
38±10	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_0(1370) \to \gamma K\overline{K})/\Gamma_{total}$ — Γ_{260}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
4.19±0.73±1.34	478	[1] DOBBS	15		$J/\psi \to \gamma K\overline{K}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.3 ±0.4		SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma\ (\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

[1] Using CLEO-c data but not authored by the CLEO Collaboration.

$\Gamma(\gamma f_0(1370) \to \gamma K^0_S K^0_S)/\Gamma_{total}$ — Γ_{261}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$1.07^{+0.08+0.36}_{-0.07-0.34}$	ABLIKIM	18AA	BES3	$J/\psi \to \gamma K^0_S K^0_S$

$\Gamma(\gamma f_0(1370) \to \gamma\eta\eta)/\Gamma_{total}$ — Γ_{262}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
3.5 ± 1.0	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_0(1370) \to \gamma\eta\eta')/\Gamma_{total}$ — Γ_{263}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.9 ± 0.3	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_1(1420) \to \gamma K\overline{K}\pi)/\Gamma_{total}$ — Γ_{264}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.79 ± 0.13 OUR AVERAGE				
$0.68\pm0.04\pm0.24$	BAI	00D	BES	$J/\psi \to \gamma K^\pm K^0_S \pi^\mp$
$0.76\pm0.15\pm0.21$	[1,2] AUGUSTIN	92	DM2	$J/\psi \to \gamma K\overline{K}\pi$
$0.87\pm0.14^{+0.14}_{-0.11}$	[1] BAI	90C	MRK3	$J/\psi \to \gamma K^0_S K^\pm \pi^\mp$

[1] Included unknown branching fraction $f_1(1420) \to K\overline{K}\pi$.
[2] From fit to the $K^*(892)K$ 1^{++} partial wave.

$\Gamma(\gamma f_0(1500) \to \gamma\pi\pi)/\Gamma_{total}$ — Γ_{265}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.09 ± 0.24 OUR AVERAGE					
$1.21\pm0.29\pm0.24$	174	[1] DOBBS	15		$J/\psi \to \gamma\pi\pi$
$1.00\pm0.03\pm0.45$		[2] ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^+\pi^-$
$1.02\pm0.09\pm0.45$		[2] ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^0\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.90 ± 0.17		SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$
$5.7\ \pm0.8$		[3,4] BUGG	95	MRK3	$J/\psi \to \gamma\pi^+\pi^-\pi^+\pi^-$

[1] Using CLEO-c data but not authored by the CLEO Collaboration.
[2] Including unknown branching fraction to $\pi\pi$.
[3] Including unknown branching ratio for $f_0(1500) \to \pi^+\pi^-\pi^+\pi^-$.
[4] Assuming that $f_0(1500)$ decays only to two S-wave dipions.

$\Gamma(\gamma f_0(1500) \to \gamma\eta\eta)/\Gamma_{total}$ — Γ_{266}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$1.65^{+0.26}_{-0.31}{}^{+0.51}_{-1.40}$	5.5k	[1] ABLIKIM	13N	BES3	$J/\psi \to \gamma\eta\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.1\ \pm0.4$		SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

[1] From partial wave analysis including all possible combinations of 0^{++}, 2^{++}, and 4^{++} resonances.

$\Gamma(\gamma f_0(1500) \to \gamma K^0_S K^0_S)/\Gamma_{total}$ — Γ_{267}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$1.59\pm0.16^{+0.18}_{-0.56}$	ABLIKIM	18AA	BES3	$J/\psi \to \gamma K^0_S K^0_S$

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

0.7 $\pm$0.3	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma\,(\pi\pi, K\overline{K}, \eta\eta, \omega\phi)$

$\Gamma(\gamma f_0(1500) \to \gamma\eta\eta')/\Gamma_{total}$ — Γ_{268}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.2$\pm$0.5	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi, K\overline{K}, \eta\eta, \omega\phi)$

$\Gamma(\gamma f_1(1510) \to \gamma\eta\pi^+\pi^-)/\Gamma_{total}$ — Γ_{269}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
4.5$\pm$1.0$\pm$0.7	BAI	99	BES	$J/\psi \to \gamma\eta\pi^+\pi^-$

$\Gamma(\gamma f_2'(1525))/\Gamma_{total}$ — Γ_{270}/Γ

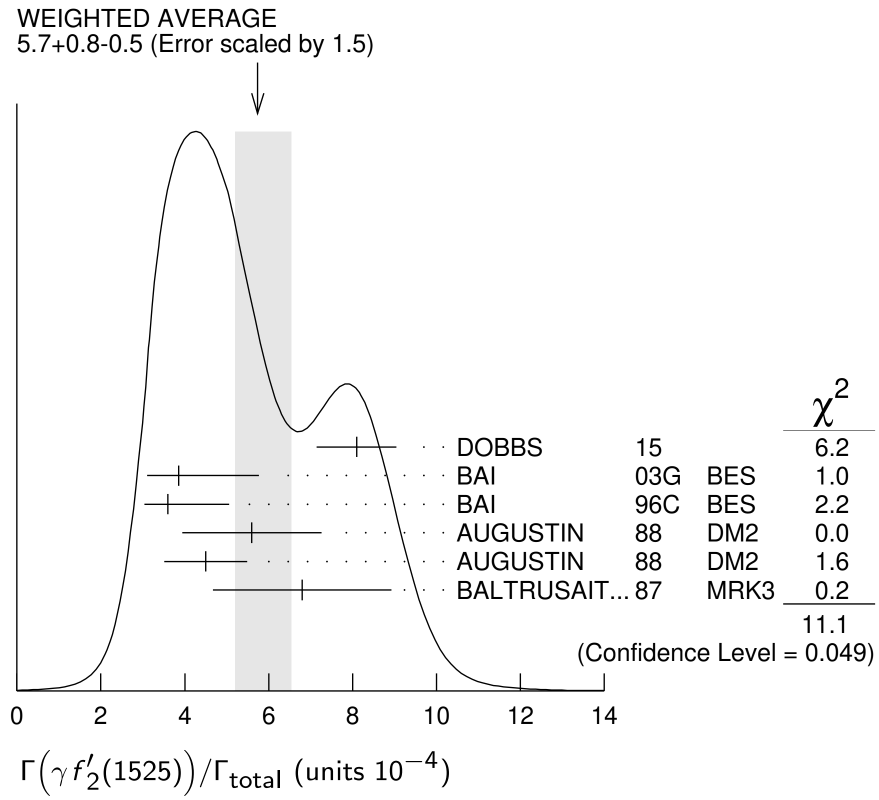
VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
5.7 $^{+0.8}_{-0.5}$ OUR AVERAGE Error includes scale factor of 1.5. See the ideogram below.						
8.1 $\pm$0.9 $\pm$0.2		750	[1,2] DOBBS	15		$J/\psi \to \gamma K\overline{K}$
3.85$\pm$0.17$^{+1.91}_{-0.73}$			[3] BAI	03G	BES	$J/\psi \to \gamma K\overline{K}$
3.6 $\pm$0.4 $^{+1.4}_{-0.4}$			[3] BAI	96C	BES	$J/\psi \to \gamma K^+K^-$
5.6 $\pm$1.4 $\pm$0.9			[3] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^+K^-$
4.5 $\pm$0.4 $\pm$0.9			[3] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^0_S K^0_S$
6.8 $\pm$1.6 $\pm$1.4			[3] BALTRUSAIT...	87	MRK3	$J/\psi \to \gamma K^+K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$<$3.4	90	4	[4] BRANDELIK	79C	DASP	$e^+e^- \to \pi^+\pi^-\gamma$
$<$2.3	90	3	ALEXANDER	78	PLUT	$e^+e^- \to K^+K^-\gamma$

[1] Using CLEO-c data but not authored by the CLEO Collaboration.

[2] DOBBS 15 reports $[\Gamma(J/\psi(1S) \to \gamma f_2'(1525))/\Gamma_{total}] \times [B(f_2'(1525) \to K\overline{K})] = (7.09 \pm 0.46 \pm 0.67) \times 10^{-4}$ which we divide by our best value $B(f_2'(1525) \to K\overline{K}) = (87.6 \pm 2.2) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] Using $B(f_2'(1525) \to K\overline{K}) = 0.888$.

[4] Assuming isotropic production and decay of the $f_2'(1525)$ and isospin.



$\Gamma\big(\gamma f_2'(1525) \to \gamma K^0_S K^0_S\big)/\Gamma_{\text{total}}$ Γ_{271}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$\mathbf{7.99^{+0.03+0.69}_{-0.04-0.50}}$	ABLIKIM	18AA	BES3	$J/\psi \to \gamma K^0_S K^0_S$

$\Gamma\big(\gamma f_2'(1525) \to \gamma\eta\eta\big)/\Gamma_{\text{total}}$ Γ_{272}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{3.42^{+0.43+1.37}_{-0.51-1.30}}$	5.5k	[1] ABLIKIM	13N	BES3	$J/\psi \to \gamma\eta\eta$

[1] From partial wave analysis including all possible combinations of 0^{++}, 2^{++}, and 4^{++} resonances.

$\Gamma\big(\gamma f_2(1640) \to \gamma\omega\omega\big)/\Gamma_{\text{total}}$ Γ_{273}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.28±0.05±0.17	141	ABLIKIM	06H	BES	$J/\psi \to \gamma\omega\omega$

$\Gamma\big(\gamma f_0(1710) \to \gamma\pi\pi\big)/\Gamma_{\text{total}}$ Γ_{274}/Γ

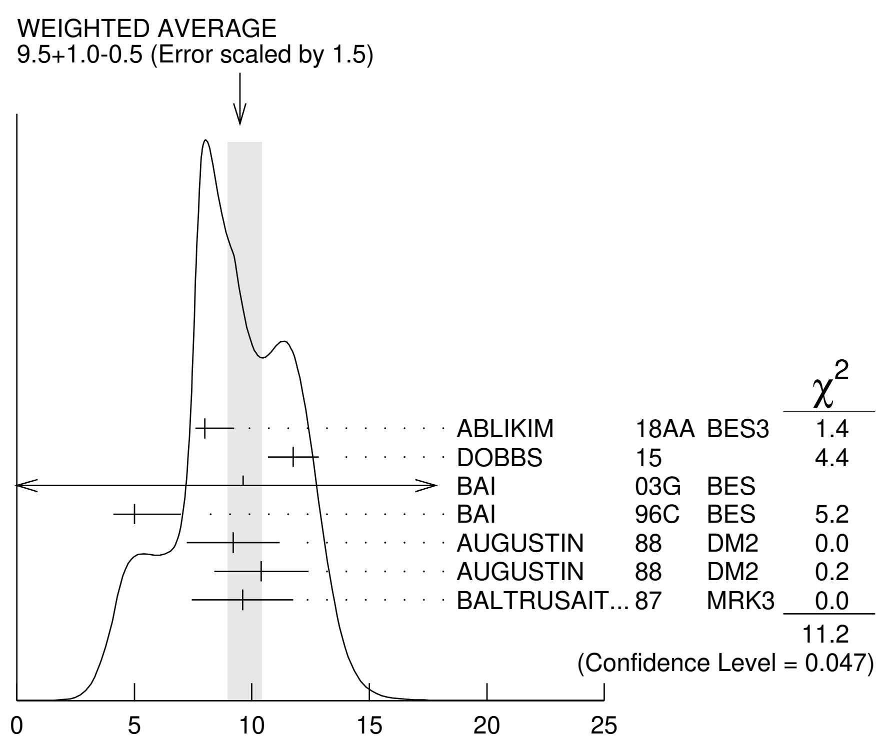
VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
3.8 ±0.5 OUR AVERAGE					
3.72±0.30±0.43	483	[1] DOBBS	15		$J/\psi \to \gamma\pi\pi$
3.96±0.06±1.12		[2] ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^+\pi^-$
3.99±0.15±2.64		[2] ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^0\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.6 ±0.2		[3] SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma\,(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

2.5 ±1.6 ±0.8			BAI	98H	BES $J/\psi \to \gamma\pi^0\pi^0$

[1] Using CLEO-c data but not authored by the CLEO Collaboration.
[2] Including unknown branching fraction to $\pi\pi$.
[3] There is a further $(2.4 \pm 0.8) \times 10^{-4}$ scalar contribution at 1765 MeV.

$\Gamma(\gamma f_0(1710) \to \gamma K\overline{K})/\Gamma_{total}$ — Γ_{275}/Γ

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$9.5^{+1.0}_{-0.5}$ OUR AVERAGE Error includes scale factor of 1.5. See the ideogram below.						
$8.00^{+0.12}_{-0.08}{}^{+1.24}_{-0.40}$			[1] ABLIKIM	18AA	BES3	$J/\psi \to \gamma K^0_S K^0_S$
$11.76 \pm 0.54 \pm 0.94$		1.2k	[2] DOBBS	15		$J/\psi \to \gamma K\overline{K}$
$9.62 \pm 029 {}^{+3.51}_{-1.86}$			[3] BAI	03G	BES	$J/\psi \to \gamma K\overline{K}$
$5.0 \pm 0.8 {}^{+1.8}_{-0.4}$			[1,4] BAI	96C	BES	$J/\psi \to \gamma K^+K^-$
$9.2 \pm 1.4 \pm 1.4$			[1] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^+K^-$
$10.4 \pm 1.2 \pm 1.6$			[1] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^0_S K^0_S$
$9.6 \pm 1.2 \pm 1.8$			[1] BALTRUSAIT...	87	MRK3	$J/\psi \to \gamma K^+K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
2.3 ± 0.8			[5] SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma (\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$
$1.6 \pm 0.2 {}^{+0.6}_{-0.2}$			[1,6] BAI	96C	BES	$J/\psi \to \gamma K^+K^-$
< 0.8	90		[7] BISELLO	89B		$J/\psi \to 4\pi\gamma$
$1.6 \pm 0.4 \pm 0.3$			[8] BALTRUSAIT...	87	MRK3	$J/\psi \to \gamma\pi^+\pi^-$
3.8 ± 1.6			[9] EDWARDS	82D	CBAL	$e^+e^- \to \eta\eta\gamma$



[1] Includes unknown branching fraction to K^+K^- or $K^0_S K^0_S$. We have multiplied K^+K^- measurement by 2, and $K^0_S K^0_S$ by 4 to obtain $K\overline{K}$ result.
[2] Using CLEO-c data but not authored by the CLEO Collaboration.
[3] Includes unknown branching ratio to K^+K^- or $K^0_S K^0_S$.
[4] Assuming $J^P = 2^+$ for $f_0(1710)$.
[5] There is a further $(6 \pm 2) \times 10^{-4}$ scalar contribution at 1765 MeV.
[6] Assuming $J^P = 0^+$ for $f_0(1710)$.
[7] Includes unknown branching fraction to $\rho^0\rho^0$.
[8] Includes unknown branching fraction to $\pi^+\pi^-$.
[9] Includes unknown branching fraction to $\eta\eta$.

$J/\psi(1S)$ mass (units 10^{-4})

$\Gamma(\gamma f_0(1710) \to \gamma\omega\omega)/\Gamma_{total}$ — Γ_{276}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.31±0.06±0.08	180	ABLIKIM	06H	BES	$J/\psi \to \gamma\omega\omega$

$\Gamma(\gamma f_0(1710) \to \gamma\eta\eta)/\Gamma_{total}$ — Γ_{277}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{2.35^{+0.13+1.24}_{-0.11-0.74}}$	5.5k	[1] ABLIKIM	13N	BES3	$J/\psi \to \gamma\eta\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.2 ±0.4		[2] SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi, K\overline{K}, \eta\eta, \omega\phi)$

[1] From partial wave analysis including all possible combinations of 0^{++}, 2^{++}, and 4^{++} resonances.
[2] There is a further $(0.7 \pm 0.1) \times 10^{-4}$ scalar contribution at 1765 MeV.

$\Gamma(\gamma f_0(1710) \to \gamma\eta\eta')/\Gamma_{total}$ — Γ_{278}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
6.5±2.5	[1] SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi, K\overline{K}, \eta\eta, \omega\phi)$

[1] There is a further $(2.5 \pm 1.1) \times 10^{-5}$ scalar contribution at 1765 MeV.

$\Gamma(\gamma f_0(1710) \to \gamma\omega\phi)/\Gamma_{total}$ — Γ_{279}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.5 ±0.6 OUR AVERAGE					
$2.00\pm0.08^{+1.38}_{-1.64}$	1.3k	ABLIKIM	13J	BES3	$J/\psi \to \gamma\omega\phi$
2.61±0.27±0.65	95	ABLIKIM	06J	BES2	$J/\psi \to \gamma\omega\phi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.1 ±0.1		[1] SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi, K\overline{K}, \eta\eta, \omega\phi)$

[1] There is a further $(2.2 \pm 0.4) \times 10^{-4}$ scalar contribution at 1765 MeV.

$\Gamma(\gamma f_0(1750) \to \gamma K^0_S K^0_S)/\Gamma_{total}$ — Γ_{280}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$\mathbf{1.11\pm0.06^{+0.19}_{-0.32}}$	ABLIKIM	18AA	BES3	$J/\psi \to \gamma K^0_S K^0_S$

$\Gamma(\gamma f_2(1810) \to \gamma\eta\eta)/\Gamma_{total}$ — Γ_{281}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		COMMENT
$\mathbf{5.40^{+0.60}_{-0.67}{}^{+3.42}_{-2.35}}$	5.5k	[1] ABLIKIM	13N	$J/\psi \to \gamma\eta\eta$

[1] From partial wave analysis including all possible combinations of 0^{++}, 2^{++}, and 4^{++} resonances.

$\Gamma(\gamma f_2(1910) \to \gamma\omega\omega)/\Gamma_{total}$ — Γ_{282}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.20±0.04±0.13	151	ABLIKIM	06H	BES	$J/\psi \to \gamma\omega\omega$

$\Gamma(\gamma f_2(1950) \to \gamma K^*(892)\overline{K}^*(892))/\Gamma_{total}$ — Γ_{283}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.7±0.1±0.2	BAI	00B	BES	$J/\psi \to \gamma K^+ K^0 \pi^+\pi^-$

$\Gamma(\gamma f_0(2020) \to \gamma\pi\pi)/\Gamma_{total}$ — Γ_{284}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
42±10	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_0(2020) \to \gamma K\overline{K})/\Gamma_{total}$ — Γ_{285}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
55±25	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_0(2020) \to \gamma\eta\eta)/\Gamma_{total}$ — Γ_{286}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
10±10	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_4(2050))/\Gamma_{total}$ — Γ_{287}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
2.7±0.5±0.5	[1] BALTRUSAIT...	87	MRK3	$J/\psi \to \gamma\pi^+\pi^-$

[1] Assuming branching fraction $f_4(2050) \to \pi\pi/$ total = 0.167.

$\Gamma(\gamma f_0(2100) \to \gamma\eta\eta)/\Gamma_{total}$ — Γ_{288}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{1.13^{+0.09}_{-0.10}{}^{+0.64}_{-0.28}}$	5.5k	[1] ABLIKIM	13N	BES3	$J/\psi \to \gamma\eta\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.8 ±1.5		SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma\ (\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

[1] From partial wave analysis including all possible combinations of 0^{++}, 2^{++}, and 4^{++} resonances.

$\Gamma(\gamma f_0(2100) \to \gamma\pi\pi)/\Gamma_{total}$ — Γ_{290}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
6.24±0.48±0.87	744	[1] DOBBS	15		$J/\psi \to \gamma\pi\pi$

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

2.0 ±0.8	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi, K\overline{K}, \eta\eta, \omega\phi)$

[1] Using CLEO-c data but not authored by the CLEO Collaboration.

$\Gamma(\gamma f_0(2100) \to \gamma K\overline{K})/\Gamma_{\text{total}}$ Γ_{289}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
32±20	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi, K\overline{K}, \eta\eta, \omega\phi)$

$\Gamma(\gamma f_0(2200))/\Gamma_{\text{total}}$ Γ_{291}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.5	[1] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^0_S K^0_S$

[1] Includes unknown branching fraction to $K^0_S K^0_S$.

$\Gamma(\gamma f_0(2200) \to \gamma\pi\pi)/\Gamma_{\text{total}}$ Γ_{294}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5±2	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi, K\overline{K}, \eta\eta, \omega\phi)$

$\Gamma(\gamma f_0(2200) \to \gamma K\overline{K})/\Gamma_{\text{total}}$ Γ_{292}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
5.86±0.49±1.20	490	[1] DOBBS	15		$J/\psi \to \gamma K\overline{K}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.5 ±0.5		SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi, K\overline{K}, \eta\eta, \omega\phi)$

[1] Using CLEO-c data but not authored by the CLEO Collaboration.

$\Gamma(\gamma f_0(2200) \to \gamma K^0_S K^0_S)/\Gamma_{\text{total}}$ Γ_{293}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
$\mathbf{2.72^{+0.08+0.17}_{-0.06-0.47}}$	ABLIKIM	18AA	BES3	$J/\psi \to \gamma K^0_S K^0_S$

$\Gamma(\gamma f_0(2200) \to \gamma\eta\eta)/\Gamma_{\text{total}}$ Γ_{295}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.7±0.4	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi, K\overline{K}, \eta\eta, \omega\phi)$

$\Gamma(\gamma f_J(2220))/\Gamma_{\text{total}}$ Γ_{296}/Γ

VALUE (units 10^{-5})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
>300			[1] BAI	96B	BES	$e^+e^- \to \gamma\overline{p}p, K\overline{K}$
>250	99.9		[2] HASAN	96	SPEC	$\overline{p}p \to \pi^+\pi^-$

$<$ 2.3	95	[3] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^+ K^-$
$<$ 1.6	95	[3] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^0_S K^0_S$
$12.4^{+6.4}_{-5.2}\pm 2.8$	23	[3] BALTRUSAIT...	86D	MRK3	$J/\psi \to \gamma K^0_S K^0_S$
$8.4^{+3.4}_{-2.8}\pm 1.6$	93	[3] BALTRUSAIT...	86D	MRK3	$J/\psi \to \gamma K^+ K^-$

[1] Using BARNES 93.
[2] Using BAI 96B.
[3] Includes unknown branching fraction to $K^+ K^-$ or $K^0_S K^0_S$.

$\Gamma(\gamma f_J(2220) \to \gamma \pi\pi)/\Gamma_{\text{total}}$ Γ_{297}/Γ

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
< 3.9	90	[1,2] DOBBS	15		$J/\psi \to \gamma \pi\pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$14 \pm 8 \pm 4$		BAI	98H	BES	$J/\psi \to \gamma \pi^0 \pi^0$
$8.4\pm 2.6\pm 3.0$		BAI	96B	BES	$e^+ e^- \to J/\psi \to \gamma \pi^+ \pi^-$

[1] Using CLEO-c data but not authored by the CLEO Collaboration.
[2] For $\Gamma = 20/50$ MeV, the 90% CL upper limits for $\pi^+\pi^-$ and $\pi^0\pi^0$ are $2.6/5.2 \times 10^{-5}$ and $1.3/1.9 \times 10^{-5}$, respectively.

$\Gamma(\gamma f_J(2220) \to \gamma K\overline{K})/\Gamma_{\text{total}}$ Γ_{298}/Γ

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
< 4.1	90	[1,2] DOBBS	15		$J/\psi \to \gamma K\overline{K}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$ 3.6		[3] DEL-AMO-SA...	10O	BABR	$e^+ e^- \to J/\psi \to \gamma K^+ K^-$
$<$ 2.9		[3] DEL-AMO-SA...	10O	BABR	$e^+ e^- \to J/\psi \to \gamma K^0_S K^0_S$
$6.6\pm 2.9\pm 2.4$		BAI	96B	BES	$e^+ e^- \to J/\psi \to \gamma K^+ K^-$
$10.8\pm 4.0\pm 3.2$		BAI	96B	BES	$e^+ e^- \to J/\psi \to \gamma K^0_S K^0_S$

[1] Using CLEO-c data but not authored by the CLEO Collaboration.
[2] For $\Gamma = 20/50$ MeV, the 90% CL upper limits for $K^+ K^-$ and $K^0_S K^0_S$ are $1.7/3.1\times 10^{-5}$ and $1.2/2.0 \times 10^{-5}$, respectively.
[3] For spin 2 and helicity 0; other combinations lead to more stringent upper limits.

$\Gamma(\gamma f_J(2220) \to \gamma p\overline{p})/\Gamma_{\text{total}}$ Γ_{299}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
1.5±0.6±0.5	BAI	96B	BES	$e^+ e^- \to J/\psi \to \gamma p\overline{p}$

$\Gamma(\gamma f_0(2330) \to \gamma K^0_S K^0_S)/\Gamma_{\text{total}}$ Γ_{300}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$\mathbf{4.95\pm 0.21^{+0.66}_{-0.72}}$	ABLIKIM	18AA	BES3	$J/\psi \to \gamma K^0_S K^0_S$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.6 ± 0.1	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma\ (\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_0(2330) \to \gamma\pi\pi)/\Gamma_{total}$ — Γ_{301}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4 ± 2	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_0(2330) \to \gamma\eta\eta)/\Gamma_{total}$ — Γ_{302}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.5 ± 0.4	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_2(2340) \to \gamma\eta\eta)/\Gamma_{total}$ — Γ_{303}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{5.60^{+0.62}_{-0.65}{}^{+2.37}_{-2.07}}$	5.5k	[1] ABLIKIM	13N	BES3	$J/\psi \to \gamma\eta\eta$

[1] From partial wave analysis including all possible combinations of 0^{++}, 2^{++}, and 4^{++} resonances.

$\Gamma(\gamma f_2(2340) \to \gamma K^0_S K^0_S)/\Gamma_{total}$ — Γ_{304}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$\mathbf{5.54^{+0.34}_{-0.40}{}^{+3.82}_{-1.49}}$	ABLIKIM	18AA	BES3	$J/\psi \to \gamma K^0_S K^0_S$

$\Gamma(\gamma X(1835) \to \gamma\pi^+\pi^-\eta')/\Gamma_{total}$ — Γ_{305}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{2.7\ ^{+0.6}_{-0.8}}$ **OUR AVERAGE** Error includes scale factor of 1.6.					
$3.93\pm0.38^{+0.31}_{-0.84}$		[1] ABLIKIM	16J	BES3	$J/\psi \to \gamma\pi^+\pi^-\eta'$
$2.2\ \pm0.4\ \pm0.4$	264	ABLIKIM	05R	BES2	$J/\psi \to \gamma\pi^+\pi^-\eta'$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$2.87\pm0.09^{+0.49}_{-0.52}$	4265	[2] ABLIKIM	11C	BES3	$J/\psi \to \gamma\pi^+\pi^-\eta'$

[1] From a fit of the measured $\pi^+\pi^-\eta'$ lineshape that accounts for the abrupt distortion observed at the $p\overline{p}$ threshold with a Flatte formula in addition to known backgrounds and contributors, as well as an *ad hoc* Breit-Wigner (M $\approx$ 1919 MeV; Γ $\approx$ 51 MeV) that is required for a good fit. Another explanation for the distortion provided by ABLIKIM 16J is that a second resonance near 1870 MeV interferes with the $X(1835)$; fits to this possibility yield product branching fraction values compatible with that shown within the respective systematic uncertainties.

[2] From a fit of the $\pi^+\pi^-\eta'$ mass distribution to a combination of $\gamma f_1(1510)$, $\gamma X(1835)$, and two states $\gamma X(2120)$ and $\gamma X(2370)$, for $M(\pi^+\pi^-\eta') < 2.8$ GeV,and accounting for backgrounds from non-η' events and $J/\psi \to \pi^0\pi^+\pi^-\eta'$.

$\Gamma(\gamma X(1835) \to \gamma p\overline{p})/\Gamma_{total}$ — Γ_{306}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.77^{+0.15}_{-0.09}}$ **OUR AVERAGE**					
$0.90^{+0.04}_{-0.11}{}^{+0.27}_{-0.55}$		[1] ABLIKIM	12D	BES3	$J/\psi \to \gamma p\overline{p}$
$1.14^{+0.43}_{-0.30}{}^{+0.42}_{-0.26}$	231	[2] ALEXANDER	10	CLEO	$J/\psi \to \gamma p\overline{p}$

$0.70 \pm 0.04 ^{+0.19}_{-0.08}$	BAI	03F	BES2	$J/\psi \to \gamma p \overline{p}$

[1] From the fit including final state interaction effects in isospin 0 S-wave according to SIBIRTSEV 05A.
[2] From a fit of the $p \overline{p}$ mass distribution to a combination of $\gamma X(1835)$, γR with $M(R)$ = 2100 MeV and $\Gamma(R)$ = 160 MeV, and $\gamma p \overline{p}$ phase space, for $M(p \overline{p}) < 2.85$ GeV.

$\Gamma(\gamma X(1835) \to \gamma K^0_S K^0_S \eta)/\Gamma_{total}$ — Γ_{307}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$3.31^{+0.33}_{-0.30}{}^{+1.96}_{-1.29}$	ABLIKIM	15T	BES3	$J/\psi \to \gamma K^0_S K^0_S \eta$

$\Gamma(\gamma X(1835) \to \gamma \gamma \phi(1020))/\Gamma_{total}$ — Γ_{308}/Γ

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.77 \pm 0.35 \pm 0.25$	305	[1] ABLIKIM	18I	BES3	$J/\psi \to \gamma \gamma \phi(1020)$
$8.09 \pm 1.99 \pm 1.36$	1.3k	[2] ABLIKIM	18I	BES3	$J/\psi \to \gamma \gamma \phi(1020)$

[1] Constructive interference between the $X(1835)$ and $\eta(1405)/\eta(1475)$ is assumed in a fit to the $\gamma \phi$ invariant mass.
[2] Destructive interference between the $X(1835)$ and $\eta(1405)/\eta(1475)$ is assumed in a fit to the $\gamma \phi$ invariant mass.

$\Gamma(\gamma X(1835) \to \gamma \gamma \gamma)/\Gamma_{total}$ — Γ_{309}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<3.56 \times 10^{-6}$	90	ABLIKIM	18O	BES3	$\psi(2S) \to \pi^+ \pi^- \gamma \gamma \gamma$

$\Gamma(\gamma X(1835) \to \gamma 3(\pi^+ \pi^-))/\Gamma_{total}$ — Γ_{310}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$2.44 \pm 0.36 ^{+0.60}_{-0.74}$	0.6k	ABLIKIM	13U	BES3	$J/\psi \to \gamma 3(\pi^+ \pi^-)$

$\Gamma(\gamma X(2370) \to \gamma K^+ K^- \eta')/\Gamma_{total}$ — Γ_{311}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$1.79 \pm 0.23 \pm 0.65$	ABLIKIM	20Q	BES3	$J/\psi \to \gamma K^+ K^- \eta'$

$\Gamma(\gamma X(2370) \to \gamma K^0_S K^0_S \eta')/\Gamma_{total}$ — Γ_{312}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$1.18 \pm 0.32 \pm 0.39$	ABLIKIM	20Q	BES3	$J/\psi \to \gamma K^0_S K^0_S \eta'$

$\Gamma(\gamma X(2370) \to \gamma \eta \eta \eta')/\Gamma_{total}$ — Γ_{313}/Γ

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
<9.2	90	ABLIKIM	21C	BES3	$J/\psi(1S) \to \gamma \eta \eta \eta'$

$\Gamma(\gamma p \overline{p})/\Gamma_{total}$ — Γ_{314}/Γ

VALUE (units 10^{-3})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$0.38 \pm 0.07 \pm 0.07$		49	EATON	84	MRK2	$e^+ e^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.11	90		PERUZZI	78	MRK1	$e^+ e^-$

$\Gamma(\gamma p\overline{p}\pi^+\pi^-)/\Gamma_{total}$ Γ_{315}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.79 × 10^{-3}	90	EATON	84	MRK2	e^+e^-

$\Gamma(\gamma\Lambda\overline{\Lambda})/\Gamma_{total}$ Γ_{316}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.13 × 10^{-3}	90	HENRARD	87	DM2	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<0.16 \times 10^{-3}$	90	BAI	98G	BES	e^+e^-

$\Gamma(\gamma A \rightarrow \gamma \text{invisible})/\Gamma_{total}$ Γ_{317}/Γ

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<1.7 × 10^{-6}	90	88M	[1] ABLIKIM	20K	BES3	$\psi(2S) \rightarrow J/\psi\pi^+\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$<6.3 \times 10^{-6}$	90	3.7M	[2] INSLER	10	CLEO	$\psi(2S) \rightarrow J/\psi\pi^+\pi^-$

[1] For a narrow state A with mass $m_A < 1.2$ GeV. The limit varies with m_A, reaching its largest value of 1.7×10^{-6} at 1.2 GeV and being 7.0×10^{-7} for $m_A = 0$.

[2] The limit varies with mass m_A of a narrow state A and is 4.3×10^{-6} for $m_A = 0$,reaches its largest value of 6.3×10^{-6} at $m_A = 500$ MeV, and is 3.6×10^{-6} at $m_A = 960$ MeV.

$\Gamma(\gamma A^0 \rightarrow \gamma\mu^+\mu^-)/\Gamma_{total}$ Γ_{318}/Γ
(narrow state A^0 with 0.2 GeV $< m_{A^0} < 3$ GeV)

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.5 × 10^{-5}	90	[1] ABLIKIM	16E	BES3	$J/\psi \rightarrow \gamma\mu^+\mu^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2.1 \times 10^{-5}$	90	[2] ABLIKIM	12	BES3	$J/\psi \rightarrow \gamma\mu^+\mu^-$

[1] For a narrow scalar or pseudoscalar, A^0, with a mass in the range 0.212–3 GeV. The measured 90% CL limit as a function of m_{A^0} is in the range $(2.8–495.3) \times 10^{-8}$.

[2] For a narrow scalar or pseudoscalar, A^0, with a mass in the range 0.21–3.00 GeV. The measured 90% CL limit as a function of m_{A^0} ranges from 4×10^{-7} to 2.1×10^{-5}.

DALITZ DECAYS

$\Gamma(\pi^0 e^+e^-)/\Gamma_{total}$ Γ_{319}/Γ

VALUE (units 10^{-7})	EVTS	DOCUMENT ID		TECN	COMMENT
7.56±1.32±0.50	39	ABLIKIM	14I	BES3	$J/\psi \rightarrow \pi^0 e^+e^-$

$\Gamma(\eta e^+e^-)/\Gamma_{total}$ Γ_{320}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
1.42±0.04±0.07	2.47k	[1,2] ABLIKIM	19A	BES3	$J/\psi \rightarrow \eta e^+e^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.16±0.07±0.06	320	[1] ABLIKIM	14I	BES3	$J/\psi \rightarrow \eta e^+e^-$

[1] Using both $\eta \rightarrow \gamma\gamma$ and $\eta \rightarrow \pi^+\pi^-\pi^0$ decays.

[2] Approximation of the transition form factor squared as an incoherent sum of the ρ-meson and one-pole non-resonant amplitudes gives the pole mass m(Λ) = 2.56 ± 0.04 ± 0.03 GeV. Supersedes ABLIKIM 14I.

$\Gamma(\eta'(958) e^+ e^-)/\Gamma_{total}$ — Γ_{321}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
6.59±0.07±0.17	8.9k	[1] ABLIKIM	19H	BES3	$J/\psi \to \eta'(958) e^+ e^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
5.81±0.16±0.31	1.4k	[1,2] ABLIKIM	14I	BES3	$J/\psi \to \eta'(958) e^+ e^-$

[1] Using both $\eta' \to \gamma \pi^+ \pi^-$ and $\eta' \to \pi^+ \pi^- \eta$ decays.
[2] Superseded by ABLIKIM 19H.

$\Gamma(\eta U \to \eta e^+ e^-)/\Gamma_{total}$ — Γ_{322}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<9.11 \times 10^{-7}$	90	[1] ABLIKIM	19A	BES3	$J/\psi \to \eta e^+ e^-$

[1] For a dark photon U with mass between 10 and 2400 MeV. Obtained 90% C.L. limits as a function of m_U range from 1.9×10^{-8} to 91.1×10^{-8}.

$\Gamma(\eta'(958) U \to \eta'(958) e^+ e^-)/\Gamma_{total}$ — Γ_{323}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.0 \times 10^{-7}$	90	[1] ABLIKIM	19H	BES3	$J/\psi \to \eta'(958) e^+ e^-$

[1] For a dark photon U with mass between 100 and 2100 MeV. Obtained 90% C.L. limits as a function of m_U range from 1.8×10^{-8} to 2.0×10^{-7}. The corresponding limits on the branching fraction $J/\psi \to \eta' U$ range from 5.7×10^{-8} to 7.4×10^{-7}.

$\Gamma(\phi e^+ e^-)/\Gamma_{total}$ — Γ_{324}/Γ

VALUE (units 10^{-7})	CL%	DOCUMENT ID		TECN	COMMENT
<1.2	90	[1] ABLIKIM	19AB	BES3	$J/\psi \to \phi e^+ e^-$

[1] Using B($\phi \to K^+ K^-$) = (48.9 ± 0.5)% and B($\psi(2S) \to \pi^+ \pi^- J/\psi$) = (34.49 ± 0.30)%.

WEAK DECAYS

$\Gamma(D^- e^+ \nu_e + \text{c.c.})/\Gamma_{total}$ — Γ_{325}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<7.1 \times 10^{-8}$	90	ABLIKIM	21Q	BES3	$e^+ e^- \to J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.2 \times 10^{-5}$	90	ABLIKIM	06M	BES2	$e^+ e^- \to J/\psi$

$\Gamma(\overline{D}^0 e^+ e^- + \text{c.c.})/\Gamma_{total}$ — Γ_{326}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<8.5 \times 10^{-8}$	90	[1] ABLIKIM	17AF	BES3	$e^+ e^- \to J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.1 \times 10^{-5}$	90	ABLIKIM	06M	BES2	$e^+ e^- \to J/\psi$

[1] Using D^0 decays to $K^- \pi^+$, $K^- \pi^+ \pi^0$, and $K^- \pi^+ \pi^+ \pi^-$.

$\Gamma(D_s^- e^+ \nu_e + \text{c.c.})/\Gamma_{total}$ — Γ_{327}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.3 \times 10^{-6}$	90	ABLIKIM	14R	BES3	$e^+ e^- \to J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<3.6 \times 10^{-5}$	90	[1] ABLIKIM	06M	BES2	$e^+ e^- \to J/\psi$

[1] Using B($D_s^- \to \phi \pi^-$) = 4.4 ± 0.5 %.

$\Gamma(D_s^{*-} e^+ \nu_e + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{328}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.8 × 10^{-6}	90	ABLIKIM	14R	BES3	$e^+ e^- \to J/\psi$

$\Gamma(D^- \pi^+ + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{329}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<7.5 × 10^{-5}	90	ABLIKIM	08J	BES2	$e^+ e^- \to J/\psi$

$\Gamma(\overline{D}^0 \overline{K}^0 + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{330}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.7 × 10^{-4}	90	ABLIKIM	08J	BES2	$e^+ e^- \to J/\psi$

$\Gamma(\overline{D}^0 \overline{K}^{*0} + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{331}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.5 × 10^{-6}	90	ABLIKIM	14K	BES3	$e^+ e^- \to J/\psi$

$\Gamma(D_s^- \pi^+ + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{332}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.3 × 10^{-4}	90	ABLIKIM	08J	BES2	$e^+ e^- \to J/\psi$

$\Gamma(D_s^- \rho^+ + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{333}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.3 × 10^{-5}	90	ABLIKIM	14K	BES3	$e^+ e^- \to J/\psi$

CHARGE CONJUGATION (*C*), PARITY (*P*), LEPTON FAMILY NUMBER (*LF*) VIOLATING MODES

$\Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ — Γ_{334}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
< 2.7 × 10^{-7}	90	ABLIKIM	14Q	BES3	$\psi(2S) \to \pi^+ \pi^- J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$< 0.5 \times 10^{-5}$	90	ADAMS	08	CLEO	$\psi(2S) \to \pi^+ \pi^- J/\psi$
$< 1.6 \times 10^{-4}$	90	[1] WICHT	08	BELL	$B^\pm \to K^\pm \gamma\gamma$
$< 2.2 \times 10^{-5}$	90	ABLIKIM	07J	BES2	$\psi(2S) \to J/\psi \pi^+ \pi^-$
$< 50 \times 10^{-5}$	90	BARTEL	77	CNTR	$e^+ e^-$

[1] WICHT 08 reports $[\Gamma(J/\psi(1S) \to \gamma\gamma)/\Gamma_{\text{total}}] \times [B(B^+ \to J/\psi(1S) K^+)] < 0.16 \times 10^{-6}$ which we divide by our best value $B(B^+ \to J/\psi(1S) K^+) = 1.020 \times 10^{-3}$.

$\Gamma(\gamma\phi)/\Gamma_{\text{total}}$ — Γ_{335}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.4 × 10^{-6}	90	ABLIKIM	14Q	BES3	$\psi(2S) \to \pi^+ \pi^- J/\psi$

$\Gamma(e^\pm \mu^\mp)/\Gamma_{\text{total}}$ — Γ_{336}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.6 × 10^{-7}	90	ABLIKIM	13L	BES3	$e^+ e^- \to J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.1 \times 10^{-6}$	90	BAI	03D	BES	$e^+ e^- \to J/\psi$

$\Gamma(e^{\pm}\tau^{\mp})/\Gamma_{total}$ Γ_{337}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<7.5 \times 10^{-8}$	90	ABLIKIM	21M	BES3	$e^+e^- \to J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<8.3 \times 10^{-6}$	90	[1] ABLIKIM	04	BES	$e^+e^- \to J/\psi$

[1] Superseded by ABLIKIM 21M.

$\Gamma(\mu^{\pm}\tau^{\mp})/\Gamma_{total}$ Γ_{338}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.0 \times 10^{-6}$	90	ABLIKIM	04	BES	$e^+e^- \to J/\psi$

$\Gamma(\Lambda_c^+ e^- + \text{c.c.})/\Gamma_{total}$ Γ_{339}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6.9 \times 10^{-8}$	90	ABLIKIM	19AF	BES3	$e^+e^- \to J/\psi \to p K^- \pi^+ e^-$ (+ c.c.)

OTHER DECAYS

$\Gamma(\text{invisible})/\Gamma(e^+e^-)$ Γ_{340}/Γ_5

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6.6 \times 10^{-2}$	90	LEES	13I	BABR	$B \to K^{(*)} J/\psi$

$\Gamma(\text{invisible})/\Gamma(\mu^+\mu^-)$ Γ_{340}/Γ_7

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.2 \times 10^{-2}$	90	ABLIKIM	08G	BES2	$\psi(2S) \to \pi^+\pi^- J/\psi$

$J/\psi(1S)$ REFERENCES

ABLIKIM	21AM	PR D104 092004	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	21AT	JHEP 2111 226	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	21C	PR D103 012009	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	21M	PR D103 112007	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	21Q	JHEP 2106 157	M. Ablikim *et al.*	(BESIII Collab.)
LEES	21	PR D103 092001	J.P. Lees *et al.*	(BABAR Collab.)
LEES	21B	PR D104 112003	J.P. Lees *et al.*	(BABAR Collab.)
LEES	21C	PR D104 112004	J.P. Lees *et al.*	(BABAR Collab.)
SARANTSEV	21	PL B816 136227	A.V. Sarantsev *et al.*	(BONN, PNPI)
ABLIKIM	20	PR D101 012004	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	20K	PR D101 112005	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	20Q	EPJ C80 746	M. Ablikim *et al.*	(BESIII Collab.)
ANASHIN	20	JHEP 2007 112	V. V. Anashin *et al.*	(KEDR Collab.)
ABLIKIM	19A	PR D99 012006	M. Ablikim *et al.*	(BESIII Collab.)
Also		PR D104 099901 (errat.)	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	19AB	PR D99 052010	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	19AC	PR D99 071101	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	19AF	PR D99 072006	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	19AN	PR D99 112008	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	19AQ	PR D100 032004	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	19H	PR D99 012013	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	19N	PR D99 032006	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	19Q	PL B791 375	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	19T	PRL 122 142002	M. Ablikim *et al.*	(BESIII Collab.)
LU	19	PR D99 032003	P.-C. Lu *et al.*	(BELLE Collab.)
ABLIKIM	18AA	PR D98 072003	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	18AB	PR D98 072005	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	18D	PRL 121 022001	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	18I	PR D97 051101	M. Ablikim *et al.*	(BESIII Collab.)

ABLIKIM	18O	PR D97 072014	M. Ablikim *et al.*	(BESIII Collab.)
ANASHIN	18A	JHEP 1805 119	V.V. Anashin *et al.*	(KEDR Collab.)
LEES	18	PR D97 052007	J.P. Lees *et al.*	(BABAR Collab.)
LEES	18E	PR D98 112015	J.P. Lees *et al.*	(BABAR Collab.)
ABLIKIM	17AF	PR D96 111101	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	17AH	PR D96 112001	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	17AK	PR D96 112012	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	17E	PL B770 217	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	17L	PR D95 052003	M. Ablikim *et al.*	(BESIII Collab.)
LEES	17A	PR D95 052001	J.P. Lees *et al.*	(BABAR Collab.)
LEES	17C	PR D95 072007	J.P. Lees *et al.*	(BABAR Collab.)
LEES	17D	PR D95 092005	J.P. Lees *et al.*	(BABAR Collab.)
ABLIKIM	16E	PR D93 052005	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	16J	PRL 117 042002	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	16K	PR D93 052010	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	16L	PR D93 072003	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	16M	PR D93 072008	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	16N	PR D93 112011	M. Ablikim	(BESIII Collab.)
ABLIKIM	16P	PR D94 072005	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	16Q	PL B761 98	M. Ablikim *et al.*	(BESIII Collab.)
PDG	16	CP C40 100001	C. Patrignani *et al.*	(PDG Collab.)
AAIJ	15BI	EPJ C75 311	R. Aaij *et al.*	(LHCb Collab.)
ABLIKIM	15AE	PR D92 052003	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	15H	PR D91 052017	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	15K	PR D91 112001	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	15P	PR D92 012007	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	15T	PRL 115 091803	M. Ablikim *et al.*	(BESIII Collab.)
ANASHIN	15	PL B749 50	V.V. Anashin *et al.*	(KEDR Collab.)
DOBBS	15	PR D91 052006	S. Dobbs *et al.*	(NWES)
LEES	15J	PR D92 072008	J.P. Lees *et al.*	(BABAR Collab.)
ABLIKIM	14I	PR D89 092008	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	14K	PR D89 071101	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	14N	PR D90 052009	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	14Q	PR D90 092002	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	14R	PR D90 112014	M. Ablikim *et al.*	(BESIII Collab.)
ANASHIN	14	PL B738 391	V.V. Anashin *et al.*	(KEDR Collab.)
AULCHENKO	14	PL B731 227	V.M. Aulchenko *et al.*	(KEDR Collab.)
LEES	14H	PR D89 092002	J.P. Lees *et al.*	(BABAR Collab.)
ABLIKIM	13F	PR D87 052007	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	13I	PR D87 032003	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	13J	PR D87 032008	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	13L	PR D87 112007	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	13N	PR D87 092009	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	13P	PR D87 112004	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	13R	PR D88 032007	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	13U	PR D88 091502	M. Ablikim *et al.*	(BESIII Collab.)
LEES	13I	PR D87 112005	J.P. Lees *et al.*	(BABAR Collab.)
LEES	13O	PR D87 092005	J.P. Lees *et al.*	(BABAR Collab.)
LEES	13Q	PR D88 032013	J.P. Lees *et al.*	(BABAR Collab.)
LEES	13Y	PR D88 072009	J.P. Lees *et al.*	(BABAR Collab.)
ABLIKIM	12	PR D85 092012	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	12B	PR D86 032008	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	12C	PR D86 032014	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	12D	PRL 108 112003	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	12H	PL B710 594	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	12P	CP C36 1031	M. Ablikim *et al.*	(BES II Collab.)
LEES	12E	PR D85 112009	J.P. Lees *et al.*	(BABAR Collab.)
LEES	12F	PR D86 012008	J.P. Lees *et al.*	(BABAR Collab.)
METREVELI	12	PR D85 092007	Z. Metreveli *et al.*	(NWES, FLOR, WAYN+)
ABLIKIM	11	PR D83 012003	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	11C	PRL 106 072002	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	11D	PR D83 032003	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	10C	PL B685 27	M. Ablikim *et al.*	(BES II Collab.)
ABLIKIM	10E	PL B693 88	M. Ablikim *et al.*	(BES II Collab.)
ALEXANDER	10	PR D82 092002	J.P. Alexander *et al.*	(CLEO Collab.)
ANASHIN	10	PL B685 134	V.V. Anashin *et al.*	(KEDR Collab.)
DEL-AMO-SA...	10O	PRL 105 172001	P. del Amo Sanchez *et al.*	(BABAR Collab.)
INSLER	10	PR D81 091101	J. Insler *et al.*	(CLEO Collab.)
ABLIKIM	09	PL B676 25	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	09B	PR D80 052004	M. Ablikim *et al.*	(BES II Collab.)
MITCHELL	09	PRL 102 011801	R.E. Mitchell *et al.*	(CLEO Collab.)

PEDLAR	09	PR D79 111101	T.K. Pedlar *et al.*	(CLEO Collab.)
SHEN	09	PR D80 031101	C.P. Shen *et al.*	(BELLE Collab.)
ABLIKIM	08	EPJ C53 15	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08A	PR D77 012001	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08C	PL B659 789	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08E	PR D77 032005	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08F	PRL 100 102003	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08G	PRL 100 192001	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08I	PL B662 330	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08J	PL B663 297	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08O	PR D78 092005	M. Ablikim *et al.*	(BES Collab.)
ADAMS	08	PRL 101 101801	G.S. Adams *et al.*	(CLEO Collab.)
AUBERT	08S	PR D77 092002	B. Aubert *et al.*	(BABAR Collab.)
BESSON	08	PR D78 032012	D. Besson *et al.*	(CLEO Collab.)
PDG	08	PL B667 1	C. Amsler *et al.*	(PDG Collab.)
WICHT	08	PL B662 323	J. Wicht *et al.*	(BELLE Collab.)
ABLIKIM	07H	PR D76 092003	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	07J	PR D76 117101	M. Ablikim *et al.*	(BES Collab.)
ANDREOTTI	07	PL B654 74	M. Andreotti *et al.*	(Femilab E835 Collab.)
AUBERT	07AK	PR D76 012008	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AU	PR D76 092005	B. Aubert *et al.*	(BABAR Collab.)
Also		PR D77 119902E (errat.)	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07BD	PR D76 092006	B. Aubert *et al.*	(BABAR Collab.)
ABLIKIM	06	PL B632 181	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06C	PL B633 681	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06E	PR D73 052008	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06F	PR D73 052007	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06H	PR D73 112007	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06J	PRL 96 162002	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06K	PRL 97 062001	M. Ablikim *et al.*	(BES II Collab.)
ABLIKIM	06M	PL B639 418	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06V	PL B642 441	M. Ablikim *et al.*	(BES Collab.)
ADAMS	06A	PR D73 051103	G.S. Adams *et al.*	(CLEO Collab.)
AUBERT	06	PR D73 011101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06B	PR D73 012005	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06D	PR D73 052003	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06E	PRL 96 052002	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	06D	PR D74 091103	B. Aubert *et al.*	(BABAR Collab.)
WU	06	PRL 97 162003	C.-H. Wu *et al.*	(BELLE Collab.)
ABLIKIM	05	PL B607 243	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05B	PR D71 032003	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05C	PL B610 192	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05H	PR D72 012002	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05R	PRL 95 262001	M. Ablikim *et al.*	(BES Collab.)
AUBERT	05D	PR D71 052001	B. Aubert *et al.*	(BABAR Collab.)
LI	05C	PR D71 111103	Z. Li *et al.*	(CLEO Collab.)
SIBIRTSEV	05A	PR D71 054010	A. Sibirtsev, J. Haidenbauer	
ABLIKIM	04	PL B598 172	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	04M	PR D70 112008	M. Ablikim *et al.*	(BES Collab.)
AUBERT	04	PR D69 011103	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04N	PR D70 072004	B. Aubert *et al.*	(BABAR Collab.)
BAI	04	PL B578 16	J.Z. Bai *et al.*	(BES Collab.)
BAI	04A	PR D69 012003	J.Z. Bai *et al.*	(BES Collab.)
BAI	04D	PL B589 7	J.Z. Bai *et al.*	(BES Collab.)
BAI	04E	PL B591 42	J.Z. Bai *et al.*	(BES Collab.)
BAI	04G	PR D70 012004	J.Z. Bai *et al.*	(BES Collab.)
BAI	04H	PR D70 012005	J.Z. Bai *et al.*	(BES Collab.)
BAI	04J	PL B594 47	J.Z. Bai *et al.*	(BES Collab.)
SETH	04	PR D69 097503	K.K. Seth	
AULCHENKO	03	PL B573 63	V.M. Aulchenko *et al.*	(KEDR Collab.)
BAI	03D	PL B561 49	J.Z. Bai *et al.*	(BES Collab.)
BAI	03F	PRL 91 022001	J.Z. Bai *et al.*	(BES II Collab.)
BAI	03G	PR D68 052003	J.Z. Bai *et al.*	(BES Collab.)
HUANG	03	PRL 91 241802	H.-C. Huang *et al.*	(BELLE Collab.)
BAI	02C	PRL 88 101802	J.Z. Bai *et al.*	(BES Collab.)
ARTAMONOV	00	PL B474 427	A.S. Artamonov *et al.*	
BAI	00	PRL 84 594	J.Z. Bai *et al.*	(BES Collab.)
BAI	00B	PL B472 200	J.Z. Bai *et al.*	(BES Collab.)
BAI	00D	PL B476 25	J.Z. Bai *et al.*	(BES Collab.)
BAI	99	PL B446 356	J.Z. Bai *et al.*	(BES Collab.)
BAI	99C	PRL 83 1918	J.Z. Bai *et al.*	(BES Collab.)

BAI	98D	PR D58 092006	J.Z. Bai *et al.*	(BES Collab.)
BAI	98G	PL B424 213	J.Z. Bai *et al.*	(BES Collab.)
BAI	98H	PRL 81 1179	J.Z. Bai *et al.*	(BES Collab.)
BALDINI	98	PL B444 111	R. Baldini *et al.*	(FENICE Collab.)
ARMSTRONG	96	PR D54 7067	T.A. Armstrong *et al.*	(E760 Collab.)
BAI	96B	PRL 76 3502	J.Z. Bai *et al.*	(BES Collab.)
BAI	96C	PRL 77 3959	J.Z. Bai *et al.*	(BES Collab.)
BAI	96D	PR D54 1221	J.Z. Bai *et al.*	(BES Collab.)
GRIBUSHIN	96	PR D53 4723	A. Gribushin *et al.*	(E672 and E706 Collab.)
HASAN	96	PL B388 376	A. Hasan, D.V. Bugg	(BRUN, LOQM)
BAI	95B	PL B355 374	J.Z. Bai *et al.*	(BES Collab.)
BUGG	95	PL B353 378	D.V. Bugg *et al.*	(LOQM, PNPI, WASH)
ANTONELLI	93	PL B301 317	A. Antonelli *et al.*	(FENICE Collab.)
ARMSTRONG	93B	PR D47 772	T.A. Armstrong *et al.*	(FNAL E760 Collab.)
BARNES	93	PL B309 469	P.D. Barnes *et al.*	(PS185 Collab.)
AUGUSTIN	92	PR D46 1951	J.E. Augustin, G. Cosme	(DM2 Collab.)
BOLTON	92	PL B278 495	T. Bolton *et al.*	(Mark III Collab.)
BOLTON	92B	PRL 69 1328	T. Bolton *et al.*	(Mark III Collab.)
COFFMAN	92	PRL 68 282	D.M. Coffman *et al.*	(Mark III Collab.)
HSUEH	92	PR D45 2181	S. Hsueh, S. Palestini	(FNAL, TORI)
BISELLO	91	NP B350 1	D. Bisello *et al.*	(DM2 Collab.)
AUGUSTIN	90	PR D42 10	J.E. Augustin *et al.*	(DM2 Collab.)
BAI	90B	PRL 65 1309	Z. Bai *et al.*	(Mark III Collab.)
BAI	90C	PRL 65 2507	Z. Bai *et al.*	(Mark III Collab.)
BISELLO	90	PL B241 617	D. Bisello *et al.*	(DM2 Collab.)
COFFMAN	90	PR D41 1410	D.M. Coffman *et al.*	(Mark III Collab.)
JOUSSET	90	PR D41 1389	J. Jousset *et al.*	(DM2 Collab.)
ALEXANDER	89	NP B320 45	J.P. Alexander *et al.*	(LBL, MICH, SLAC)
AUGUSTIN	89	NP B320 1	J.E. Augustin, G. Cosme	(DM2 Collab.)
BISELLO	89B	PR D39 701	G. Busetto *et al.*	(DM2 Collab.)
AUGUSTIN	88	PRL 60 2238	J.E. Augustin *et al.*	(DM2 Collab.)
COFFMAN	88	PR D38 2695	D.M. Coffman *et al.*	(Mark III Collab.)
FALVARD	88	PR D38 2706	A. Falvard *et al.*	(CLER, FRAS, LALO+)
AUGUSTIN	87	ZPHY C36 369	J.E. Augustin *et al.*	(LALO, CLER, FRAS+)
BAGLIN	87	NP B286 592	C. Baglin *et al.*	(LAPP, CERN, GENO, LYON+)
BALTRUSAIT...	87	PR D35 2077	R.M. Baltrusaitis *et al.*	(Mark III Collab.)
BECKER	87	PRL 59 186	J.J. Becker *et al.*	(Mark III Collab.)
BISELLO	87	PL B192 239	D. Bisello *et al.*	(PADO, CLER, FRAS+)
COHEN	87	RMP 59 1121	E.R. Cohen, B.N. Taylor	(RISC, NBS)
HENRARD	87	NP B292 670	P. Henrard *et al.*	(CLER, FRAS, LALO+)
PALLIN	87	NP B292 653	D. Pallin *et al.*	(CLER, FRAS, LALO, PADO)
BALTRUSAIT...	86	PR D33 629	R.M. Baltrusaitis *et al.*	(Mark III Collab.)
BALTRUSAIT...	86B	PR D33 1222	R.M. Baltrusaitis *et al.*	(Mark III Collab.)
BALTRUSAIT...	86D	PRL 56 107	R.M. Baltrusaitis	(CIT, UCSC, ILL, SLAC+)
BISELLO	86B	PL B179 294	D. Bisello *et al.*	(DM2 Collab.)
GAISER	86	PR D34 711	J. Gaiser *et al.*	(Crystal Ball Collab.)
BALTRUSAIT...	85C	PRL 55 1723	R.M. Baltrusaitis *et al.*	(CIT, UCSC+)
BALTRUSAIT...	85D	PR D32 566	R.M. Baltrusaitis *et al.*	(CIT, UCSC+)
KURAEV	85	SJNP 41 466	E.A. Kuraev, V.S. Fadin	(NOVO)
		Translated from YAF 41 733.		
BALTRUSAIT...	84	PRL 52 2126	R.M. Baltrusaitis *et al.*	(CIT, UCSC+)
EATON	84	PR D29 804	M.W. Eaton *et al.*	(LBL, SLAC)
BLOOM	83	ARNS 33 143	E.D. Bloom, C. Peck	(SLAC, CIT)
EDWARDS	83B	PRL 51 859	C. Edwards *et al.*	(CIT, HARV, PRIN+)
FRANKLIN	83	PRL 51 963	M.E.B. Franklin *et al.*	(LBL, SLAC)
BURKE	82	PRL 49 632	D.L. Burke *et al.*	(LBL, SLAC)
EDWARDS	82B	PR D25 3065	C. Edwards *et al.*	(CIT, HARV, PRIN+)
EDWARDS	82D	PRL 48 458	C. Edwards *et al.*	(CIT, HARV, PRIN+)
Also		ARNS 33 143	E.D. Bloom, C. Peck	(SLAC, CIT)
EDWARDS	82E	PRL 49 259	C. Edwards *et al.*	(CIT, HARV, PRIN+)
LEMOIGNE	82	PL 113B 509	Y. Lemoigne *et al.*	(SACL, LOIC, SHMP+)
BESCH	81	ZPHY C8 1	H.J. Besch *et al.*	(BONN, DESY, MAINZ)
GIDAL	81	PL 107B 153	G. Gidal *et al.*	(SLAC, LBL)
PARTRIDGE	80	PRL 44 712	R. Partridge *et al.*	(CIT, HARV, PRIN+)
SCHARRE	80	PL 97B 329	D.L. Scharre *et al.*	(SLAC, LBL)
ZHOLENTZ	80	PL 96B 214	A.A. Zholents *et al.*	(NOVO)
Also		SJNP 34 814	A.A. Zholents *et al.*	(NOVO)
		Translated from YAF 34 1471.		

BRANDELIK	79C	ZPHY C1 233	R. Brandelik *et al.*	(DASP Collab.)
ALEXANDER	78	PL 72B 493	G. Alexander *et al.*	(DESY, HAMB, SIEG+)
BESCH	78	PL 78B 347	H.J. Besch *et al.*	(BONN, DESY, MAINZ)
BRANDELIK	78B	PL 74B 292	R. Brandelik *et al.*	(DASP Collab.)
PERUZZI	78	PR D17 2901	I. Peruzzi *et al.*	(SLAC, LBL)
BARTEL	77	PL 66B 489	W. Bartel *et al.*	(DESY, HEIDP)
BURMESTER	77D	PL 72B 135	J. Burmester *et al.*	(DESY, HAMB, SIEG+)
FELDMAN	77	PRPL 33C 285	G.J. Feldman, M.L. Perl	(LBL, SLAC)
VANNUCCI	77	PR D15 1814	F. Vannucci *et al.*	(SLAC, LBL)
BARTEL	76	PL 64B 483	W. Bartel *et al.*	(DESY, HEIDP)
BRAUNSCH...	76	PL 63B 487	W. Braunschweig *et al.*	(DASP Collab.)
JEAN-MARIE	76	PRL 36 291	B. Jean-Marie *et al.*	(SLAC, LBL) IG
BALDINI-...	75	PL 58B 471	R. Baldini-Celio *et al.*	(FRAS, ROMA)
BOYARSKI	75	PRL 34 1357	A.M. Boyarski *et al.*	(SLAC, LBL) JPC
DASP	75	PL 56B 491	W. Braunschweig *et al.*	(DASP Collab.)
ESPOSITO	75B	LNC 14 73	B. Esposito *et al.*	(FRAS, NAPL, PADO+)
FORD	75	PRL 34 604	R.L. Ford *et al.*	(SLAC, PENN)