$J/\psi(1S)$

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

$J/\psi(1S)$ 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[5] Superseded by ARTAMONOV 00.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 $\Gamma(e^+e^-)/\Gamma_{total} = (5.94 \pm 0.06)\%$.

$J/\psi(1S)$ 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		$(13.46 \pm 0.07)\%$	
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	$\mu^+\mu^-$		$(5.961 \pm 0.033)\%$	
Γ_8	$e^+e^-e^+e^-$		$(5.5 \pm 0.5) \times 10^{-5}$	
Γ_9	$e^+e^-\mu^+\mu^-$		$(3.53 \pm 0.26) \times 10^{-5}$	
Γ_{10}	$\mu^+\mu^-\mu^+\mu^-$		$(1.11 \pm 0.11) \times 10^{-6}$	

Decays involving hadronic resonances

	Mode		Fraction (Γ_i/Γ)	Scale factor/ Confidence level
Γ_{11}	$\rho\pi$		$(1.88 \pm 0.12)\%$	S=2.6
Γ_{12}	$\rho^0\pi^0$		$(6.2 \pm 0.6) \times 10^{-3}$	
Γ_{13}	$a_2(1320)^0\pi^+\pi^- \to 2(\pi^+\pi^-)\pi^0$		$(2.8 \pm 0.6) \times 10^{-3}$	
Γ_{14}	$a_2(1320)^+\pi^-\pi^0 +$ c.c $\to 2(\pi^+\pi^-)\pi^0$		$(3.7 \pm 0.7) \times 10^{-3}$	
Γ_{15}	$a_2(1320)\rho$		$(1.09 \pm 0.22)\%$	
Γ_{16}	$\eta\pi^+\pi^-$		$(3.8 \pm 0.7) \times 10^{-4}$	
Γ_{17}	$\eta\rho$		$(1.93 \pm 0.23) \times 10^{-4}$	
Γ_{18}	$\eta\pi^+\pi^-\pi^0$		$(1.17 \pm 0.20)\%$	
Γ_{19}	$\eta\pi^+\pi^-3\pi^0$		$(4.9 \pm 1.0) \times 10^{-3}$	
Γ_{20}	$\eta\phi(2170) \to \eta\phi f_0(980) \to \eta\phi\pi^+\pi^-$		$(1.2 \pm 0.4) \times 10^{-4}$	
Γ_{21}	$\eta\phi(2170) \to \eta K^*(892)^0\overline{K}^*(892)^0$		$< 2.52 \times 10^{-4}$	CL=90%
Γ_{22}	ηK^+K^-		$(8.6 \pm 3.0) \times 10^{-4}$	
Γ_{23}	$\eta K^\pm K^0_S\pi^\mp$	[b]	$(2.2 \pm 0.4) \times 10^{-3}$	
Γ_{24}	$\eta K^*(892)^0\overline{K}^*(892)^0$		$(1.15 \pm 0.26) \times 10^{-3}$	
Γ_{25}	$\rho\eta'(958)$		$(8.1 \pm 0.8) \times 10^{-5}$	S=1.6
Γ_{26}	$\rho^\pm\pi^\mp\pi^+\pi^-2\pi^0$		$(2.8 \pm 0.8)\%$	

Γ_{27}	$\rho^+\rho^-\pi^+\pi^-\pi^0$		$(6 \pm 4) \times 10^{-3}$	
Γ_{28}	$\rho^+K^+K^-\pi^- +$ c.c $\rightarrow$ $K^+K^-\pi^+\pi^-\pi^0$		$(3.5 \pm 0.8) \times 10^{-3}$	
Γ_{29}	$\rho^\mp K^\pm K^0_S$		$(1.9 \pm 0.4) \times 10^{-3}$	
Γ_{30}	$h_1(1415)\eta' \rightarrow \gamma\eta\eta'$			
Γ_{31}	$h_1(1595)\eta' \rightarrow \gamma\eta\eta'$			
Γ_{32}	$\rho(1450)\pi$		seen	
Γ_{33}	$\rho(1450)\pi \rightarrow \pi^+\pi^-\pi^0$		$(2.2 \pm 1.1) \times 10^{-4}$	
Γ_{34}	$\rho(1450)^\pm\pi^\mp \rightarrow K^0_S K^\pm\pi^\mp$		$(3.3 \pm 0.6) \times 10^{-4}$	
Γ_{35}	$\rho(1450)^0\pi^0 \rightarrow K^+K^-\pi^0$		$(2.7 \pm 0.6) \times 10^{-4}$	
Γ_{36}	$\rho(1450)\eta'(958) \rightarrow$ $\pi^+\pi^-\eta'(958)$		$(3.3 \pm 0.7) \times 10^{-6}$	
Γ_{37}	$\rho(1700)\pi$		seen	
Γ_{38}	$\rho(1700)\pi \rightarrow \pi^+\pi^-\pi^0$		$(1.6 \pm 1.1) \times 10^{-4}$	
Γ_{39}	$\rho(2150)\pi$		seen	
Γ_{40}	$\rho(2150)\pi \rightarrow \pi^+\pi^-\pi^0$		$(10 \pm 40) \times 10^{-6}$	
Γ_{41}	$\rho_3(1690)\pi \rightarrow \pi^+\pi^-\pi^0$			
Γ_{42}	$\omega\pi^0$		$(4.5 \pm 0.5) \times 10^{-4}$	S=1.4
Γ_{43}	$\omega\pi^0 \rightarrow \pi^+\pi^-\pi^0$		$(1.6 \pm 0.7) \times 10^{-5}$	
Γ_{44}	$\omega\pi^+\pi^-$		$(8.5 \pm 1.0) \times 10^{-3}$	S=1.3
Γ_{45}	$\omega\pi^0\pi^0$		$(3.4 \pm 0.8) \times 10^{-3}$	
Γ_{46}	$\omega 3\pi^0$		$(1.9 \pm 0.6) \times 10^{-3}$	
Γ_{47}	$\omega f_2(1270)$		$(4.3 \pm 0.6) \times 10^{-3}$	
Γ_{48}	$\omega\eta$		$(1.74 \pm 0.20) \times 10^{-3}$	S=1.6
Γ_{49}	$\omega\pi^+\pi^-\pi^0$		$(4.0 \pm 0.7) \times 10^{-3}$	
Γ_{50}	$\omega\pi^0\eta$		$(3.4 \pm 1.7) \times 10^{-4}$	
Γ_{51}	$\omega\pi^+\pi^+\pi^-\pi^-$		$(8.5 \pm 3.4) \times 10^{-3}$	
Γ_{52}	$\omega\pi^+\pi^- 2\pi^0$		(3.3 ± 0.5) %	
Γ_{53}	$\omega\eta'\pi^+\pi^-$		$(1.12 \pm 0.13) \times 10^{-3}$	
Γ_{54}	$\omega\eta'(958)$		$(1.89 \pm 0.18) \times 10^{-4}$	
Γ_{55}	$\omega f_0(980)$		$(1.4 \pm 0.5) \times 10^{-4}$	
Γ_{56}	$\omega f_0(1710) \rightarrow \omega K\overline{K}$		$(4.8 \pm 1.1) \times 10^{-4}$	
Γ_{57}	$\omega f_1(1420)$		$(6.8 \pm 2.4) \times 10^{-4}$	
Γ_{58}	$\omega f'_2(1525)$		$< 2.2 \times 10^{-4}$	CL=90%
Γ_{59}	$\omega X(1835) \rightarrow \omega p\overline{p}$		$< 3.9 \times 10^{-6}$	CL=95%
Γ_{60}	$\omega K^+K^-\eta$		$(3.33 \pm 0.12) \times 10^{-4}$	
Γ_{61}	$\omega X(1835)$, $X \rightarrow \eta'\pi^+\pi^-$		$< 6.2 \times 10^{-5}$	
Γ_{62}	ωK^+K^-		$(1.52 \pm 0.31) \times 10^{-3}$	
Γ_{63}	$\omega K^\pm K^0_S\pi^\mp$	[b]	$(3.4 \pm 0.5) \times 10^{-3}$	
Γ_{64}	$\omega K\overline{K}$		$(1.9 \pm 0.4) \times 10^{-3}$	
Γ_{65}	$\omega K^*(892)\overline{K} +$ c.c.		$(6.1 \pm 0.9) \times 10^{-3}$	
Γ_{66}	$\eta' K^{*\pm}K^\mp$		$(1.48 \pm 0.13) \times 10^{-3}$	
Γ_{67}	$\eta' K^{*0}\overline{K}^0 +$ c.c.		$(1.66 \pm 0.21) \times 10^{-3}$	
Γ_{68}	$\eta' h_1(1415) \rightarrow \eta' K^*\overline{K} +$ c.c.		$(2.16 \pm 0.31) \times 10^{-4}$	

Γ_{69}	$\eta' h_1(1415) \to \eta' K^{*\pm} K^{\mp}$	$(1.51 \pm 0.23) \times 10^{-4}$	
Γ_{70}	$\eta' h_1(1415) \to \gamma \eta' \eta'$	$(4.7 {}^{+1.1}_{-2.0}) \times 10^{-7}$	
Γ_{71}	$\overline{K} K^*(892)$+c.c.	seen	
Γ_{72}	$\overline{K} K^*(892)$+c.c. $\to K^0_S K^{\pm} \pi^{\mp}$	$(4.8 \pm 0.5) \times 10^{-3}$	
Γ_{73}	$K^+ K^*(892)^- +$ c.c.	$(6.0 {}^{+0.8}_{-1.0}) \times 10^{-3}$	S=2.9
Γ_{74}	$K^+ K^*(892)^- +$ c.c. $\to K^+ K^- \pi^0$	$(2.69 {}^{+0.13}_{-0.20}) \times 10^{-3}$	
Γ_{75}	$K^+ K^*(892)^- +$ c.c. $\to K^0 K^{\pm} \pi^{\mp} +$ c.c.	$(3.0 \pm 0.4) \times 10^{-3}$	
Γ_{76}	$K^0 \overline{K}^*(892)^0 +$ c.c.	$(4.2 \pm 0.4) \times 10^{-3}$	
Γ_{77}	$K^0 \overline{K}^*(892)^0 +$ c.c. $\to K^0 K^{\pm} \pi^{\mp} +$ c.c.	$(3.2 \pm 0.4) \times 10^{-3}$	
Γ_{78}	$\overline{K}^*(892)^0 K^+ \pi^- +$ c.c.	$(5.7 \pm 0.8) \times 10^{-3}$	
Γ_{79}	$K^*(892)^{\pm} K^{\mp} \pi^0$	$(4.1 \pm 1.3) \times 10^{-3}$	
Γ_{80}	$K^*(892)^+ K^0_S \pi^- +$ c.c.	$(2.0 \pm 0.5) \times 10^{-3}$	
Γ_{81}	$K^*(892)^+ K^0_S \pi^- +$ c.c. $\to K^0_S K^0_S \pi^+ \pi^-$	$(6.7 \pm 2.2) \times 10^{-4}$	
Γ_{82}	$K^*(892)^0 K^- \pi^+ +$ c.c. $\to K^+ K^- \pi^+ \pi^-$	$(3.8 \pm 0.5) \times 10^{-3}$	
Γ_{83}	$K^*(892)^0 K^0_S \to \gamma K^0_S K^0_S$	$(6.3 {}^{+0.6}_{-0.5}) \times 10^{-6}$	
Γ_{84}	$K^*(892)^0 K^0_S \pi^0$	$(7 \pm 4) \times 10^{-4}$	
Γ_{85}	$K^*(892)^{\pm} K^*(700)^{\mp}$	$(1.1 {}^{+1.0}_{-0.6}) \times 10^{-3}$	
Γ_{86}	$K^*(892)^0 \overline{K}^*(892)^0$	$(2.3 \pm 0.6) \times 10^{-4}$	
Γ_{87}	$K^*(892)^{\pm} K^*(892)^{\mp}$	$(1.00 {}^{+0.22}_{-0.40}) \times 10^{-3}$	
Γ_{88}	$K_1(1400)^{\pm} K^{\mp}$	$(3.8 \pm 1.4) \times 10^{-3}$	
Γ_{89}	$K^*(1410) \overline{K}$+c.c.	seen	
Γ_{90}	$K^*(1410) \overline{K}$+c.c $\to K^{\pm} K^{\mp} \pi^0$	$(7 \pm 4) \times 10^{-5}$	
Γ_{91}	$K^*(1410) \overline{K} +$ c.c. $\to K^0_S K^{\pm} \pi^{\mp}$	$(8 \pm 5) \times 10^{-5}$	
Γ_{92}	$K^*_2(1430) \overline{K}$+c.c.	seen	
Γ_{93}	$K^*_2(1430) \overline{K}$+c.c. $\to K^{\pm} K^{\mp} \pi^0$	$(1.0 \pm 0.5) \times 10^{-4}$	
Γ_{94}	$K^*_2(1430) \overline{K} +$ c.c. $\to K^0_S K^{\pm} \pi^{\mp}$	$(3.8 \pm 1.0) \times 10^{-4}$	
Γ_{95}	$\overline{K}^*_2(1430) K +$ c.c.	$< 4.0 \times 10^{-3}$	CL=90%
Γ_{96}	$K^*_2(1430)^+ K^- +$ c.c. $\to K^+ K^- \pi^0$	$(2.69 {}^{+0.25}_{-0.19}) \times 10^{-4}$	
Γ_{97}	$K^*_2(1430)^0 K^- \pi^+ +$ c.c. $\to K^+ K^- \pi^+ \pi^-$	$(2.6 \pm 0.9) \times 10^{-3}$	

Γ_{98}	$K_2^*(1430)^+ K_S^0 \pi^- +$ c.c.		$(3.6 \pm 1.8) \times 10^{-3}$	
Γ_{99}	$\overline{K}_2^*(1430)^0 K^*(892)^0 +$ c.c.		$(4.67 \pm 0.29) \times 10^{-3}$	
Γ_{100}	$K_2^*(1430)^- K^*(892)^+ +$ c.c.		$(3.4 \pm 2.9) \times 10^{-3}$	
Γ_{101}	$K_2^*(1430)^- K^*(892)^+ +$ c.c. $\rightarrow K^*(892)^+ K_S^0 \pi^- +$ c.c.		$(4 \pm 4) \times 10^{-4}$	
Γ_{102}	$K_2^*(1430)^0 \overline{K}_2^*(1430)^0$		$< 2.9 \times 10^{-3}$	CL=90%
Γ_{103}	$\overline{K}_2(1770)^0 K^*(892)^0 +$ c.c. $\rightarrow K^*(892)^0 K^- \pi^+ +$ c.c.		$(6.9 \pm 0.9) \times 10^{-4}$	
Γ_{104}	$K_2^*(1980)^+ K^- +$ c.c. $\rightarrow K^+ K^- \pi^0$		$(1.10 {}^{+0.60}_{-0.14}) \times 10^{-5}$	
Γ_{105}	$K_4^*(2045)^+ K^- +$ c.c. $\rightarrow K^+ K^- \pi^0$		$(6.2 {}^{+2.9}_{-1.6}) \times 10^{-6}$	
Γ_{106}	$K_1(1270)^\pm K^\mp$		$< 3.0 \times 10^{-3}$	CL=90%
Γ_{107}	$K_1(1270) K_S^0 \rightarrow \gamma K_S^0 K_S^0$		$(8.5 \pm 2.5) \times 10^{-7}$	
Γ_{108}	$a_2(1320)^\pm \pi^\mp$	[b]	$< 4.3 \times 10^{-3}$	CL=90%
Γ_{109}	$\phi \pi^0$		3×10^{-6} or 1×10^{-7}	
Γ_{110}	$\phi \pi^+ \pi^-$		$(9.4 \pm 1.5) \times 10^{-4}$	S=1.7
Γ_{111}	$\phi \pi^0 \pi^0$		$(4.9 \pm 1.0) \times 10^{-4}$	
Γ_{112}	$\phi 2(\pi^+ \pi^-)$		$(1.60 \pm 0.32) \times 10^{-3}$	
Γ_{113}	$\phi \eta$		$(7.4 \pm 0.6) \times 10^{-4}$	S=1.2
Γ_{114}	$\phi \eta'(958)$		$(4.6 \pm 0.5) \times 10^{-4}$	S=2.2
Γ_{115}	$\phi \eta \eta'$		$(2.32 \pm 0.17) \times 10^{-4}$	
Γ_{116}	$\phi f_0(980)$		$(3.2 \pm 0.9) \times 10^{-4}$	S=1.9
Γ_{117}	$\phi f_0(980) \rightarrow \phi \pi^+ \pi^-$		$(2.58 \pm 0.34) \times 10^{-4}$	
Γ_{118}	$\phi f_0(980) \rightarrow \phi \pi^0 \pi^0$		$(1.7 \pm 0.5) \times 10^{-4}$	
Γ_{119}	$\phi \pi^0 f_0(980) \rightarrow \phi \pi^0 \pi^+ \pi^-$		$(4.5 \pm 1.0) \times 10^{-6}$	
Γ_{120}	$\phi \pi^0 f_0(980) \rightarrow \phi \pi^0 p^0 \pi^0$		$(1.7 \pm 0.6) \times 10^{-6}$	
Γ_{121}	$\phi f_0(980) \eta \rightarrow \eta \phi \pi^+ \pi^-$		$(3.2 \pm 1.0) \times 10^{-4}$	
Γ_{122}	$\phi a_0(980)^0 \rightarrow \phi \eta \pi^0$			
Γ_{123}	$\phi(1680)^0 \pi^0 \rightarrow \phi \eta \pi^0$		$(6.7 \pm 1.1) \times 10^{-6}$	
Γ_{124}	$X(2000)^0 \pi^0 \rightarrow \phi \eta \pi^0$		$(1.70 {}^{+0.50}_{-0.23}) \times 10^{-6}$	
Γ_{125}	$h_1(1900)^0 \pi^0 \rightarrow \phi \eta \pi^0$		$(8.4 {}^{+1.4}_{-1.3}) \times 10^{-6}$	
Γ_{126}	$\phi f_2(1270)$		$(3.2 \pm 0.6) \times 10^{-4}$	
Γ_{127}	$\phi f_1(1285)$		$(2.6 \pm 0.5) \times 10^{-4}$	
Γ_{128}	$\phi f_1(1285) \rightarrow \phi \pi^0 f_0(980) \rightarrow \phi \pi^0 \pi^+ \pi^-$		$(9.4 \pm 2.8) \times 10^{-7}$	
Γ_{129}	$\phi f_1(1285) \rightarrow \phi \pi^0 f_0(980) \rightarrow \phi 3\pi^0$		$(2.1 \pm 2.2) \times 10^{-7}$	
Γ_{130}	$\phi \eta(1405) \rightarrow \phi \eta \pi^+ \pi^-$		$(2.0 \pm 1.0) \times 10^{-5}$	
Γ_{131}	$\phi f_2'(1525)$		$(8 \pm 4) \times 10^{-4}$	S=2.7
Γ_{132}	$\phi X(1835) \rightarrow \phi p \overline{p}$		$< 2.1 \times 10^{-7}$	CL=90%

Γ_{133}	$\phi X(1835) \to \phi\eta\pi^+\pi^-$		$<$ 2.8	$\times 10^{-4}$	CL=90%
Γ_{134}	$\phi X(1870) \to \phi\eta\pi^+\pi^-$		$<$ 6.13	$\times 10^{-5}$	CL=90%
Γ_{135}	$\phi K\overline{K}$		(1.77 ± 0.16)	$\times 10^{-3}$	S=1.3
Γ_{136}	$\phi f_0(1710) \to \phi K\overline{K}$		(3.6 ± 0.6)	$\times 10^{-4}$	
Γ_{137}	ϕK^+K^-		(8.2 ± 1.1)	$\times 10^{-4}$	
Γ_{138}	$\phi K^0_S K^0_S$		(5.8 ± 1.5)	$\times 10^{-4}$	
Γ_{139}	$\phi K^{\pm} K^0_S \pi^{\mp}$	[b]	(7.2 ± 0.8)	$\times 10^{-4}$	
Γ_{140}	$\phi K^*(892)\overline{K}$ + c.c.		(2.18 ± 0.23)	$\times 10^{-3}$	
Γ_{141}	$b_1(1235)^{\pm}\pi^{\mp}$	[b]	(3.0 ± 0.5)	$\times 10^{-3}$	
Γ_{142}	$b_1(1235)^0\pi^0$		(2.3 ± 0.6)	$\times 10^{-3}$	
Γ_{143}	$f'_2(1525)K^+K^-$		(1.04 ± 0.35)	$\times 10^{-3}$	
Γ_{144}	$\Delta(1232)^+\overline{p}$		$<$ 1	$\times 10^{-4}$	CL=90%
Γ_{145}	$\Delta(1232)^{++}\overline{p}\pi^-$		(1.6 ± 0.5)	$\times 10^{-3}$	
Γ_{146}	$\Delta(1232)^{++}\overline{\Delta}(1232)^{--}$		(1.10 ± 0.29)	$\times 10^{-3}$	
Γ_{147}	$\overline{\Sigma}(1385)^0 p K^-$		(5.1 ± 3.2)	$\times 10^{-4}$	
Γ_{148}	$\Sigma(1385)^0\overline{\Lambda}$ + c.c.		$<$ 8.2	$\times 10^{-6}$	CL=90%
Γ_{149}	$\Sigma(1385)^-\overline{\Sigma}^+$ + c.c.	[b]	(3.0 ± 0.7)	$\times 10^{-4}$	
Γ_{150}	$\Sigma(1385)^+\overline{\Sigma}^-$ + c.c.		(3.3 ± 0.8)	$\times 10^{-4}$	
Γ_{151}	$\Sigma(1385)^-\overline{\Sigma}(1385)^+$ + c.c.	[b]	(1.08 ± 0.06)	$\times 10^{-3}$	
Γ_{152}	$\Sigma(1385)^+\overline{\Sigma}(1385)^-$ + c.c.		(1.25 ± 0.07)	$\times 10^{-3}$	
Γ_{153}	$\Sigma(1385)^0\overline{\Sigma}(1385)^0$		(1.07 ± 0.08)	$\times 10^{-3}$	
Γ_{154}	$\Lambda(1520)\overline{\Lambda}$ + c.c. $\to \gamma\Lambda\overline{\Lambda}$		$<$ 4.1	$\times 10^{-6}$	CL=90%
Γ_{155}	$\overline{\Lambda}(1520)\Lambda$ + c.c.		$<$ 1.80	$\times 10^{-3}$	CL=90%
Γ_{156}	$\Xi^0\overline{\Xi}^0$		(1.17 ± 0.04)	$\times 10^{-3}$	
Γ_{157}	$\Xi(1530)^-\overline{\Xi}^+$ + c.c.		(3.18 ± 0.08)	$\times 10^{-4}$	
Γ_{158}	$\Xi(1530)^0\overline{\Xi}^0$		(3.2 ± 1.4)	$\times 10^{-4}$	
Γ_{159}	$\Theta(1540)\overline{\Theta}(1540) \to K^0_S p K^-\overline{n}$ + c.c.	[c]	$<$ 1.1	$\times 10^{-5}$	CL=90%
Γ_{160}	$\Theta(1540)K^-\overline{n} \to K^0_S p K^-\overline{n}$	[c]	$<$ 2.1	$\times 10^{-5}$	CL=90%
Γ_{161}	$\Theta(1540)K^0_S\overline{p} \to K^0_S\overline{p}K^+n$	[c]	$<$ 1.6	$\times 10^{-5}$	CL=90%
Γ_{162}	$\overline{\Theta}(1540)K^+n \to K^0_S\overline{p}K^+n$	[c]	$<$ 5.6	$\times 10^{-5}$	CL=90%
Γ_{163}	$\overline{\Theta}(1540)K^0_S p \to K^0_S p K^-\overline{n}$	[c]	$<$ 1.1	$\times 10^{-5}$	CL=90%

Decays into stable hadrons

Γ_{164}	$2(\pi^+\pi^-)\pi^0$		(4.2 ± 0.4)	%	S=2.1
Γ_{165}	$3(\pi^+\pi^-)\pi^0$		(2.9 ± 0.6)	%	
Γ_{166}	$\pi^+\pi^-3\pi^0$		(1.9 ± 0.9)	%	
Γ_{167}	$\rho^{\pm}\pi^{\mp}\pi^0\pi^0$		(1.41 ± 0.22)	%	
Γ_{168}	$\rho^+\rho^-\pi^0$		(6.0 ± 1.1)	$\times 10^{-3}$	
Γ_{169}	$\pi^+\pi^-4\pi^0$		(6.5 ± 1.3)	$\times 10^{-3}$	
Γ_{170}	$\pi^+\pi^-\pi^0$		(2.00 ± 0.07)	%	S=2.0
Γ_{171}	$2(\pi^+\pi^-\pi^0)$		(1.61 ± 0.20)	%	
Γ_{172}	$\pi^+\pi^-\pi^0K^+K^-$		(1.52 ± 0.27)	%	S=1.4
Γ_{173}	$\pi^+\pi^-$		(1.47 ± 0.14)	$\times 10^{-4}$	

Γ_{174}	$2(\pi^+\pi^-)$	$(3.20 \pm 0.25) \times 10^{-3}$	S=1.2
Γ_{175}	$3(\pi^+\pi^-)$	$(4.3 \pm 0.4) \times 10^{-3}$	
Γ_{176}	$2(\pi^+\pi^-)3\pi^0$	(6.2 ± 0.9) %	
Γ_{177}	$4(\pi^+\pi^-)\pi^0$	$(9.0 \pm 3.0) \times 10^{-3}$	
Γ_{178}	$2(\pi^+\pi^-)\eta$	$(2.29 \pm 0.28) \times 10^{-3}$	
Γ_{179}	$3(\pi^+\pi^-)\eta$	$(7.2 \pm 1.5) \times 10^{-4}$	
Γ_{180}	$2(\pi^+\pi^-\pi^0)\eta$	$(1.6 \pm 0.5) \times 10^{-3}$	
Γ_{181}	$\pi^+\pi^-\pi^0\pi^0\eta$	$(2.4 \pm 0.5) \times 10^{-3}$	
Γ_{182}	$\rho^\pm\pi^\mp\pi^0\eta$	$(1.9 \pm 0.8) \times 10^{-3}$	
Γ_{183}	K^+K^-	$(3.06 \pm 0.05) \times 10^{-4}$	
Γ_{184}	$K^0_S K^0_L$	$(1.95 \pm 0.11) \times 10^{-4}$	S=2.4
Γ_{185}	$K^0_S K^0_S$	$< 1.4 \times 10^{-8}$	CL=95%
Γ_{186}	$K\overline{K}\pi$	$(6.1 \pm 1.0) \times 10^{-3}$	
Γ_{187}	$K^+K^-\pi^0$	$(2.88 \pm 0.12) \times 10^{-3}$	
Γ_{188}	$K^0_S K^\pm\pi^\mp$	$(5.3 \pm 0.5) \times 10^{-3}$	
Γ_{189}	$K^0_S K^0_L\pi^0$	$(2.06 \pm 0.26) \times 10^{-3}$	
Γ_{190}	$K^*(892)^0\overline{K}^0$ + c.c. $\to K^0_S K^0_L\pi^0$	$(1.21 \pm 0.18) \times 10^{-3}$	
Γ_{191}	$K^*_2(1430)^0\overline{K}^0$ + c.c. $\to K^0_S K^0_L\pi^0$	$(4.3 \pm 1.3) \times 10^{-4}$	
Γ_{192}	$K^+K^-\pi^+\pi^-$	$(7.0 \pm 1.0) \times 10^{-3}$	
Γ_{193}	$K^+K^-\pi^0\pi^0$	$(2.13 \pm 0.22) \times 10^{-3}$	
Γ_{194}	$K^+K^-\pi^0\pi^0\pi^0$	$(1.61 \pm 0.29) \times 10^{-3}$	
Γ_{195}	$K^0_S K^\pm\pi^\mp\pi^0\pi^0$	$(5.3 \pm 0.7) \times 10^{-3}$	
Γ_{196}	$K^0_S K^\pm\pi^\mp\pi^+\pi^-$	$(6.3 \pm 0.4) \times 10^{-3}$	
Γ_{197}	$K^0_S K^\pm\rho(770)^\pm\pi^0$	$(2.9 \pm 0.8) \times 10^{-3}$	
Γ_{198}	$K^0_S K^0_L\pi^+\pi^-$	$(3.8 \pm 0.6) \times 10^{-3}$	
Γ_{199}	$K^0_S K^0_L\pi^0\pi^0$	$(1.9 \pm 0.4) \times 10^{-3}$	
Γ_{200}	$K^0_S K^0_L\eta$	$(1.45 \pm 0.33) \times 10^{-3}$	
Γ_{201}	$K^0_S K^0_S\pi^+\pi^-$	$(1.68 \pm 0.19) \times 10^{-3}$	
Γ_{202}	$K^\mp K^0_S\pi^\pm\pi^0$	$(5.7 \pm 0.5) \times 10^{-3}$	
Γ_{203}	$K^0_S K^\pm\pi^\mp\rho(770)^0$	$(3.1 \pm 0.5) \times 10^{-3}$	
Γ_{204}	$K^+K^-2(\pi^+\pi^-)$	$(3.1 \pm 1.3) \times 10^{-3}$	
Γ_{205}	$K^+K^-\pi^+\pi^-\eta$	$(4.7 \pm 0.7) \times 10^{-3}$	
Γ_{206}	$2(K^+K^-)$	$(7.2 \pm 0.8) \times 10^{-4}$	
Γ_{207}	$K^+K^-K^0_S K^0_S$	$(4.2 \pm 0.7) \times 10^{-4}$	
Γ_{208}	$K^0_S K^*(892)^0\pi^+\pi^-$	$(1.7 \pm 0.6) \times 10^{-3}$	
Γ_{209}	$K^0_S K^*(892)^0\pi^0\pi^0$	$(1.01 \pm 0.18) \times 10^{-3}$	
Γ_{210}	$K^\mp K^*(892)^\pm\pi^+\pi^-$	$(3.4 \pm 1.2) \times 10^{-3}$	
Γ_{211}	$K^*(892)^\pm K^*(892)^0\pi^\mp$	$(4.8 \pm 1.0) \times 10^{-3}$	
Γ_{212}	$K^\mp K^*(892)^\pm\pi^0\pi^0$	$(1.57 \pm 0.32) \times 10^{-3}$	
Γ_{213}	$K^*(892)^+K^*(892)^-\pi^0$	(1.12 ± 0.23) %	

Γ_{214}	$p\overline{p}$		$(2.120\pm 0.029)\times 10^{-3}$	
Γ_{215}	$p\overline{p}\pi^0$		$(1.19\pm 0.08)\times 10^{-3}$	S=1.1
Γ_{216}	$p\overline{p}\pi^+\pi^-$		$(6.0\pm 0.5)\times 10^{-3}$	S=1.3
Γ_{217}	$p\overline{p}\pi^+\pi^-\pi^0$	[*d*]	$(2.3\pm 0.9)\times 10^{-3}$	S=1.9
Γ_{218}	$p\overline{p}\eta$		$(2.00\pm 0.12)\times 10^{-3}$	
Γ_{219}	$p\overline{p}\rho$		$< 3.1\times 10^{-4}$	CL=90%
Γ_{220}	$p\overline{p}\omega$		$(9.8\pm 1.0)\times 10^{-4}$	S=1.3
Γ_{221}	$p\overline{p}\eta'(958)$		$(1.29\pm 0.14)\times 10^{-4}$	S=2.0
Γ_{222}	$p\overline{p}a_0(980)\to p\overline{p}\pi^0\eta$		$(6.8\pm 1.8)\times 10^{-5}$	
Γ_{223}	$p\overline{p}\phi$		$(5.19\pm 0.33)\times 10^{-5}$	
Γ_{224}	$p\overline{n}\pi^-$		$(2.12\pm 0.09)\times 10^{-3}$	
Γ_{225}	$n\overline{n}$		$(2.09\pm 0.16)\times 10^{-3}$	
Γ_{226}	$n\overline{n}\pi^+\pi^-$		$(4\pm 4)\times 10^{-3}$	
Γ_{227}	$nN(1440)$		seen	
Γ_{228}	$nN(1520)$		seen	
Γ_{229}	$nN(1535)$		seen	
Γ_{230}	$\Lambda\overline{\Lambda}$		$(1.88\pm 0.08)\times 10^{-3}$	S=2.6
Γ_{231}	$\Lambda\overline{\Lambda}\pi^0$		$(3.8\pm 0.4)\times 10^{-5}$	
Γ_{232}	$\Lambda\overline{\Lambda}\pi^+\pi^-$		$(4.3\pm 1.0)\times 10^{-3}$	
Γ_{233}	$\Lambda\overline{\Lambda}\eta$		$(1.62\pm 0.17)\times 10^{-4}$	
Γ_{234}	$\Lambda\overline{\Sigma}^-\pi^+ +$ c.c.	[*b*]	$(1.26\pm 0.05)\times 10^{-3}$	S=1.2
Γ_{235}	$\Lambda\overline{\Sigma}^+\pi^- +$ c.c.		$(1.21\pm 0.07)\times 10^{-3}$	S=1.8
Γ_{236}	$pK^-\overline{\Lambda}$+c.c.		$(8.6\pm 1.1)\times 10^{-4}$	
Γ_{237}	$pK^-\overline{\Sigma}^0$		$(2.9\pm 0.8)\times 10^{-4}$	
Γ_{238}	$pK^0_S\overline{\Sigma}^-$ +c.c.		$(2.73\pm 0.05)\times 10^{-4}$	
Γ_{239}	$\overline{\Lambda}nK^0_S +$ c.c.		$(6.5\pm 1.1)\times 10^{-4}$	
Γ_{240}	$\Lambda\overline{\Sigma} +$ c.c.		$(2.83\pm 0.23)\times 10^{-5}$	
Γ_{241}	$\Sigma^+\overline{\Sigma}^-$		$(1.07\pm 0.04)\times 10^{-3}$	
Γ_{242}	$\Sigma^0\overline{\Sigma}^0$		$(1.172\pm 0.032)\times 10^{-3}$	S=1.4
Γ_{243}	$\Sigma^+\overline{\Sigma}^-\eta$		$(6.3\pm 0.4)\times 10^{-5}$	
Γ_{244}	$\Xi^-\overline{\Xi}^+$		$(9.7\pm 0.8)\times 10^{-4}$	S=1.4

Radiative decays

Γ_{245}	$\gamma\eta_c(1S)$		(1.41 ± 0.14) %	S=1.3
Γ_{246}	$\gamma\eta_c(1S)\to 3\gamma$		seen	
Γ_{247}	$\gamma\eta_c(1S)\to \gamma\eta\eta\eta'$		seen	
Γ_{248}	3γ		$(1.16\pm 0.22)\times 10^{-5}$	
Γ_{249}	4γ		$< 9\times 10^{-6}$	CL=90%
Γ_{250}	5γ		$< 1.5\times 10^{-5}$	CL=90%
Γ_{251}	$\gamma\pi^0$		$(3.39\pm 0.08)\times 10^{-5}$	
Γ_{252}	$\gamma\pi^0\pi^0$		$(1.15\pm 0.05)\times 10^{-3}$	
Γ_{253}	$\gamma 2\pi^+ 2\pi^-$		$(2.8\pm 0.5)\times 10^{-3}$	S=1.9
Γ_{254}	$\gamma f_2(1270)f_2(1270)$		$(9.5\pm 1.7)\times 10^{-4}$	
Γ_{255}	$\gamma f_2(1270)f_2(1270)$(non resonant)		$(8.2\pm 1.9)\times 10^{-4}$	

Γ_{256}	$\gamma\pi^+\pi^-2\pi^0$	$(8.3 \pm 3.1) \times 10^{-3}$		
Γ_{257}	$\gamma K^0_S K^0_S$	$(8.1 \pm 0.4) \times 10^{-4}$		
Γ_{258}	$\gamma(K\overline{K}\pi)$ $[J^{PC} = 0^{-+}]$	$(7 \pm 4) \times 10^{-4}$	S=2.1	
Γ_{259}	$\gamma K^+ K^- \pi^+ \pi^-$	$(2.1 \pm 0.6) \times 10^{-3}$		
Γ_{260}	$\gamma K^*(892)\overline{K}^*(892)$	$(4.0 \pm 1.3) \times 10^{-3}$		
Γ_{261}	$\gamma\eta$	$(1.090 \pm 0.013) \times 10^{-3}$		
Γ_{262}	$\gamma\eta\pi^0$	$(2.14 \pm 0.31) \times 10^{-5}$		
Γ_{263}	$\gamma f_0(500) \to \gamma\pi\pi$			
Γ_{264}	$\gamma f_0(500) \to \gamma K\overline{K}$			
Γ_{265}	$\gamma f_0(500) \to \gamma\eta\eta$			
Γ_{266}	$\gamma a_0(980)^0 \to \gamma\eta\pi^0$	$< 2.5 \times 10^{-6}$	CL=95%	
Γ_{267}	$\gamma a_2(1320)^0 \to \gamma\eta\pi^0$	$< 6.6 \times 10^{-6}$	CL=95%	
Γ_{268}	$\gamma\eta\pi\pi$	$(6.1 \pm 1.0) \times 10^{-3}$		
Γ_{269}	$\gamma\eta_2(1870) \to \gamma\eta\pi^+\pi^-$	$(6.2 \pm 2.4) \times 10^{-4}$		
Γ_{270}	$\gamma\eta'(958)$	$(5.28 \pm 0.06) \times 10^{-3}$	S=1.3	
Γ_{271}	$\gamma f_0(980) \to \gamma\pi\pi$			
Γ_{272}	$\gamma f_0(980) \to \gamma K\overline{K}$			
Γ_{273}	$\gamma\rho\rho$	$(4.5 \pm 0.8) \times 10^{-3}$		
Γ_{274}	$\gamma\rho\omega$	$< 5.4 \times 10^{-4}$	CL=90%	
Γ_{275}	$\gamma\rho\phi$	$< 8.8 \times 10^{-5}$	CL=90%	
Γ_{276}	$\gamma\omega\omega$	$(1.61 \pm 0.33) \times 10^{-3}$		
Γ_{277}	$\gamma\phi\phi$	$(4.0 \pm 1.2) \times 10^{-4}$	S=2.1	
Γ_{278}	$\gamma\eta(1405/1475) \to \gamma K\overline{K}\pi$	$(2.8 \pm 0.6) \times 10^{-3}$	S=1.6	
Γ_{279}	$\gamma\eta(1405/1475) \to \gamma\gamma\rho^0$	$(7.8 \pm 2.0) \times 10^{-5}$	S=1.8	
Γ_{280}	$\gamma\eta(1405/1475) \to \gamma\eta\pi^+\pi^-$	$(3.0 \pm 0.5) \times 10^{-4}$		
Γ_{281}	$\gamma\eta(1405/1475) \to \gamma\rho^0\rho^0$	$(1.7 \pm 0.4) \times 10^{-3}$	S=1.3	
Γ_{282}	$\gamma\eta(1405/1475) \to \gamma\gamma\phi$	$< 8.2 \times 10^{-5}$	CL=95%	
Γ_{283}	$\gamma\eta(1405) \to \gamma f_0(980)\pi^0 \to \gamma\pi^+\pi^-\pi^0$	$(1.50 \pm 0.16) \times 10^{-5}$		
Γ_{284}	$\gamma\eta(1405) \to \gamma f_0(980)\pi^0 \to \gamma\pi^0\pi^0\pi^0$	$(7.1 \pm 1.1) \times 10^{-6}$		
Γ_{285}	$\gamma\eta(1405) \to \gamma\gamma\gamma$	$< 2.63 \times 10^{-6}$	CL=90%	
Γ_{286}	$\gamma\eta(1475) \to \gamma\gamma\gamma$	$< 1.86 \times 10^{-6}$	CL=90%	
Γ_{287}	$\gamma\eta(1760) \to \gamma\rho^0\rho^0$	$(1.3 \pm 0.9) \times 10^{-4}$		
Γ_{288}	$\gamma\eta(1760) \to \gamma\omega\omega$	$(1.98 \pm 0.33) \times 10^{-3}$		
Γ_{289}	$\gamma\eta(1760) \to \gamma\gamma\gamma$	$< 4.80 \times 10^{-6}$	CL=90%	
Γ_{290}	$\gamma\eta(2225)$	$(3.14 {}^{+0.50}_{-0.19}) \times 10^{-4}$		
Γ_{291}	$\gamma f_2(1270)$	$(1.63 \pm 0.12) \times 10^{-3}$	S=1.3	
Γ_{292}	$\gamma f_2(1270) \to \gamma K^0_S K^0_S$	$(2.58 {}^{+0.60}_{-0.22}) \times 10^{-5}$		
Γ_{293}	$\gamma f_1(1285)$	$(6.1 \pm 0.8) \times 10^{-4}$		
Γ_{294}	$\gamma f_0(1370) \to \gamma\pi\pi$			
Γ_{295}	$\gamma f_0(1370) \to \gamma K\overline{K}$	$(4.2 \pm 1.5) \times 10^{-4}$		
Γ_{296}	$\gamma f_0(1370) \to \gamma K^0_S K^0_S$	$(1.1 \pm 0.4) \times 10^{-5}$		

Γ_{297}	$\gamma f_0(1370) \to \gamma\eta\eta$		
Γ_{298}	$\gamma f_0(1370) \to \gamma\eta\eta'$		
Γ_{299}	$\gamma f_1(1420) \to \gamma K\overline{K}\pi$	$(7.9 \pm 1.3) \times 10^{-4}$	
Γ_{300}	$\gamma f_0(1500) \to \gamma\pi\pi$	$(1.09 \pm 0.24) \times 10^{-4}$	
Γ_{301}	$\gamma f_0(1500) \to \gamma\eta\eta$	$(1.7 {}^{+0.6}_{-1.4}) \times 10^{-5}$	
Γ_{302}	$\gamma f_0(1500) \to \gamma K^0_S K^0_S$	$(1.59 {}^{+0.24}_{-0.60}) \times 10^{-5}$	
Γ_{303}	$\gamma f_0(1500) \to \gamma\eta\eta'$		
Γ_{304}	$\gamma f_1(1510) \to \gamma\eta\pi^+\pi^-$	$(4.5 \pm 1.2) \times 10^{-4}$	
Γ_{305}	$\gamma f'_2(1525)$	$(5.7 {}^{+0.8}_{-0.5}) \times 10^{-4}$	S=1.5
Γ_{306}	$\gamma f'_2(1525) \to \gamma K^0_S K^0_S$	$(8.0 {}^{+0.7}_{-0.5}) \times 10^{-5}$	
Γ_{307}	$\gamma f'_2(1525) \to \gamma\eta\eta$	$(3.4 \pm 1.4) \times 10^{-5}$	
Γ_{308}	$\gamma f_2(1565) \to \gamma\eta\eta'$		
Γ_{309}	$\gamma f_2(1640) \to \gamma\omega\omega$	$(2.8 \pm 1.8) \times 10^{-4}$	
Γ_{310}	$\gamma f_0(1710) \to \gamma\pi\pi$	$(3.8 \pm 0.5) \times 10^{-4}$	
Γ_{311}	$\gamma f_0(1710) \to \gamma K\overline{K}$	$(9.5 {}^{+1.0}_{-0.5}) \times 10^{-4}$	S=1.5
Γ_{312}	$\gamma f_0(1710) \to \gamma\omega\omega$	$(3.1 \pm 1.0) \times 10^{-4}$	
Γ_{313}	$\gamma f_0(1710) \to \gamma\eta\eta$	$(2.4 {}^{+1.2}_{-0.7}) \times 10^{-4}$	
Γ_{314}	$\gamma f_0(1710) \to \gamma\eta\eta'$		
Γ_{315}	$\gamma f_0(1710) \to \gamma\omega\phi$	$(2.5 \pm 0.6) \times 10^{-4}$	
Γ_{316}	$\gamma f_0(1770) \to \gamma K^0_S K^0_S$	$(1.11 {}^{+0.20}_{-0.33}) \times 10^{-5}$	
Γ_{317}	$\gamma f_2(1810) \to \gamma\eta\eta$	$(5.4 {}^{+3.5}_{-2.4}) \times 10^{-5}$	
Γ_{318}	$\gamma\eta_1(1855) \to \gamma\eta\eta'$	$(2.7 {}^{+0.4}_{-0.5}) \times 10^{-6}$	
Γ_{319}	$\gamma f_0(1770) \to \gamma\eta\eta'$		
Γ_{320}	$\gamma f_2(1910) \to \gamma\omega\omega$	$(2.0 \pm 1.4) \times 10^{-4}$	
Γ_{321}	$\gamma f_2(1950) \to \gamma K^*(892)\overline{K}^*(892)$	$(7.0 \pm 2.2) \times 10^{-4}$	
Γ_{322}	$\gamma f_2(2010) \to \gamma\eta\eta'$		
Γ_{323}	$\gamma f_0(2020) \to \gamma\pi\pi$		
Γ_{324}	$\gamma f_0(2020) \to \gamma K\overline{K}$		
Γ_{325}	$\gamma f_0(2020) \to \gamma\eta\eta$		
Γ_{326}	$\gamma f_0(2020) \to \gamma\eta'\eta'$	$(2.63 {}^{+0.32}_{-0.50}) \times 10^{-4}$	
Γ_{327}	$\gamma f_0(2020) \to \gamma\eta\eta'$		
Γ_{328}	$\gamma f_4(2050)$	$(2.7 \pm 0.7) \times 10^{-3}$	
Γ_{329}	$\gamma f_4(2050) \to \gamma\eta\eta'$		
Γ_{330}	$\gamma f_0(2100) \to \gamma\eta\eta$	$(1.13 {}^{+0.60}_{-0.30}) \times 10^{-4}$	
Γ_{331}	$\gamma f_0(2100) \to \gamma K\overline{K}$		
Γ_{332}	$\gamma f_0(2100) \to \gamma\pi\pi$	$(6.2 \pm 1.0) \times 10^{-4}$	

Γ_{333}	$\gamma f_0(2200)$	seen		
Γ_{334}	$\gamma f_0(2200) \to \gamma K\overline{K}$	$(5.9 \pm 1.3) \times 10^{-4}$		
Γ_{335}	$\gamma f_0(2200) \to \gamma K^0_S K^0_S$	$(2.72 {}^{+0.19}_{-0.50}) \times 10^{-4}$		
Γ_{336}	$\gamma f_0(2200) \to \gamma\pi\pi$			
Γ_{337}	$\gamma f_0(2200) \to \gamma\eta\eta$			
Γ_{338}	$\gamma f_J(2220)$	seen		
Γ_{339}	$\gamma f_J(2220) \to \gamma\pi\pi$	$< 3.9 \times 10^{-5}$	CL=90%	
Γ_{340}	$\gamma f_J(2220) \to \gamma K\overline{K}$	$< 4.1 \times 10^{-5}$	CL=90%	
Γ_{341}	$\gamma f_J(2220) \to \gamma p\overline{p}$	$(1.5 \pm 0.8) \times 10^{-5}$		
Γ_{342}	$\gamma f_0(2330) \to \gamma K^0_S K^0_S$	$(4.9 \pm 0.7) \times 10^{-5}$		
Γ_{343}	$\gamma f_0(2330) \to \gamma\pi\pi$			
Γ_{344}	$\gamma f_0(2330) \to \gamma\eta\eta$			
Γ_{345}	$\gamma f_0(2330) \to \gamma\eta'\eta'$	$(6.1 {}^{+4.0}_{-1.8}) \times 10^{-6}$		
Γ_{346}	$\gamma f_0(2330) \to \gamma\eta\eta'$			
Γ_{347}	$\gamma f_2(2340) \to \gamma\eta\eta$	$(5.6 {}^{+2.4}_{-2.2}) \times 10^{-5}$		
Γ_{348}	$\gamma f_2(2340) \to \gamma K^0_S K^0_S$	$(5.5 {}^{+4.0}_{-1.5}) \times 10^{-5}$		
Γ_{349}	$\gamma f_2(2340) \to \gamma\eta'\eta'$	$(8.7 {}^{+0.9}_{-1.8}) \times 10^{-6}$		
Γ_{350}	$\gamma f_0(2470) \to \gamma\eta'\eta'$	$(8.2 {}^{+4.0}_{-2.8}) \times 10^{-7}$		
Γ_{351}	$\gamma X(1835) \to \gamma\pi^+\pi^-\eta'$	$(2.7 {}^{+0.6}_{-0.8}) \times 10^{-4}$		S=1.6
Γ_{352}	$\gamma X(1835) \to \gamma p\overline{p}$	$(7.7 {}^{+1.5}_{-0.9}) \times 10^{-5}$		
Γ_{353}	$\gamma X(1835) \to \gamma K^0_S K^0_S \eta$	$(3.3 {}^{+2.0}_{-1.3}) \times 10^{-5}$		
Γ_{354}	$\gamma X(1835) \to \gamma\gamma\phi(1020)$			
Γ_{355}	$\gamma X(1835) \to \gamma\gamma\gamma$	$< 3.56 \times 10^{-6}$	CL=90%	
Γ_{356}	$\gamma X(1835) \to \gamma 3(\pi^+\pi^-)$	$(2.4 {}^{+0.7}_{-0.8}) \times 10^{-5}$		
Γ_{357}	$\gamma\eta(2370) \to \gamma K^+K^-\eta'$	$(1.8 \pm 0.7) \times 10^{-5}$		
Γ_{358}	$\gamma\eta(2370) \to \gamma K^0_S K^0_S \eta'$	$(1.2 \pm 0.5) \times 10^{-5}$		
Γ_{359}	$\gamma\eta(2370) \to \gamma\eta\eta\eta'$	$< 9.2 \times 10^{-6}$	CL=90%	
Γ_{360}	γD^0+c.c.	$< 9.1 \times 10^{-8}$	CL=90%	
Γ_{361}	$\gamma p\overline{p}$	$(3.8 \pm 1.0) \times 10^{-4}$		
Γ_{362}	$\gamma p\overline{p}\pi^+\pi^-$	$< 7.9 \times 10^{-4}$	CL=90%	
Γ_{363}	$\gamma\Lambda\overline{\Lambda}$	$< 1.3 \times 10^{-4}$	CL=90%	
Γ_{364}	$\gamma A^0 \to \gamma$invisible	[e] $< 1.7 \times 10^{-6}$	CL=90%	
Γ_{365}	$\gamma A^0 \to \gamma\gamma\gamma$	$< 4.9 \times 10^{-7}$	CL=95%	
Γ_{366}	$\gamma A^0 \to \gamma\mu^+\mu^-$	[f] $< 7.8 \times 10^{-7}$	CL=90%	

Dalitz decays

Γ_{367}	$\pi^0 e^+ e^-$		$(7.6 \pm 1.4) \times 10^{-7}$		
Γ_{368}	$\eta e^+ e^-$		$(1.42 \pm 0.08) \times 10^{-5}$		
Γ_{369}	$\eta'(958) e^+ e^-$		$(6.59 \pm 0.18) \times 10^{-5}$		
Γ_{370}	$\eta(1405) e^+ e^- \to f_0(980)\pi^0 e^+ e^- \to \pi^+\pi^-\pi^0 e^+ e^-$		$(2.04 \pm 0.22) \times 10^{-7}$		
Γ_{371}	$X(1835) e^+ e^-$, $X \to \pi^+\pi^-\eta'$		$(3.58 \pm 0.25) \times 10^{-6}$		
Γ_{372}	$X(2120) e^+ e^-$, $X \to \pi^+\pi^-\eta'$		$(8.2 \pm 1.3) \times 10^{-7}$		
Γ_{373}	$\eta(2370) e^+ e^-$, $\eta \to \pi^+\pi^-\eta'$		$(1.08 \pm 0.17) \times 10^{-6}$		
Γ_{374}	$\eta U \to \eta e^+ e^-$	[g]	< 9.11	$\times 10^{-7}$	CL=90%
Γ_{375}	$\eta'(958) U \to \eta'(958) e^+ e^-$	[g]	< 2.0	$\times 10^{-7}$	CL=90%
Γ_{376}	$\phi e^+ e^-$		< 1.2	$\times 10^{-7}$	CL=90%

Weak decays

Γ_{377}	$D^- e^+ \nu_e +$ c.c.	< 7.1	$\times 10^{-8}$	CL=90%
Γ_{378}	$D^- \mu^+ \nu_\mu +$ c.c.	< 5.6	$\times 10^{-7}$	CL=90%
Γ_{379}	$\overline{D}^0 e^+ e^- +$ c.c.	< 8.5	$\times 10^{-8}$	CL=90%
Γ_{380}	$D_s^- e^+ \nu_e +$ c.c.	< 1.3	$\times 10^{-6}$	CL=90%
Γ_{381}	$D_s^{*-} e^+ \nu_e +$ c.c.	< 1.8	$\times 10^{-6}$	CL=90%
Γ_{382}	$D^- \pi^+ +$ c.c.	< 7.0	$\times 10^{-8}$	CL=90%
Γ_{383}	$D^- \rho^+ +$ c.c	< 6.0	$\times 10^{-7}$	CL=90%
Γ_{384}	$\overline{D}^0 \pi^0 +$ c.c	< 4.7	$\times 10^{-7}$	CL=90%
Γ_{385}	$\overline{D}^0 \overline{K}^0 +$ c.c.	< 1.7	$\times 10^{-4}$	CL=90%
Γ_{386}	$\overline{D}^0 \overline{K}^{*0} +$ c.c.	< 2.5	$\times 10^{-6}$	CL=90%
Γ_{387}	$\overline{D}^0 \eta +$ c.c	< 6.8	$\times 10^{-7}$	CL=90%
Γ_{388}	$\overline{D}^0 \rho^0 +$ c.c	< 5.2	$\times 10^{-7}$	CL=90%
Γ_{389}	$D_s^- \pi^+ +$ c.c.	< 1.3	$\times 10^{-4}$	CL=90%
Γ_{390}	$D_s^- \rho^+ +$ c.c.	< 1.3	$\times 10^{-5}$	CL=90%

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

Γ_{391}	$\gamma\gamma$	C	< 2.7	$\times 10^{-7}$	CL=90%
Γ_{392}	$\gamma\phi$	C	< 1.4	$\times 10^{-6}$	CL=90%
Γ_{393}	$e^\pm \mu^\mp$	LF	< 1.6	$\times 10^{-7}$	CL=90%
Γ_{394}	$e^\pm \tau^\mp$	LF	< 7.5	$\times 10^{-8}$	CL=90%
Γ_{395}	$\mu^\pm \tau^\mp$	LF	< 2.0	$\times 10^{-6}$	CL=90%
Γ_{396}	$\Lambda_c^+ e^-$ +c.c.		< 6.9	$\times 10^{-8}$	CL=90%

Other decays

Γ_{397}	invisible	< 7	$\times 10^{-4}$	CL=90%
Γ_{398}	$\mu^+\mu^- X^0 \to \mu^+\mu^- +$ invisible			

[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.

FIT INFORMATION

A multiparticle fit to $\eta_c(1S)$, $J/\psi(1S)$, $\psi(2S)$, $h_c(1P)$, and $B^\pm$ with the total width, 10 combinations of partial widths obtained from integrated cross section, and 38 branching ratios uses 113 measurements to determine 19 parameters. The overall fit has a $\chi^2 = 184.6$ for 94 degrees of freedom.

$J/\psi(1S)$ 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_{391}

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 $e^+e^- \rightarrow \mu^+\mu^-\gamma$
331.8± 5.2±6.3		ANASHIN	10	KEDR	3.097 $e^+e^- \rightarrow \mu^+\mu^-$
338.4± 5.8±7.1	13k	ADAMS	06A	CLEO	$e^+e^- \rightarrow \mu^+\mu^-\gamma$
330.1± 7.7±7.3	7.8k	AUBERT	04	BABR	$e^+e^- \rightarrow \mu^+\mu^-\gamma$
• • • 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.

$\Gamma(\eta\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{16}\Gamma_5/\Gamma$

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

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

$\Gamma(\eta\pi^+\pi^-\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{18}\Gamma_5/\Gamma$

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

[1] LEES 21C reports $[\Gamma(J/\psi(1S) \rightarrow \eta\pi^+\pi^-\pi^0) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{total}] \times [B(\eta \rightarrow 3\pi^0)] = 21.1 \pm 1.7 \pm 3.2$ eV which we divide by our best value $B(\eta \rightarrow 3\pi^0) = (32.56 \pm 0.21) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\eta\pi^+\pi^-3\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{19}\Gamma_5/\Gamma$

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

[1] LEES 21C reports $[\Gamma(J/\psi(1S) \rightarrow \eta\pi^+\pi^-3\pi^0) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{total}] \times [B(\eta \rightarrow 2\gamma)] = 10.6 \pm 1.6 \pm 1.6$ 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.

$\Gamma(\eta K^+K^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{22}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
4.76±1.64±0.03	[1] LEES	23	BABR	$e^+e^- \rightarrow \gamma_{ISR}$hadrons

[1] LEES 23 reports $[\Gamma(J/\psi(1S) \rightarrow \eta K^+K^-) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{total}] \times [B(\eta \rightarrow 3\pi^0)] = 1.55 \pm 0.51 \pm 0.16$ eV which we divide by our best value $B(\eta \rightarrow 3\pi^0) = (32.56 \pm 0.21) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\eta K^\pm K^0_S\pi^\mp) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{23}\Gamma_5/\Gamma$

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

$\Gamma(\rho^{\pm}\pi^{\mp}\pi^+\pi^- 2\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{26}\Gamma_5/\Gamma$

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

$\Gamma(\rho^+\rho^-\pi^+\pi^-\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{27}\Gamma_5/\Gamma$

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

$\Gamma(\rho^{\mp}K^{\pm}K^0_S) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{29}\Gamma_5/\Gamma$

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

$\Gamma(\omega\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{44}\Gamma_5/\Gamma$

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

[1] AUBERT 07AU reports $[\Gamma(J/\psi(1S) \to \omega\pi^+\pi^-) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\omega(782) \to \pi^+\pi^-\pi^0)] = 47.8 \pm 3.1 \pm 3.2$ 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.

$\Gamma(\omega\pi^0\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{45}\Gamma_5/\Gamma$

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

[1] LEES 18E reports $[\Gamma(J/\psi(1S) \to \omega\pi^0\pi^0) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\omega(782) \to \pi^+\pi^-\pi^0)] = 24.8 \pm 1.8 \pm 2.5$ 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.

$\Gamma(\omega 3\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{46}\Gamma_5/\Gamma$

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

[1] LEES 21C reports $[\Gamma(J/\psi(1S) \to \omega 3\pi^0) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\omega(782) \to \pi^+\pi^-\pi^0)] = 9.4 \pm 2.3 \pm 1.5$ 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.

$\Gamma(\omega\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{48}\Gamma_5/\Gamma$

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 $B(\eta \to 3\pi^0) = (32.56 \pm 0.21) \times 10^{-2}$, $B(\omega(782) \to \pi^+\pi^-\pi^0) = (89.2 \pm 0.7) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

$\Gamma(\omega\pi^+\pi^-\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{49}\Gamma_5/\Gamma$

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

$\Gamma(\omega\pi^0\eta) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{50}\Gamma_5/\Gamma$

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 $[\Gamma(J/\psi(1S) \to \omega\pi^0\eta) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{\text{total}}] \times [B(\omega(782) \to \pi^+\pi^-\pi^0)] = 1.7 \pm 0.8 \pm 0.3$ 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.

$\Gamma(\omega\pi^+\pi^-2\pi^0) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{52}\Gamma_5/\Gamma$

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 $[\Gamma(J/\psi(1S) \to \omega\pi^+\pi^-2\pi^0) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{\text{total}}] \times [B(\omega(782) \to \pi^+\pi^-\pi^0)] = 165 \pm 9 \pm 25$ 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.

$\Gamma(\omega K\overline{K}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{64}\Gamma_5/\Gamma$

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 $[\Gamma(J/\psi(1S) \to \omega K\overline{K}) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{\text{total}}] \times [B(\omega(782) \to \pi^+\pi^-\pi^0)] = 3.3 \pm 1.3 \pm 1.2$ 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.

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

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

$\Gamma(K^+K^*(892)^- + \text{c.c.} \to K^+K^-\pi^0) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{74}\Gamma_5/\Gamma$

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

$\Gamma(K^+K^*(892)^- + \text{c.c.} \to K^0K^\pm\pi^\mp + \text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{75}\Gamma_5/\Gamma$

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

$\Gamma(K^0\overline{K}^*(892)^0 + \text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{76}\Gamma_5/\Gamma$

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

$\Gamma(K^0\overline{K}^*(892)^0 + \text{c.c.} \to K^0K^\pm\pi^\mp + \text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{77}\Gamma_5/\Gamma$

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

$\Gamma(\overline{K}^*(892)^0K^+\pi^- + \text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{78}\Gamma_5/\Gamma$

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.

$\Gamma(K^*(892)^{\pm} K^{\mp} \pi^0) \times \Gamma(e^+ e^-)/\Gamma_{total}$ — $\Gamma_{79}\Gamma_5/\Gamma$

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.

$\Gamma(K^*(892)^+ K^0_S \pi^- + \text{c.c.}) \times \Gamma(e^+ e^-)/\Gamma_{total}$ — $\Gamma_{80}\Gamma_5/\Gamma$

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.

$\Gamma(K^*(892)^+ K^0_S \pi^- + \text{c.c.} \to K^0_S K^0_S \pi^+ \pi^-) \times \Gamma(e^+ e^-)/\Gamma_{total}$ — $\Gamma_{81}\Gamma_5/\Gamma$

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

$\Gamma(K^*(892)^0 K^0_S \pi^0) \times \Gamma(e^+ e^-)/\Gamma_{total}$ — $\Gamma_{84}\Gamma_5/\Gamma$

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.

$\Gamma(K^*(892)^0 \overline{K}^*(892)^0) \times \Gamma(e^+ e^-)/\Gamma_{total}$ — $\Gamma_{86}\Gamma_5/\Gamma$

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.

$\Gamma(K^*(892)^{\pm} K^*(892)^{\mp}) \times \Gamma(e^+ e^-)/\Gamma_{total}$ — $\Gamma_{87}\Gamma_5/\Gamma$

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.

$\Gamma(K^*_2(1430)^+ K^0_S \pi^- + \text{c.c.}) \times \Gamma(e^+ e^-)/\Gamma_{total}$ — $\Gamma_{98}\Gamma_5/\Gamma$

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

[1] Dividing by 1/4 to take into account B($K^*(1430) \to K^0_S \pi$) = 1/4 B($K^*(1430) \to K \pi$).
[2] LEES 14H reports [$\Gamma(J/\psi(1S) \to K^*_2(1430)^+ K^0_S \pi^- + \text{c.c.}) \times \Gamma(J/\psi(1S) \to e^+ e^-)/\Gamma_{total}$] × [B($K^*_2(1430) \to K \pi$)] = 10.0 ± 4.8 ± 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.

$\Gamma\big(\overline{K}{}_2^*(1430)^0 K^*(892)^0 + \text{c.c.}\big) \times \Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ $\Gamma_{99}\Gamma_5/\Gamma$

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

[1] LEES 12F reports $[\Gamma\big(J/\psi(1S) \rightarrow \overline{K}{}_2^*(1430)^0 K^*(892)^0 + \text{c.c.}\big) \times \Gamma\big(J/\psi(1S) \rightarrow e^+e^-\big)/\Gamma_{\text{total}}] \times [B(K_2^*(1430) \rightarrow K\pi)] = 12.89 \pm 0.54 \pm 0.41$ eV which we divide by our best value $B(K_2^*(1430) \rightarrow K\pi) = (49.9 \pm 1.2) \times 10^{-2}$. 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 $B(K^{*0} \rightarrow K^+\pi^-) = 2/3\ B(K^{*0} \rightarrow K\pi)$.

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

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

$\Gamma\big(K_2^*(1430)^- K^*(892)^+ + \text{c.c.}\big) \times \Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ $\Gamma_{100}\Gamma_5/\Gamma$

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

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

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

$\Gamma\big(K_2^*(1430)^- K^*(892)^+ + \text{c.c.} \rightarrow K^*(892)^+ K_S^0 \pi^- + \text{c.c.}\big) \times \Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ $\Gamma_{101}\Gamma_5/\Gamma$

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

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

$\Gamma\big(\overline{K}_2(1770)^0 K^*(892)^0 + \text{c.c.} \rightarrow K^*(892)^0 K^- \pi^+ + \text{c.c.}\big) \times \Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ $\Gamma_{103}\Gamma_5/\Gamma$

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

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

$\Gamma(\phi\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{110}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
4.41±0.34 OUR AVERAGE				
4.39±0.48±0.05	181	[1] LEES 12F	BABR	10.6 $e^+e^- \rightarrow K^+K^-\pi^+\pi^-\gamma$
4.44±0.48±0.05	254 ± 23	[2] SHEN 09	BELL	10.6 $e^+e^- \rightarrow K^+K^-\pi^+\pi^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5.2 ±0.7 ±0.1	103	[3] AUBERT,BE 06D	BABR	10.6 $e^+e^- \rightarrow K^+K^-\pi^+\pi^-\gamma$

[1] LEES 12F reports $[\Gamma(J/\psi(1S) \rightarrow \phi\pi^+\pi^-) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \rightarrow K^+K^-)] = 2.19 \pm 0.23 \pm 0.07$ eV which we divide by our best value $B(\phi(1020) \rightarrow K^+K^-) = (49.9 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] SHEN 09 reports $4.50 \pm 0.41 \pm 0.26$ eV from a measurement of $[\Gamma(J/\psi(1S) \rightarrow \phi\pi^+\pi^-) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \rightarrow K^+K^-)]$ assuming $B(\phi(1020) \rightarrow K^+K^-) = (49.2 \pm 0.6) \times 10^{-2}$, which we rescale to our best value $B(\phi(1020) \rightarrow K^+K^-) = (49.9 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] Superseded by LEES 12F. AUBERT,BE 06D reports $[\Gamma(J/\psi(1S) \rightarrow \phi\pi^+\pi^-) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \rightarrow K^+K^-)] = 2.61 \pm 0.30 \pm 0.18$ eV which we divide by our best value $B(\phi(1020) \rightarrow K^+K^-) = (49.9 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi\pi^0\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{111}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
2.73±0.56±0.03	45	[1] LEES 12F	BABR	10.6 $e^+e^- \rightarrow K^+K^-\pi^0\pi^0\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
3.09±0.86±0.03	23	[2] AUBERT,BE 06D	BABR	10.6 $e^+e^- \rightarrow K^+K^-\pi^0\pi^0\gamma$

[1] LEES 12F reports $[\Gamma(J/\psi(1S) \rightarrow \phi\pi^0\pi^0) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \rightarrow K^+K^-)] = 1.36 \pm 0.27 \pm 0.07$ eV which we divide by our best value $B(\phi(1020) \rightarrow K^+K^-) = (49.9 \pm 0.5) \times 10^{-2}$. 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,BE 06D reports $[\Gamma(J/\psi(1S) \rightarrow \phi\pi^0\pi^0) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \rightarrow K^+K^-)] = 1.54 \pm 0.40 \pm 0.16$ eV which we divide by our best value $B(\phi(1020) \rightarrow K^+K^-) = (49.9 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi 2(\pi^+\pi^-)) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{112}\Gamma_5/\Gamma$

VALUE (10^{-2} keV)	EVTS	DOCUMENT ID	TECN	COMMENT
0.94±0.19±0.01	35	[1] AUBERT 06D	BABR	10.6 $e^+e^- \rightarrow \phi 2(\pi^+\pi^-)\gamma$

[1] AUBERT 06D reports $[\Gamma(J/\psi(1S) \rightarrow \phi 2(\pi^+\pi^-)) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \rightarrow K^+K^-)] = (0.47 \pm 0.09 \pm 0.03) \times 10^{-2}$ keV which we divide by our best value $B(\phi(1020) \rightarrow K^+K^-) = (49.9 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{113}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
4.6±1.4 OUR AVERAGE					
4.1±1.6±0.4		[1] LEES	23	BABR	$e^+e^- \to \gamma_{ISR}$ hadrons
6.1±2.7±0.4	6	[2] AUBERT	07AU	BABR	10.6 $e^+e^- \to \phi\eta\gamma$

[1] LEES 23 quotes $\Gamma^{J/\psi}_{ee} \cdot$ B($J/\psi \to \phi\eta$) $\cdot$ B($\phi \to K^+K^-$) $\cdot$ B($\eta \to 3\pi^0$) = 0.64 ± 0.26 ± 0.06 eV.

[2] 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 ± 0.37 ± 0.05 eV.

$\Gamma(\phi f_0(980) \to \phi\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{117}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
1.42±0.18 OUR AVERAGE					
1.38±0.24±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. • • •					
1.00±0.23±0.01	20 ± 5	[3] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^+\pi^-K^+K^-\gamma$

[1] LEES 12F reports [Γ($J/\psi(1S) \to \phi f_0(980) \to \phi\pi^+\pi^-$) × Γ($J/\psi(1S) \to e^+e^-$)/$\Gamma_{total}$] × [B($\phi(1020) \to K^+K^-$)] = 0.69 ± 0.11 ± 0.05 eV which we divide by our best value B($\phi(1020) \to K^+K^-$) = (49.9 ± 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] Multiplied by 2/3 to take into account the $\phi\pi^+\pi^-$ mode only. Using B($\phi \to K^+K^-$) = (49.2 ± 0.6)%.

[3] Superseded by LEES 12F. AUBERT 07AK reports [Γ($J/\psi(1S) \to \phi f_0(980) \to \phi\pi^+\pi^-$) × Γ($J/\psi(1S) \to e^+e^-$)/$\Gamma_{total}$] × [B($\phi(1020) \to K^+K^-$)] = 0.50±0.11±0.04 eV which we divide by our best value B($\phi(1020) \to K^+K^-$) = (49.9±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.

$\Gamma(\phi f_0(980) \to \phi\pi^0\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{118}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
0.96±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. • • •					
0.94±0.39±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 [Γ($J/\psi(1S) \to \phi f_0(980) \to \phi\pi^0\pi^0$) × Γ($J/\psi(1S) \to e^+e^-$)/$\Gamma_{total}$] × [B($\phi(1020) \to K^+K^-$)] = 0.48 ± 0.12 ± 0.05 eV which we divide by our best value B($\phi(1020) \to K^+K^-$) = (49.9 ± 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 07AK reports [Γ($J/\psi(1S) \to \phi f_0(980) \to \phi\pi^0\pi^0$) × Γ($J/\psi(1S) \to e^+e^-$)/$\Gamma_{total}$] × [B($\phi(1020) \to K^+K^-$)] = 0.47±0.19±0.05 eV which we divide by our best value B($\phi(1020) \to K^+K^-$) = (49.9±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.

$\Gamma(\phi f_2(1270)) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{126}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{1.79 \pm 0.32^{+0.02}_{-0.06}}$	61	[1,2,3] LEES	12F	BABR	10.6 $e^+e^- \rightarrow \pi^+\pi^-K^+K^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$4.08 \pm 0.73^{+0.05}_{-0.14}$	44	[2,4] AUBERT	07AK	BABR	10.6 $e^+e^- \rightarrow \pi^+\pi^-K^+K^-\gamma$

[1] LEES 12F reports $[\Gamma(J/\psi(1S) \rightarrow \phi f_2(1270)) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{total}] \times [B(f_2(1270) \rightarrow \pi\pi)] = 1.51 \pm 0.25 \pm 0.10$ eV which we divide by our best value $B(f_2(1270) \rightarrow \pi\pi) = (84.3^{+2.8}_{-1.0}) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

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

[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 $[\Gamma(J/\psi(1S) \rightarrow \phi f_2(1270)) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{total}] \times [B(f_2(1270) \rightarrow \pi\pi)] = 3.44 \pm 0.55 \pm 0.28$ eV which we divide by our best value $B(f_2(1270) \rightarrow \pi\pi) = (84.3^{+2.8}_{-1.0}) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi f_2'(1525)) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{131}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
8.1±3.2±0.2	11	[1,2] LEES	14H	BABR	$e^+e^- \rightarrow K^0_S K^0_S K^+K^-\gamma$

[1] Dividing by 1/4 to take into account $B(f_2'(1525) \rightarrow K^0_S K^0_S) = 1/4\ B(f_2'(1525) \rightarrow K\overline{K})$ and using $B(\phi \rightarrow K^+K^-) = (48.9 \pm 0.5)\%$.

[2] LEES 14H reports $[\Gamma(J/\psi(1S) \rightarrow \phi f_2'(1525)) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{total}] \times [B(f_2'(1525) \rightarrow K\overline{K})] = 7.2 \pm 2.8 \pm 0.3$ eV which we divide by our best value $B(f_2'(1525) \rightarrow K\overline{K}) = (88.8 \pm 2.2) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi K^+K^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{137}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
4.53±0.61±0.05	163	[1] LEES	12F	BABR	10.6 $e^+e^- \rightarrow K^+K^-K^+K^-\gamma$

[1] LEES 12F reports $[\Gamma(J/\psi(1S) \rightarrow \phi K^+K^-) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \rightarrow K^+K^-)] = 2.26 \pm 0.26 \pm 0.16$ eV which we divide by our best value $B(\phi(1020) \rightarrow K^+K^-) = (49.9 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi K^0_S K^0_S) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{138}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
3.21±0.83±0.03	29	[1] LEES	14H	BABR	$e^+e^- \rightarrow K^0_S K^0_S K^+K^-\gamma$

[1] LEES 14H reports $[\Gamma(J/\psi(1S) \rightarrow \phi K^0_S K^0_S) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \rightarrow K^+K^-)] = 1.6 \pm 0.4 \pm 0.1$ eV which we divide by our best value $B(\phi(1020) \rightarrow K^+K^-) = (49.9 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(f'_2(1525)K^+K^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{143}\Gamma_5/\Gamma$

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 [$\Gamma(J/\psi(1S) \to f'_2(1525)K^+K^-) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}$] × [B($f'_2(1525) \to K\overline{K}$)] = 5.12 ± 1.68 ± 0.20 eV which we divide by our best value B($f'_2(1525) \to K\overline{K}$) = (88.8 ± 2.2) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(2(\pi^+\pi^-)\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{164}\Gamma_5/\Gamma$

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

$\Gamma(\pi^+\pi^-3\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{166}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
100 ±50 OUR AVERAGE		Error includes scale factor of 4.3.			
55 ±16 ± 1	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 [$\Gamma(J/\psi(1S) \to \pi^+\pi^-3\pi^0) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}$] × [$\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)/\Gamma_{total}$] = 19.2 ± 4.5 ± 3.2 eV which we divide by our best value $\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)/\Gamma_{total}$ = 0.3469 ± 0.0034. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\pi^+\pi^-4\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{169}\Gamma_5/\Gamma$

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

$\Gamma(\rho^\pm\pi^\mp\pi^0\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{167}\Gamma_5/\Gamma$

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

$\Gamma(\rho^+\rho^-\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{168}\Gamma_5/\Gamma$

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

$\Gamma(\pi^+\pi^-\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{170}\Gamma_5/\Gamma$

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 $e^+e^- \to \pi^+\pi^-\pi^0\gamma$

$\Gamma(2(\pi^+\pi^-\pi^0)) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{171}\Gamma_5/\Gamma$

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

$\Gamma(\pi^+\pi^-\pi^0 K^+ K^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{172}\Gamma_5/\Gamma$

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

$\Gamma(2(\pi^+\pi^-)) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{174}\Gamma_5/\Gamma$

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.

$\Gamma(3(\pi^+\pi^-)) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{175}\Gamma_5/\Gamma$

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

$\Gamma(2(\pi^+\pi^-)3\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{176}\Gamma_5/\Gamma$

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

$\Gamma(2(\pi^+\pi^-)\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{178}\Gamma_5/\Gamma$

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.

$\Gamma(2(\pi^+\pi^-\pi^0)\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{180}\Gamma_5/\Gamma$

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

$\Gamma(\pi^+\pi^-\pi^0\pi^0\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{181}\Gamma_5/\Gamma$

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.

$\Gamma(\rho^\pm\pi^\mp\pi^0\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{182}\Gamma_5/\Gamma$

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

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

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.78±0.11±0.05	462	[1] LEES	15J	BABR	$e^+e^- \to K^+K^-\gamma$
1.94±0.11±0.05	462	[2] LEES	15J	BABR	$e^+e^- \to K^+K^-\gamma$
1.42±0.23±0.08	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.

$\Gamma(K^0_S K^0_L \pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{189}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
11.4±1.3±0.6	182	LEES	17A	BABR	$e^+e^- \to K^0_S K^0_L \pi^0 \gamma$

$\Gamma(K^*(892)^0 \overline{K}^0 + \text{c.c.} \to K^0_S K^0_L \pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{190}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
6.7±0.9±0.4	106	LEES	17A	BABR	$e^+e^- \to K^0_S K^0_L \pi^0 \gamma$

$\Gamma(K^*_2(1430)^0 \overline{K}^0 + \text{c.c.} \to K^0_S K^0_L \pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{191}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
2.4±0.7±0.1	37	LEES	17A	BABR	$e^+e^- \to K^0_S K^0_L \pi^0 \gamma$

$\Gamma(K^+K^-\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{192}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
37.94±0.81±1.10	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 ±1.3 ±2.1	1.5k	[1] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^+\pi^-K^+K^-\gamma$
33.6 ±2.7 ±2.7	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.

$\Gamma(K^+K^-\pi^0\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{193}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
11.75±0.81±0.90	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 ±1.1 ±1.3	203	[1] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^0\pi^0K^+K^-\gamma$

[1] Superseded by LEES 12F.

$\Gamma(K^+K^-\pi^0\pi^0\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{194}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
8.9±1.3±0.9	LEES	23	BABR	$e^+e^- \to \gamma_{ISR}$ hadrons

$\Gamma(K^0_S K^\pm \pi^\mp \pi^0\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{195}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
29.3±2.6±2.9	LEES	23	BABR	$e^+e^- \to \gamma_{ISR}$ hadrons

$\Gamma(K^0_S K^{\pm}\pi^{\mp}\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{196}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
34.6±1.4±1.8	LEES	23	BABR	$e^+e^- \to \gamma_{ISR}$ hadrons

$\Gamma(K^0_S K^{\pm}\rho(770)^{\pm}\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{197}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
16.0±4.1±1.6	LEES	23	BABR	$e^+e^- \to \gamma_{ISR}$ hadrons

$\Gamma(K^0_S K^0_L \pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{198}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
20.8±2.3±2.1	248	LEES	14H	BABR	$e^+e^- \to \pi^+\pi^- K^0_S K^0_L \gamma$

$\Gamma(K^0_S K^0_L \pi^0\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{199}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
10.3±2.3±0.5	47	LEES	17A	BABR	$e^+e^- \to K^0_S K^0_L \pi^0\pi^0\gamma$

$\Gamma(K^0_S K^0_L \eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{200}\Gamma_5/\Gamma$

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

$\Gamma(K^0_S K^0_S \pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{201}\Gamma_5/\Gamma$

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

$\Gamma(K^{\mp} K^0_S \pi^{\pm}\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{202}\Gamma_5/\Gamma$

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

$\Gamma(K^0_S K^{\pm}\pi^{\mp}\rho(770)^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{203}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
17.3±2.1±1.7	LEES	23	BABR	$e^+e^- \to \gamma_{ISR}$ hadrons

$\Gamma(K^+K^- 2(\pi^+\pi^-)) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{204}\Gamma_5/\Gamma$

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

$\Gamma(K^+K^-\pi^+\pi^-\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{205}\Gamma_5/\Gamma$

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

[1] AUBERT 07AU reports $[\Gamma(J/\psi(1S) \to K^+K^-\pi^+\pi^-\eta) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\eta \to 2\gamma)] = 10.2 \pm 1.3 \pm 0.8$ 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.

$\Gamma(2(K^+K^-)) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{206}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
4.00±0.33±0.29	287 ± 24	LEES	12F	BABR	10.6 $e^+e^- \to 2(K^+K^-)\gamma$
• • • 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 $e^+e^- \to 2(K^+K^-)\gamma$
4.0 ±0.7 ±0.6	38	[2] AUBERT	05D	BABR	10.6 $e^+e^- \to 2(K^+K^-)\gamma$

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

$\Gamma(K^+K^-K^0_S K^0_S) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{207}\Gamma_5/\Gamma$

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

$\Gamma(K^0_S K^*(892)^0\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{208}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
9.45±3.15±0.90	LEES	23	BABR	$e^+e^- \to \gamma_{ISR}$ hadrons

$\Gamma(K^0_S K^*(892)^0\pi^0\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{209}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
5.59±0.79±0.55	LEES	23	BABR	$e^+e^- \to \gamma_{ISR}$ hadrons

$\Gamma(K^\mp K^*(892)^\pm\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{210}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
18.6±6.3±1.8	LEES	23	BABR	$e^+e^- \to \gamma_{ISR}$ hadrons

$\Gamma(K^*(892)^\pm K^*(892)^0\pi^\mp) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{211}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
26.6±4.5±2.7	LEES	23	BABR	$e^+e^- \to \gamma_{ISR}$ hadrons

$\Gamma(K^\mp K^*(892)^\pm\pi^0\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{212}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
8.67±1.56±0.84	LEES	23	BABR	$e^+e^- \to \gamma_{ISR}$ hadrons

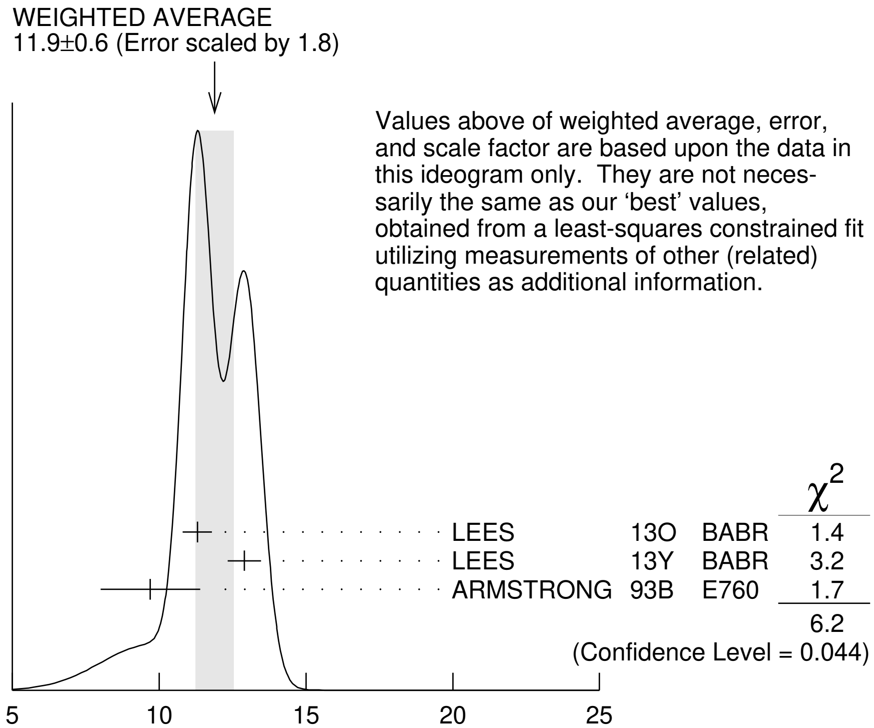
$\Gamma(K^*(892)^+K^*(892)^-\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{213}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
62.1±10.8±6.30	LEES	23	BABR	$e^+e^- \to \gamma_{ISR}$ hadrons

$\Gamma(p\overline{p}) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{214}\Gamma_5/\Gamma$

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	$e^+e^- \to p\overline{p}\gamma$
12.9±0.4±0.4	918	[2] LEES	13Y	BABR	$e^+e^- \to p\overline{p}\gamma$
9.7±1.7		[3] ARMSTRONG	93B	E760	$\overline{p}p \to e^+e^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
12.0±0.6±0.5	438	[4] AUBERT	06B	BABR	$e^+e^- \to p\overline{p}\gamma$

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



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

$\Gamma(\Lambda\overline{\Lambda}) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{230}\Gamma_5/\Gamma$

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

$\Gamma(\Sigma^+\overline{\Sigma}^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{241}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
6.8±1.5±0.8	GONG	23	BELL	$e^+e^- \rightarrow \Sigma^+\overline{\Sigma}^-$

$\Gamma(\Sigma^0\overline{\Sigma}^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{242}\Gamma_5/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5.2±1.5±0.6	GONG	23	BELL	$e^+e^- \rightarrow \Sigma^0\overline{\Sigma}^0$
6.4±1.2±0.6	AUBERT	07BD	BABR	10.6 $e^+e^- \rightarrow \Sigma^0\overline{\Sigma}^0\gamma$

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

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

$\Gamma(\text{hadrons})/\Gamma_{total}$ — 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^-

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.1346±0.0007	[1] LIAO	23	RVUE	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.135 ±0.003	[2,3] SETH	04	RVUE	e^+e^-
0.17 ±0.02	[2] BOYARSKI	75	MRK1	e^+e^-

[1] Using B($J/\psi(1S) \to \ell^+\ell^-$) = (5.967 ± 0.023)% and $R = 2.26 \pm 0.01$ determined by a fit to data from Mark-I, DM2, BESII, KEDR, and BESIII.

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

[3] Using B($J/\psi \to \ell^+\ell^-$) = (5.90 ± 0.09)% from RPP-2002 and R = 2.28 ± 0.04 determined by a fit to data from BAI 00 and BAI 02C. Superseded by LIAO 23.

$\Gamma(ggg)/\Gamma_{total}$ — 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 $\Gamma(\gamma gg)/\Gamma_{total}$ measurement of BESSON 08.

$\Gamma(\gamma gg)/\Gamma_{total}$ — 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 $\Gamma(ggg)/\Gamma_{total}$. The statistical error is negligible and the systematic error is partially correlated with that of $\Gamma(ggg)/\Gamma_{total}$ 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	$\psi(2S) \to \pi^+\pi^- J/\psi$

$\Gamma(e^+e^-)/\Gamma_{total}$ — 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^-

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

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

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

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

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

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
5.48±0.31±0.45	700	[1] ABLIKIM	24L	BES3	$\psi(2S) \to \pi^+\pi^- J/\psi$

[1] $B(\psi(2S) \to \pi^+\pi^- J/\psi) = (34.68 \pm 0.30)\%$ from PDG 20 was used.

$\Gamma(e^+e^-\mu^+\mu^-)/\Gamma_{total}$ — Γ_9/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
3.53±0.22±0.13	354	[1] ABLIKIM	24L	BES3	$\psi(2S) \to \pi^+\pi^- J/\psi$

[1] $B(\psi(2S) \to \pi^+\pi^- J/\psi) = (34.68 \pm 0.30)\%$ from PDG 20 was used.

$\Gamma(\mu^+\mu^-\mu^+\mu^-)/\Gamma_{total}$ — Γ_{10}/Γ

VALUE (units 10^{-7})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$11.3\pm1.1\pm0.1$		452	[1] AAIJ	24AE	LHCB	$J/\psi \to \mu^+\mu^-\mu^+\mu^-$
<16	90	3.4	[2] ABLIKIM	24L	BES3	$\psi(2S) \to \pi^+\pi^- J/\psi$
$10.1^{+3.3}_{-2.8}\pm0.1$		12	[3] HAYRAPETY...	24A	CMS	$J/\psi \to \mu^+\mu^-\mu^+\mu^-$

[1] AAIJ 24AE reports $[\Gamma(J/\psi(1S) \to \mu^+\mu^-\mu^+\mu^-)/\Gamma_{total}]$ / $[B(J/\psi(1S) \to \mu^+\mu^-)] = (1.89 \pm 0.17 \pm 0.09) \times 10^{-5}$ which we multiply by our best value $B(J/\psi(1S) \to \mu^+\mu^-) = (5.961 \pm 0.033) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Measured with $\psi(2S) \to \pi^+\pi^- J/\psi$, $J/\psi \to \mu^+\mu^-\mu^+\mu^-$. $B(\psi(2S) \to \pi^+\pi^- J/\psi) = (34.68 \pm 0.30)\%$ from PDG 20 was used.

[3] HAYRAPETYAN 24A reports $[\Gamma(J/\psi(1S) \to \mu^+\mu^-\mu^+\mu^-)/\Gamma_{total}]$ / $[B(J/\psi(1S) \to \mu^+\mu^-)] = (16.9^{+5.5}_{-4.6} \pm 0.6) \times 10^{-6}$ which we multiply by our best value $B(J/\psi(1S) \to \mu^+\mu^-) = (5.961 \pm 0.033) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\mu^+\mu^-\mu^+\mu^-)/\Gamma(\mu^+\mu^-)$ — Γ_{10}/Γ_7

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
18.7±1.8 OUR AVERAGE					
$18.9\pm1.7\pm0.9$	452	[1] AAIJ	24AE	LHCB	$J/\psi \to \mu^+\mu^-\mu^+\mu^-$
$16.9^{+5.5}_{-4.6}\pm0.6$	12	HAYRAPETY...	24A	CMS	$J/\psi \to \mu^+\mu^-\mu^+\mu^-$

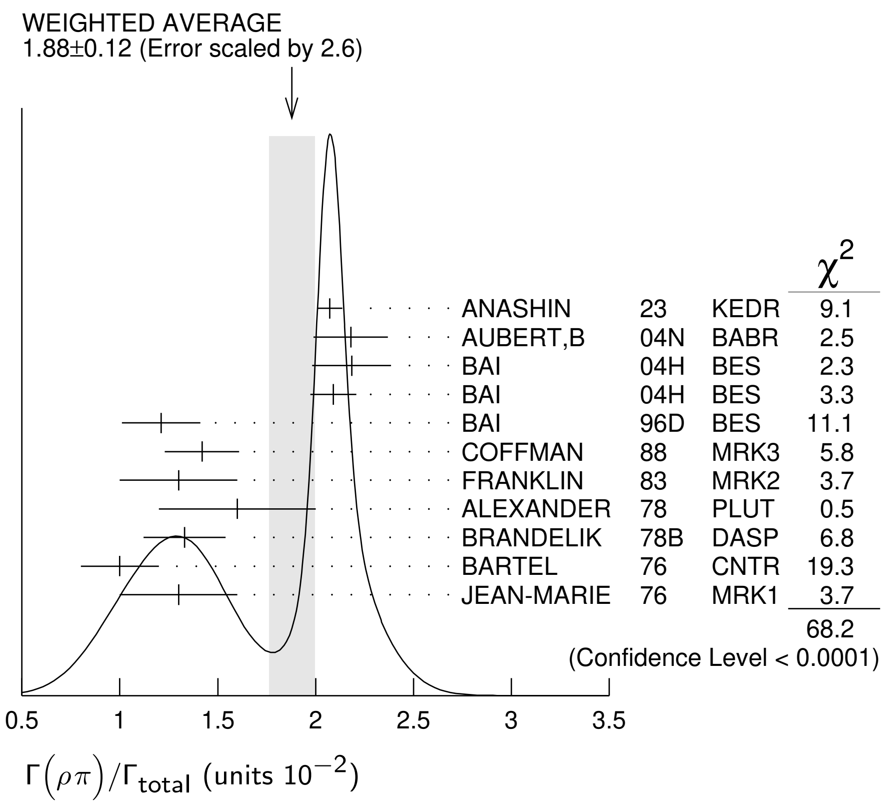
[1] Includes prompt production and inclusive decays of b-hadrons.

HADRONIC DECAYS

$\Gamma(\rho\pi)/\Gamma_{total}$ — Γ_{11}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.88 ±0.12 OUR AVERAGE		Error includes scale factor of 2.6. See the ideogram below.			
$2.072\pm0.017\pm0.062$	19.8k	[1] ANASHIN	23	KEDR	$e^+e^- \to J/\psi \to \pi^+\pi^-\pi^0$
$2.18\ \pm0.19$		[2,3] AUBERT,B	04N	BABR	$10.6\ e^+e^- \to \pi^+\pi^-\pi^0\gamma$
$2.184\pm0.005\pm0.201$	220k	[3,4] BAI	04H	BES	$e^+e^- \to J/\psi \to \pi^+\pi^-\pi^0$
$2.091\pm0.021\pm0.116$		[3,5] BAI	04H	BES	$\psi(2S) \to \pi^+\pi^- J/\psi$
$1.21\ \pm0.20$		BAI	96D	BES	$e^+e^- \to \rho\pi$
$1.42\ \pm0.01\ \pm0.19$		COFFMAN	88	MRK3	e^+e^-
$1.3\ \pm0.3$	150	FRANKLIN	83	MRK2	e^+e^-
$1.6\ \pm0.4$	183	ALEXANDER	78	PLUT	e^+e^-
$1.33\ \pm0.21$		BRANDELIK	78B	DASP	e^+e^-
$1.0\ \pm0.2$	543	BARTEL	76	CNTR	e^+e^-
$1.3\ \pm0.3$	153	JEAN-MARIE	76	MRK1	e^+e^-

[1] By a simultaneous fit of the $\pi\pi$ invariant mass distribution over the decay modes $J/\psi \to \rho^0\pi^0$, $J/\psi \to \rho^+\pi^-$, $J/\psi \to \rho^-\pi^+$. In the fit only the intermediate states $\rho(770)\pi$ and $\rho(1450)\pi$ are considered.
[2] From the ratio of $\Gamma(e^+e^-)$ B($\pi^+\pi^-\pi^0$) and $\Gamma(e^+e^-)$ B($\mu^+\mu^-$) (AUBERT 04).
[3] Not independent of their B($\pi^+\pi^-\pi^0$).
[4] From $J/\psi \to \pi^+\pi^-\pi^0$ events directly.
[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 ± 0.10%.



$\Gamma(\rho\pi)/\Gamma(\pi^+\pi^-\pi^0)$ — Γ_{11}/Γ_{170}

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_{12}/Γ_{11}

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^-

$\Gamma\big(a_2(1320)^0\pi^+\pi^- \to 2(\pi^+\pi^-)\pi^0\big)/\Gamma_{total}$ — Γ_{13}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.84±0.08±0.60	1317	ANASHIN	22	KEDR	$J/\psi \to 2(\pi^+\pi^-)\pi^0$

$\Gamma\big(a_2(1320)^+\pi^-\pi^0 + \text{c.c} \to 2(\pi^+\pi^-)\pi^0\big)/\Gamma_{total}$ — Γ_{14}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.67±0.09±0.73	1628	ANASHIN	22	KEDR	$J/\psi \to 2(\pi^+\pi^-)\pi^0$

$\Gamma\big(a_2(1320)\rho\big)/\Gamma_{total}$ — Γ_{15}/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	$e^+e^- \to 2(\pi^+\pi^-)\pi^0$

$\Gamma\big(\eta\pi^+\pi^-\big)/\Gamma_{total}$ — Γ_{16}/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).

$\Gamma\big(\eta\rho\big)/\Gamma_{total}$ — Γ_{17}/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	$e^+e^- \to \pi^+\pi^-\eta$

$\Gamma\big(\eta\phi(2170) \to \eta\phi f_0(980) \to \eta\phi\pi^+\pi^-\big)/\Gamma_{total}$ — Γ_{20}/Γ

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

$\Gamma\big(\eta\phi(2170) \to \eta K^*(892)^0\overline{K}^*(892)^0\big)/\Gamma_{total}$ — Γ_{21}/Γ

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

$\Gamma\big(\eta K^\pm K^0_S\pi^\mp\big)/\Gamma_{total}$ — Γ_{23}/Γ

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

$\Gamma\big(\eta K^*(892)^0\overline{K}^*(892)^0\big)/\Gamma_{total}$ — Γ_{24}/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_{25}/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 $J/\psi \to \pi^+\pi^-\eta'$.

$\Gamma(\rho^+K^+K^-\pi^- + \text{c.c} \to K^+K^-\pi^+\pi^-\pi^0)/\Gamma_{total}$ — Γ_{28}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.53±0.16±0.81	485	ANASHIN	22	KEDR	$J/\psi \to K^+K^-\pi^+\pi^-\pi^0$

$\Gamma(h_1(1415)\eta' \to \gamma\eta\eta')/\Gamma_{total}$ — Γ_{30}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.08\pm0.01^{+0.01}_{-0.02}$	[1] ABLIKIM	22AS	BES3	$J/\psi(1S) \to \gamma\eta\eta'$

[1] From a Breit-Wigner fit involving 9 resonances and a resonating exotic $\eta_1(1855) \to \eta\eta'$ *P*-wave.

$\Gamma(h_1(1595)\eta' \to \gamma\eta\eta')/\Gamma_{total}$ — Γ_{31}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.16\pm0.02^{+0.03}_{-0.01}$	[1] ABLIKIM	22AS	BES3	$J/\psi(1S) \to \gamma\eta\eta'$

[1] From a Breit-Wigner fit involving 9 resonances and a resonating exotic $\eta_1(1855) \to \eta\eta'$ *P*-wave.

$\Gamma(\rho(1450)\pi \to \pi^+\pi^-\pi^0)/\Gamma_{total}$ — Γ_{33}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.2±0.2±1.1	19.8k	[1] ANASHIN	23	KEDR	$e^+e^- \to J/\psi \to \pi^+\pi^-\pi^0$

[1] By a simultaneous fit of the $\pi\pi$ invariant mass distribution over the decay modes $J/\psi \to \rho^0\pi^0$, $J/\psi \to \rho^+\pi^-$, $J/\psi \to \rho^-\pi^+$. In the fit only the intermediate states $\rho(770)\pi$ and $\rho(1450)\pi$ are considered.

$\Gamma(\rho(1450)\pi \to \pi^+\pi^-\pi^0)/\Gamma(\pi^+\pi^-\pi^0)$ — Γ_{33}/Γ_{170}

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

$\Gamma(\rho(1450)^\pm\pi^\mp \to K^0_S K^\pm\pi^\mp)/\Gamma(K^0_S K^\pm\pi^\mp)$ — Γ_{34}/Γ_{188}

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.

$\Gamma(\rho(1450)^0\pi^0 \to K^+K^-\pi^0)/\Gamma(K^+K^-\pi^0)$ — Γ_{35}/Γ_{187}

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.

$\Gamma(\rho(1450)\eta'(958) \to \pi^+\pi^-\eta'(958))/\Gamma_{total}$ — Γ_{36}/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 $J/\psi \to \pi^+\pi^-\eta'$.

$\Gamma(\rho(1700)\pi \to \pi^+\pi^-\pi^0)/\Gamma(\pi^+\pi^-\pi^0)$ — Γ_{38}/Γ_{170}

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.

$\Gamma(\rho(2150)\pi \to \pi^+\pi^-\pi^0)/\Gamma(\pi^+\pi^-\pi^0)$ — Γ_{40}/Γ_{170}

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.

$\Gamma(\rho_3(1690)\pi \to \pi^+\pi^-\pi^0)/\Gamma(\pi^+\pi^-\pi^0)$ — Γ_{41}/Γ_{170}

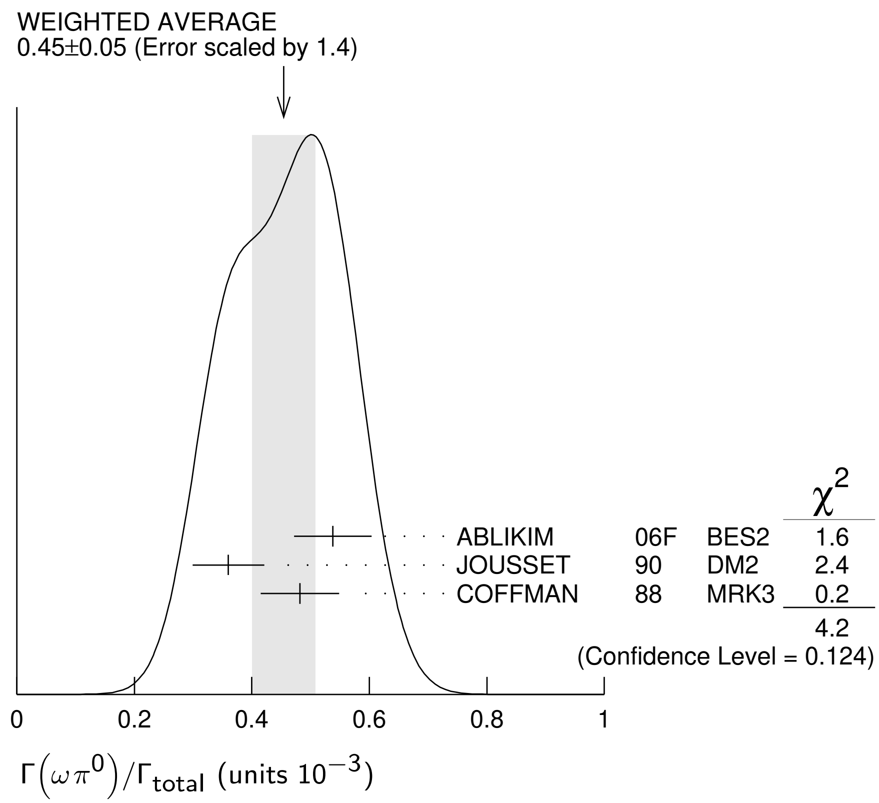
VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
4.0±0.8	20k	[1] LEES	17C	BABR	$J/\psi \to \pi^+\pi^-\pi^0$

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

$\Gamma(\omega\pi^0)/\Gamma_{total}$ — Γ_{42}/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 ± 0.7)%.



$\Gamma(\omega\pi^0 \to \pi^+\pi^-\pi^0)/\Gamma(\pi^+\pi^-\pi^0)$ $\qquad$ Γ_{43}/Γ_{170}

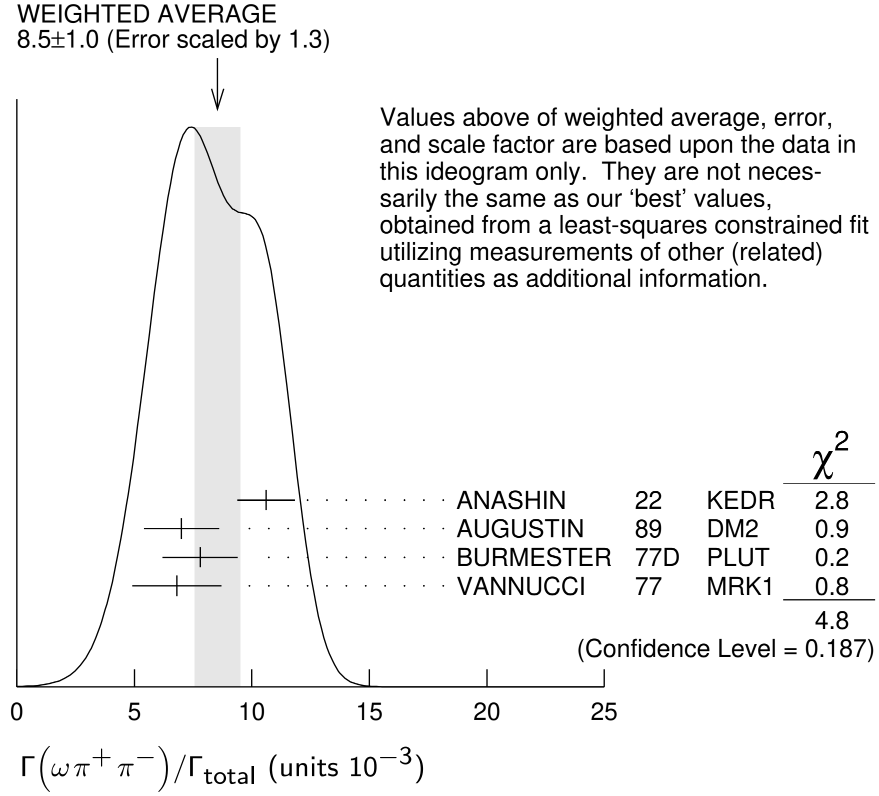
VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
8±3±2	20k	[1] LEES	17C	BABR	$J/\psi \to \pi^+\pi^-\pi^0$

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

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

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
8.5±1.0 OUR AVERAGE	Error includes scale factor of 1.3. See the ideogram below.				
10.6±1.2±0.1	3531	[1] ANASHIN	22	KEDR	$J/\psi \to 2(\pi^+\pi^-)\pi^0$
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	$e^+e^- \to 2(\pi^+\pi^-)\pi^0$

[1] ANASHIN 22 reports [$\Gamma(J/\psi(1S) \to \omega\pi^+\pi^-)/\Gamma_{total}$] × [B($\omega(782) \to \pi^+\pi^-\pi^0$)] = (0.946 ± 0.016 ± 0.108) × 10^{-2} which we divide by our best value B($\omega(782) \to \pi^+\pi^-\pi^0$) = (89.2 ± 0.7) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.



$\Gamma(\omega\pi^0\pi^0)/\Gamma_{total}$ — Γ_{45}/Γ

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

$\Gamma(\omega f_2(1270))/\Gamma_{total}$ — Γ_{47}/Γ

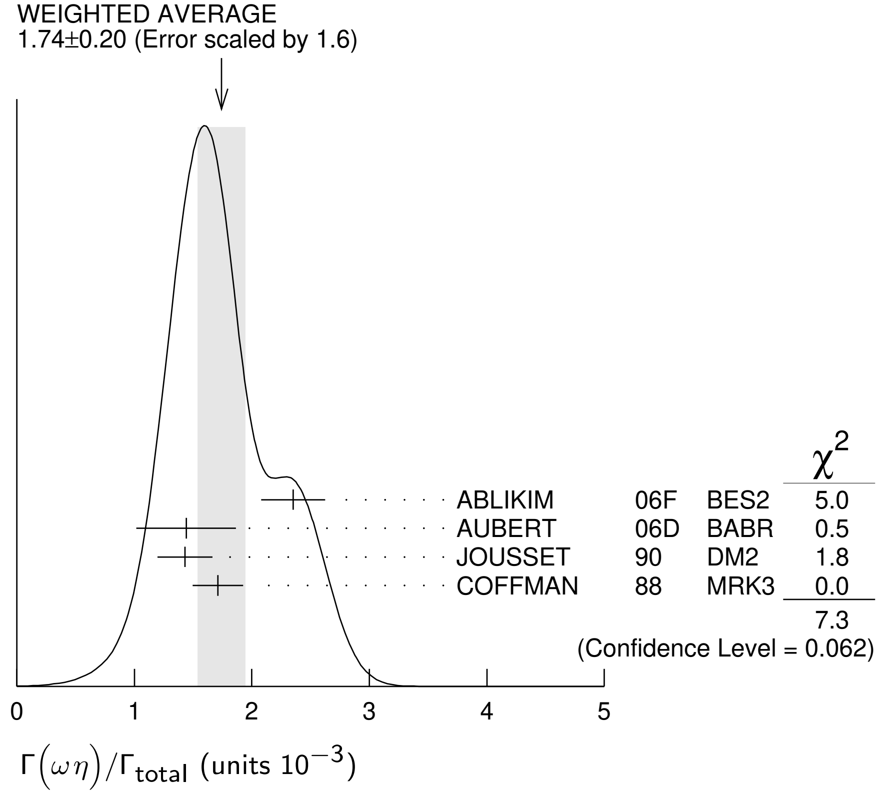
VALUE (units 10^{-3})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
4.3±0.6 OUR AVERAGE					
4.3±0.2±0.6	5860	AUGUSTIN	89	DM2	e^+e^-
4.0±1.6	70	BURMESTER	77D	PLUT	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.9±0.8	81	VANNUCCI	77	MRK1	$e^+e^- \to 2(\pi^+\pi^-)\pi^0$

$\Gamma(\omega\eta)/\Gamma_{total}$ — Γ_{48}/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.



$\Gamma(\omega\pi^+\pi^+\pi^-\pi^-)/\Gamma_{total}$ — Γ_{51}/Γ

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

$\Gamma(\omega\eta'\pi^+\pi^-)/\Gamma_{total}$ — Γ_{53}/Γ

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

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

$\Gamma(\omega\eta'(958))/\Gamma_{total}$ — Γ_{54}/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	$J/\psi \rightarrow \pi^+\pi^-\eta'$
2.26±0.43	218	[2] ABLIKIM	06F	BES2	$J/\psi \rightarrow \omega\eta'$
$1.8\ ^{+1.0}_{-0.8}\ \pm0.3$	6	JOUSSET	90	DM2	$J/\psi \rightarrow$ hadrons
1.66±0.17±0.19		COFFMAN	88	MRK3	$e^+e^- \rightarrow 3\pi\eta'$

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

$\Gamma(\omega f_0(980))/\Gamma_{total}$ — Γ_{55}/Γ

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

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

$\Gamma(\omega f_0(1710) \to \omega K\overline{K})/\Gamma_{total}$ Γ_{56}/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_{57}/Γ

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

$\Gamma(\omega f'_2(1525))/\Gamma_{total}$ Γ_{58}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.2 \times 10^{-4}$	90	[1] VANNUCCI	77	MRK1	$e^+e^- \to \pi^+\pi^-\pi^0 K^+K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2.8 \times 10^{-4}$	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_{59}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<3.9 \times 10^{-6}$	95	ABLIKIM	13P	BES3	$J/\psi \to \gamma\pi^0 p\overline{p}$

$\Gamma(\omega X(1835),\ X \to \eta'\pi^+\pi^-)/\Gamma_{total}$ Γ_{61}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
$<6.2 \times 10^{-5}$	[1] ABLIKIM	19AC	BES3	$J/\psi \to \omega\eta'\pi^+\pi^-$

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

$\Gamma(\omega K^+K^-)/\Gamma_{total}$ Γ_{62}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.52±0.30±0.01	276	[1] ANASHIN	22	KEDR	$J/\psi \to K^+K^-\pi^+\pi^-\pi^0$

[1] ANASHIN 22 reports $[\Gamma(J/\psi(1S) \to \omega K^+K^-)/\Gamma_{total}] \times [B(\omega(782) \to \pi^+\pi^-\pi^0)] = (0.136 \pm 0.008 \pm 0.026) \times 10^{-2}$ 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.

$\Gamma(\omega K^+K^-\eta)/\Gamma_{total}$ Γ_{60}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
3.33±0.02±0.12	ABLIKIM	24BQ	BES3	$e^+e^- \to J/\psi(1S)$

$\Gamma(\omega K^\pm K^0_S\pi^\mp)/\Gamma_{total}$ Γ_{63}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
34 ±5 OUR AVERAGE					
37.7±0.8±5.8	1972 ± 41	ABLIKIM	08E	BES2	$e^+e^- \to J/\psi$
29.5±1.4±7.0	879 ± 41	BECKER	87	MRK3	$e^+e^- \to$ hadrons

$\Gamma(\omega K\overline{K})/\Gamma_{total}$ — Γ_{64}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
19 ± 4 OUR AVERAGE					
19.8± 2.1±3.9		[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.

$\Gamma(\omega K^*(892)\overline{K}+\text{c.c.})/\Gamma_{total}$ — Γ_{65}/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

$\Gamma(\eta' K^{*\pm} K^\mp)/\Gamma_{total}$ — Γ_{66}/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 $\eta' K^0_S K^\pm \pi^\mp$.

$\Gamma(\eta' K^{*0} \overline{K}^0+\text{c.c.})/\Gamma_{total}$ — Γ_{67}/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 $\eta' K^0_S K^\pm \pi^\mp$.

$\Gamma(\eta' h_1(1415) \to \eta' K^* \overline{K}+\text{c.c.})/\Gamma_{total}$ — Γ_{68}/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 $\eta' K^0_S K^\pm \pi^\mp$.

$\Gamma(\eta' h_1(1415) \to \eta' K^{*\pm} K^\mp)/\Gamma_{total}$ — Γ_{69}/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 $\eta' K^+ K^- \pi^0$.

$\Gamma(\eta' h_1(1415) \to \gamma \eta' \eta')/\Gamma_{total}$ — Γ_{70}/Γ

VALUE (units 10^{-7})	DOCUMENT ID		TECN	COMMENT
$4.69\pm0.80^{+0.74}_{-1.82}$	[1] ABLIKIM	22C	BES3	$J/\psi \to \gamma\eta'\eta' \to 4/5\gamma 2(\pi^+\pi^-)$

[1] From a partial wave analysis of the systems (γX), with $X \to \eta'\eta'$, and $(\eta' X)$, with $X \to \gamma\eta'$ in the decay $J/\psi \to \gamma\eta'\eta'$. The intermediate resonance X is parametrized by a constant-width, relativistic Breit-Wigner.

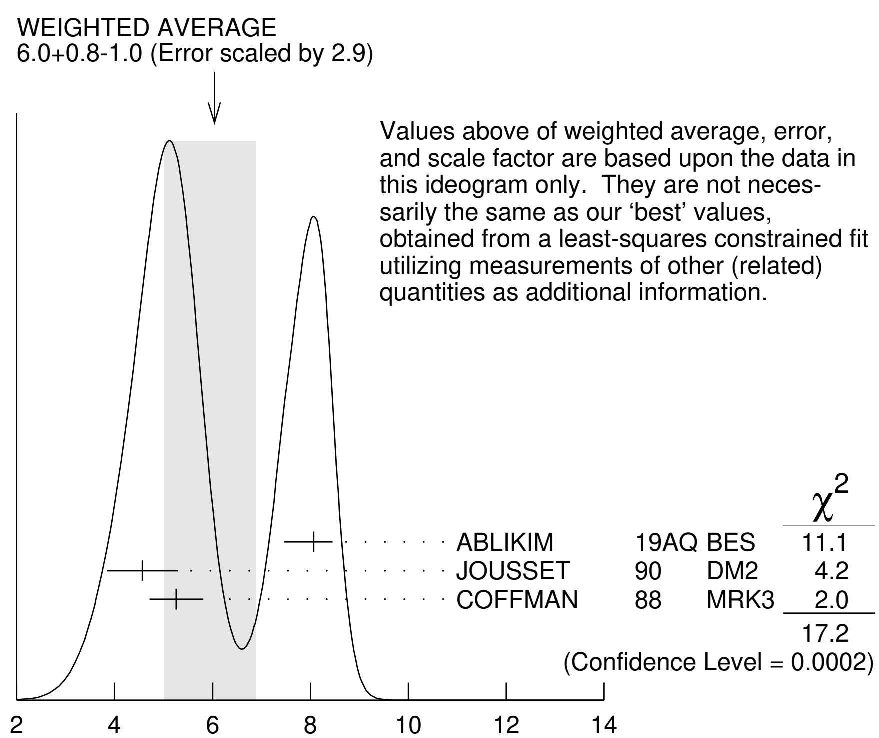
$\Gamma(\overline{K} K^*(892)+\text{c.c.} \to K^0_S K^\pm \pi^\mp)/\Gamma(K^0_S K^\pm \pi^\mp)$ — Γ_{72}/Γ_{188}

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.

$\Gamma(K^+ K^*(892)^- + \text{c.c.})/\Gamma_{total}$ — Γ_{73}/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	$J/\psi \to K^+ K^- \pi^0$
$4.57 \pm 0.17 \pm 0.70$	2285	JOUSSET	90	DM2	$J/\psi \to$ hadrons
$5.26 \pm 0.13 \pm 0.53$		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	$J/\psi \to K^+ K^- \pi^0$
3.2 ± 0.6	48	VANNUCCI	77	MRK1	$J/\psi \to K^\pm K^0_S \pi^\mp$
4.1 ± 1.2	39	BRAUNSCH...	76	DASP	$J/\psi \to K^\pm X$



$\Gamma(K^+ K^*(892)^- + \text{c.c.})/\Gamma_{total}$ (units 10^{-3})

$\Gamma(K^+ K^*(892)^- + \text{c.c.} \to K^+ K^- \pi^0)/\Gamma_{total}$ — Γ_{74}/Γ

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

$\Gamma(K^+ K^*(892)^- + c.c. \to K^+ K^- \pi^0)/\Gamma(K^+ K^- \pi^0)$ — Γ_{74}/Γ_{187}

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

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

$\Gamma(K^0 \overline{K}^*(892)^0 + c.c.)/\Gamma_{total}$ — Γ_{76}/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	$J/\psi \to$ hadrons
4.33±0.12±0.45		COFFMAN	88	MRK3	$J/\psi \to K^\pm K^0_S \pi^\mp$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.7 ±0.6	45	VANNUCCI	77	MRK1	$J/\psi \to K^\pm K^0_S \pi^\mp$

$\Gamma(\overline{K}^*(892)^0 K^+ \pi^- + c.c.)/\Gamma_{total}$ — Γ_{78}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
5.73±0.14±0.82	[1] ANASHIN	22	KEDR	$J/\psi \to K^+ K^- \pi^+ \pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
seen	[2] ABLIKIM	06C	BES2	$J/\psi \to \overline{K}^*(892)^0 K^+ \pi^-$

[1] Obtained from $J/\psi \to K^*(892) K^- \pi^+ +$ c.c. $\to K^+ K^- \pi^+ \pi^-$ taking the value 2/3 for the probability of the $K^*(892)^0 \to K^+ \pi^-$ decay.

[2] 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.

$\Gamma(K^*(892)^0 K^- \pi^+ + c.c. \to K^+ K^- \pi^+ \pi^-)/\Gamma_{total}$ — Γ_{82}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.81±0.10±0.54	1559	ANASHIN	22	KEDR	$J/\psi \to K^+ K^- \pi^+ \pi^-$

$\Gamma(K^*(892)^0 K^0_S \to \gamma K^0_S K^0_S)/\Gamma_{total}$ — Γ_{83}/Γ

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

$\Gamma(K^*(892)^\pm K^*(700)^\mp)/\Gamma_{total}$ — Γ_{85}/Γ

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

$\Gamma(K^*(892)^0 \overline{K}^*(892)^0)/\Gamma_{total}$ — Γ_{86}/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	$e^+ e^- \to \pi^+ \pi^- K^+ K^-$

$\Gamma(K^*(892)^\pm K^*(892)^\mp)/\Gamma_{total}$ — Γ_{87}/Γ

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

$\Gamma(K_1(1400)^{\pm}K^{\mp})/\Gamma_{total}$ — Γ_{88}/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

$\Gamma(K^*(1410)\overline{K}$+c.c $\to K^{\pm}K^{\mp}\pi^0)/\Gamma(K^+K^-\pi^0)$ — Γ_{90}/Γ_{187}

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.

$\Gamma(K^*(1410)\overline{K}$+ c.c. $\to K^0_S K^{\pm}\pi^{\mp})/\Gamma(K^0_S K^{\pm}\pi^{\mp})$ — Γ_{91}/Γ_{188}

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.5±0.5±0.9	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.

$\Gamma(K_2^*(1430)\overline{K}$+c.c. $\to K^{\pm}K^{\mp}\pi^0)/\Gamma(K^+K^-\pi^0)$ — Γ_{93}/Γ_{187}

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.

$\Gamma(K_2^*(1430)\overline{K}$+ c.c. $\to K^0_S K^{\pm}\pi^{\mp})/\Gamma(K^0_S K^{\pm}\pi^{\mp})$ — Γ_{94}/Γ_{188}

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
7.1±1.3±1.2	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.

$\Gamma(\overline{K}_2^*(1430)K$+ c.c.$)/\Gamma_{total}$ — Γ_{95}/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. • • •					
$<66 \times 10^{-4}$	90	BRAUNSCH...	76	DASP	$e^+e^- \to K^{\pm}\overline{K}_2^{*\mp}$

$\Gamma(K_2^*(1430)^+K^-$+ c.c. $\to K^+K^-\pi^0)/\Gamma_{total}$ — Γ_{96}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.69±0.04$^{+0.25}_{-0.19}$	183k	ABLIKIM	19AQ	BES	$J/\psi \to K^+K^-\pi^0$

$\Gamma(K_2^*(1430)^0K^-\pi^+$+ c.c. $\to K^+K^-\pi^+\pi^-)/\Gamma_{total}$ — Γ_{97}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.65±0.80±0.44	1094	ANASHIN	22	KEDR	$J/\psi \to K^+K^-\pi^+\pi^-$

$\Gamma(\overline{K}_2^*(1430)^0K^*(892)^0$+ c.c.$)/\Gamma_{total}$ — Γ_{99}/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	$e^+e^- \to \pi^+\pi^-K^+K^-$

$\Gamma(K_2^*(1430)^0 \overline{K}_2^*(1430)^0)/\Gamma_{total}$ Γ_{102}/Γ

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

$\Gamma(K_2^*(1980)^+ K^- + c.c. \to K^+ K^- \pi^0)/\Gamma_{total}$ Γ_{104}/Γ

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

$\Gamma(K_4^*(2045)^+ K^- + c.c. \to K^+ K^- \pi^0)/\Gamma_{total}$ Γ_{105}/Γ

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{6.2 \pm 0.7^{+2.8}_{-1.4}}$	183k	ABLIKIM	19AQ	BES	$J/\psi \to K^+ K^- \pi^0$

$\Gamma(K_1(1270)^\pm K^\mp)/\Gamma_{total}$ Γ_{106}/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

$\Gamma(K_1(1270) K_S^0 \to \gamma K_S^0 K_S^0)/\Gamma_{total}$ Γ_{107}/Γ

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

$\Gamma(a_2(1320)^\pm \pi^\mp)/\Gamma_{total}$ Γ_{108}/Γ

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

$\Gamma(\phi\pi^0)/\Gamma_{total}$ Γ_{109}/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_{110}/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_{112}/Γ

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

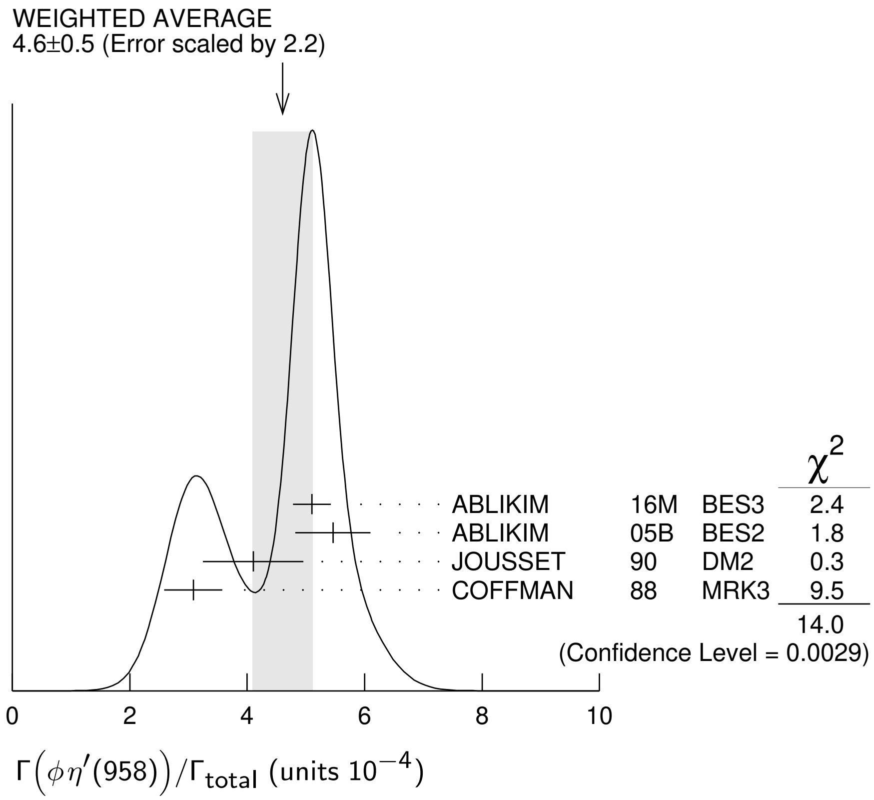
$\Gamma(\phi\eta)/\Gamma_{total}$ Γ_{113}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.74 ±0.06 OUR AVERAGE		Error includes scale factor of 1.2.			
0.71 ±0.10 ±0.05	99±14	[1] ZHU	23	BELL	$e^+e^- \to \Upsilon(nS) \to \phi\eta\gamma$
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	$e^+e^- \to K^+K^-\eta$

[1] From a fit to the combined $\phi\eta$ invariant mass spectrum with a Gaussian function for the J/ψ signals and a second-order polynomial function for the backgrounds.

$\Gamma(\phi\eta'(958))/\Gamma_{total}$ Γ_{114}/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^-



$\Gamma(\phi\eta\eta')/\Gamma_{total}$ Γ_{115}/Γ

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

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

$\Gamma(\phi f_0(980))/\Gamma_{total}$ Γ_{116}/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	$J/\psi \rightarrow$ hadrons
2.6±0.6	50	[1] GIDAL	81	MRK2	$J/\psi \rightarrow K^+K^-K^+K^-$

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

$\Gamma(\phi\pi^0 f_0(980) \rightarrow \phi\pi^0\pi^+\pi^-)/\Gamma_{total}$ Γ_{119}/Γ

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

$\Gamma(\phi\pi^0 f_0(980) \rightarrow \phi\pi^0 p^0\pi^0)/\Gamma_{total}$ Γ_{120}/Γ

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

$\Gamma(\phi f_0(980)\eta \to \eta\phi\pi^+\pi^-)/\Gamma_{total}$ — Γ_{121}/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_{122}/Γ

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$3.24\pm0.20^{+0.52}_{-0.22}$	[1] ABLIKIM	24CB	BES3	$J/\psi \to \phi\eta\pi^0$
$2.74\pm0.13^{+0.15}_{-0.16}$	[2] ABLIKIM	24CB	BES3	$J/\psi \to \phi\eta\pi^0$
4.37±1.35	[3,4] ABLIKIM	18D	BES3	$J/\psi \to \phi\eta\pi^0$
5.0 ±2.7 ±2.5	[5] ABLIKIM	11D	BES3	$J/\psi \to \phi\eta\pi^0$

[1] $J/\psi \to \phi a_0(980)$ electromagnetic decay.
[2] $J/\psi \to \phi f_0(980)$, $\phi a_0(980)$ mixing.
[3] 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.
[4] Superseded by ABLIKIM 24CB.
[5] Assuming $a_0(980) - f_0(980)$ mixing and isospin breaking via γ^* and $K^* K$ loops.

$\Gamma(\phi(1680)^0\pi^0 \to \phi\eta\pi^0)/\Gamma_{total}$ — Γ_{123}/Γ

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
$\mathbf{6.66\pm0.26^{+1.1}_{-1.0}}$	ABLIKIM	24CB	BES3	$J/\psi \to \phi\eta\pi^0$

$\Gamma(X(2000)^0\pi^0 \to \phi\eta\pi^0)/\Gamma_{total}$ — Γ_{124}/Γ

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
$\mathbf{1.70\pm0.19^{+0.48}_{-0.13}}$	ABLIKIM	24CB	BES3	$J/\psi \to \phi\eta\pi^0$

$\Gamma(h_1(1900)^0\pi^0 \to \phi\eta\pi^0)/\Gamma_{total}$ — Γ_{125}/Γ

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
$\mathbf{8.44\pm0.35^{+1.4}_{-1.2}}$	ABLIKIM	24CB	BES3	$J/\psi \to \phi\eta\pi^0$

$\Gamma(\phi f_2(1270))/\Gamma_{total}$ — Γ_{126}/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_{127}/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_{128}/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_{129}/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_{130}/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_{131}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
8 ±4 OUR AVERAGE Error includes scale factor of 2.7.					
12.3±0.6±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_{132}/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_{133}/Γ

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

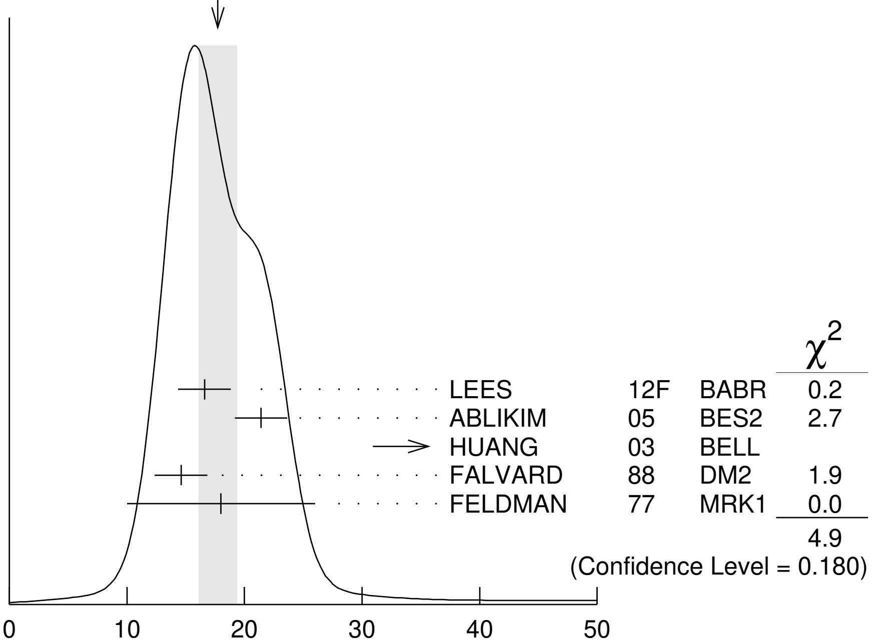
$\Gamma(\phi X(1870) \to \phi\eta\pi^+\pi^-)/\Gamma_{total}$ — Γ_{134}/Γ

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_{135}/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± 1.9±1.2	163 ± 19	LEES	12F	BABR	10.6 $e^+e^- \to 2(K^+K^-)\gamma$
21.4± 0.4±2.2		ABLIKIM	05	BES2	$J/\psi \to \phi\pi^+\pi^-$
48 $^{+20}_{-16}$ ±6	$9.0^{+3.7}_{-3.0}$	[1,2] HUANG	03	BELL	$B^+ \to (\phi K^+K^-) K^+$
14.6± 0.8±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.



$\Gamma(\phi K\overline{K})/\Gamma_{total}$ (units 10^{-4})

$\Gamma(\phi f_0(1710) \to \phi K\overline{K})/\Gamma_{total}$ — Γ_{136}/Γ

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

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

$\Gamma(\phi K^{\pm}K^0_S\pi^{\mp})/\Gamma_{total}$ — Γ_{139}/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	$e^+e^- \to J/\psi$
7.4±0.9±1.1		FALVARD	88	DM2	$J/\psi \to$ hadrons
7 ±0.6±1.0	163 ± 15	BECKER	87	MRK3	$e^+e^- \to$ hadrons

$\Gamma(\phi K^*(892)\overline{K}+\text{c.c.})/\Gamma_{\text{total}}$ — Γ_{140}/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	$J/\psi \to \phi K^0_S K^\pm \pi^\mp$
29.6±3.7±4.7	238 ± 30	ABLIKIM	08E	BES2	$J/\psi \to \phi K^+ K^- \pi^0$
20.7±2.4±3.0		FALVARD	88	DM2	$J/\psi \to$ hadrons
20 ±3 ±3	155 ± 20	BECKER	87	MRK3	$e^+e^- \to$ hadrons

$\Gamma(b_1(1235)^\pm\pi^\mp)/\Gamma_{\text{total}}$ — Γ_{141}/Γ

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

$\Gamma(b_1(1235)^0\pi^0)/\Gamma_{\text{total}}$ — Γ_{142}/Γ

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

$\Gamma(\Delta(1232)^+\overline{p})/\Gamma_{\text{total}}$ — Γ_{144}/Γ

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

$\Gamma(\Delta(1232)^{++}\overline{p}\pi^-)/\Gamma_{\text{total}}$ — Γ_{145}/Γ

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

$\Gamma(\Delta(1232)^{++}\overline{\Delta}(1232)^{--})/\Gamma_{\text{total}}$ — Γ_{146}/Γ

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

$\Gamma(\overline{\Sigma}(1385)^0 pK^-)/\Gamma_{\text{total}}$ — Γ_{147}/Γ

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

$\Gamma(\Sigma(1385)^0\overline{\Lambda}+\text{c.c.})/\Gamma_{\text{total}}$ — Γ_{148}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<0.82 \times 10^{-5}$	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. • • •					
$<0.2 \times 10^{-3}$	90	HENRARD	87	DM2	e^+e^-

$\Gamma(\Sigma(1385)^-\overline{\Sigma}^+ + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{149}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.30±0.07 OUR AVERAGE					
0.30±0.03±0.08	74 ± 8	HENRARD	87	DM2	e^+e^-
0.29±0.11±0.10	26	EATON	84	MRK2	e^+e^-

$\Gamma\big(\Sigma(1385)^{+}\overline{\Sigma}^{-}+\text{c.c.}\big)/\Gamma_{\text{total}}$ — Γ_{150}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.33±0.08 OUR AVERAGE					
0.34±0.04±0.08	77	HENRARD	87	DM2	$e^{+}e^{-}$
0.31±0.11±0.11	28	EATON	84	MRK2	$e^{+}e^{-}$

$\Gamma\big(\Sigma(1385)^{-}\overline{\Sigma}(1385)^{+}+\text{c.c.}\big)/\Gamma_{\text{total}}$ — Γ_{151}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.08 ±0.06 OUR AVERAGE					
1.096±0.012±0.071	43k	ABLIKIM	16L	BES3	$e^{+}e^{-}$
1.23 ±0.07 ±0.30	0.8k	ABLIKIM	12P	BES2	$e^{+}e^{-}$
1.00 ±0.04 ±0.21	0.6k	HENRARD	87	DM2	$e^{+}e^{-}$
0.86 ±0.18 ±0.22	56	EATON	84	MRK2	$e^{+}e^{-}$

$\Gamma\big(\Sigma(1385)^{+}\overline{\Sigma}(1385)^{-}+\text{c.c.}\big)/\Gamma_{\text{total}}$ — Γ_{152}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.25 ±0.07 OUR AVERAGE					
1.258±0.014±0.078	53k	ABLIKIM	16L	BES3	$e^{+}e^{-}$
1.50 ±0.08 ±0.38	1k	ABLIKIM	12P	BES2	$e^{+}e^{-}$
1.19 ±0.04 ±0.25	0.7k	HENRARD	87	DM2	$e^{+}e^{-}$
1.03 ±0.24 ±0.25	68	EATON	84	MRK2	$e^{+}e^{-}$

$\Gamma\big(\Sigma(1385)^{0}\overline{\Sigma}(1385)^{0}\big)/\Gamma_{\text{total}}$ — Γ_{153}/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

$\Gamma\big(\Lambda(1520)\overline{\Lambda}+\text{c.c.}\rightarrow\gamma\Lambda\overline{\Lambda}\big)/\Gamma_{\text{total}}$ — Γ_{154}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<4.1\times10^{-6}$	90	ABLIKIM	12B	BES3	$J/\psi\rightarrow\Lambda\overline{\Lambda}\gamma$

$\Gamma\big(\overline{\Lambda}(1520)\Lambda+\text{c.c.}\big)/\Gamma_{\text{total}}$ — Γ_{155}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.80\times10^{-3}$	90	LU	19	BELL	$B^{+}\rightarrow\overline{p}\Lambda K^{+}K^{+}$

$\Gamma\big(\Xi^{0}\overline{\Xi}^{0}\big)/\Gamma_{\text{total}}$ — Γ_{156}/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	$e^{+}e^{-}\rightarrow J/\psi$

$\Gamma\big(\Xi(1530)^{-}\overline{\Xi}^{+}+\text{c.c.}\big)/\Gamma_{\text{total}}$ — Γ_{157}/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_{158}/Γ

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

$\Gamma(\Theta(1540)\overline{\Theta}(1540) \to K^0_S pK^-\overline{n} + \text{c.c.})/\Gamma_{total}$ — Γ_{159}/Γ

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

$\Gamma(\Theta(1540)K^-\overline{n} \to K^0_S pK^-\overline{n})/\Gamma_{total}$ — Γ_{160}/Γ

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

$\Gamma(\Theta(1540)K^0_S\overline{p} \to K^0_S\overline{p}K^+n)/\Gamma_{total}$ — Γ_{161}/Γ

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

$\Gamma(\overline{\Theta}(1540)K^+n \to K^0_S\overline{p}K^+n)/\Gamma_{total}$ — Γ_{162}/Γ

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

$\Gamma(\overline{\Theta}(1540)K^0_S p \to K^0_S pK^-\overline{n})/\Gamma_{total}$ — Γ_{163}/Γ

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

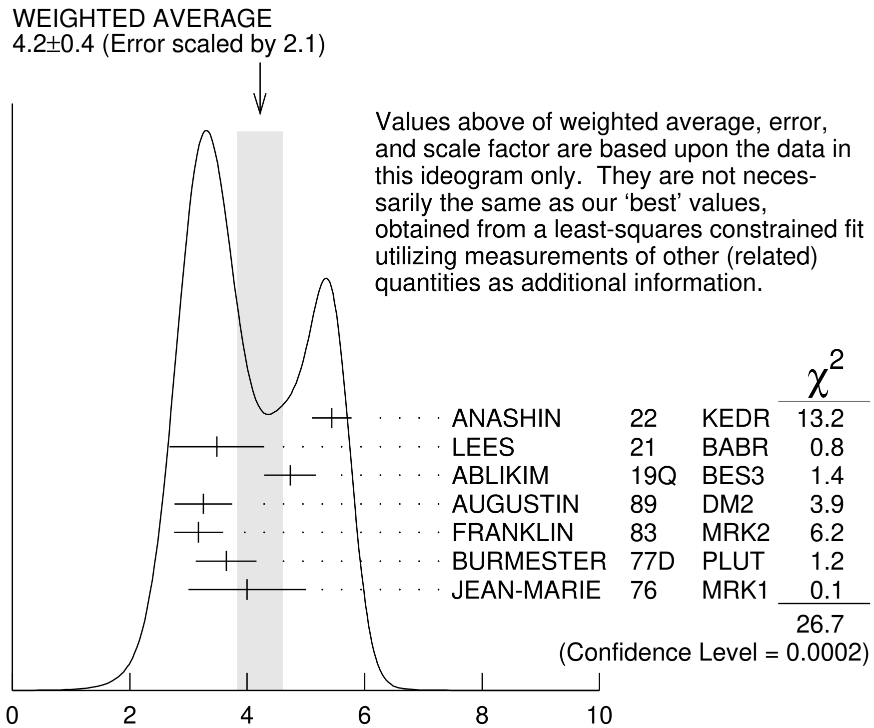
STABLE HADRONS

$\Gamma(2(\pi^+\pi^-)\pi^0)/\Gamma_{total}$ — Γ_{164}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
4.2 ±0.4 OUR AVERAGE	Error includes scale factor of 2.1. See the ideogram below.				
5.44±0.07±0.33	23K	ANASHIN	22	KEDR	$J/\psi \to 2(\pi^+\pi^-)\pi^0$
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 $[\Gamma(J/\psi(1S) \to 2(\pi^+\pi^-)\pi^0)/\Gamma_{total}] \times [\Gamma(\psi(2S) \to e^+e^-)] \times [B(\psi(2S) \to J/\psi(1S)\pi^0\pi^0)] = (14.8 \pm 2.6 \pm 2.2) \times 10^{-3}$ keV which we divide by our best values $\Gamma(\psi(2S) \to e^+e^-) = 2.33 \pm 0.04$ keV, $B(\psi(2S) \to J/\psi(1S)\pi^0\pi^0) = (18.2 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best 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 $(4.85 \pm 0.45)\%$ with a phase of $(-84.7 \pm 3.1)^\circ$.



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

$\Gamma\big(3(\pi^+\pi^-)\pi^0\big)/\Gamma_{\text{total}}$ Γ_{165}/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^-

$\Gamma\big(\pi^+\pi^-\pi^0\big)/\Gamma_{\text{total}}$ Γ_{170}/Γ

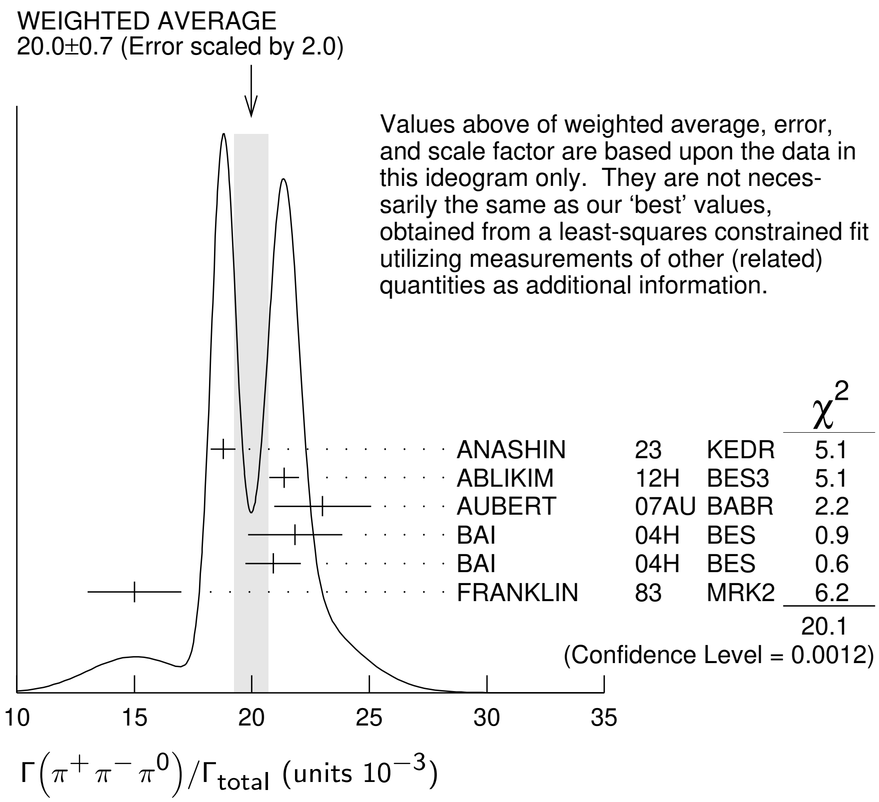
VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
20.0 ±0.7 OUR AVERAGE		Error includes scale factor of 2.0. See the ideogram below.			
18.78±0.13±0.51	19.8k	[1] ANASHIN	23	KEDR	$e^+e^- \to J/\psi \to \pi^+\pi^-\pi^0$
$21.37\pm0.04^{+0.64}_{-0.62}$	1.8M	[2] ABLIKIM	12H	BES3	$e^+e^- \to J/\psi \to \pi^+\pi^-\pi^0$
23.0 ±2.0 ±0.4	256	[3] AUBERT	07AU	BABR	$10.6\ e^+e^- \to J/\psi\pi^+\pi^-\gamma$
21.84±0.05±2.01	220k	[4,5] BAI	04H	BES	e^+e^-
20.91±0.21±1.16		[5,6] BAI	04H	BES	e^+e^-
15 ±2	168	FRANKLIN	83	MRK2	e^+e^-

[1] By a simultaneous fit of the $\pi\pi$ invariant mass distribution over the decay modes $J/\psi \to \rho^0\pi^0$, $J/\psi \to \rho^+\pi^-$, $J/\psi \to \rho^-\pi^+$. In the fit only the intermediate states $\rho(770)\pi$ and $\rho(1450)\pi$ are considered.

[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 $[\Gamma\big(J/\psi(1S) \to \pi^+\pi^-\pi^0\big)/\Gamma_{\text{total}}] \times [\Gamma\big(\psi(2S) \to J/\psi(1S)\pi^+\pi^-\big) \times \Gamma\big(\psi(2S) \to e^+e^-\big)/\Gamma_{\text{total}}] = (18.6\pm1.2\pm1.1)\times10^{-3}$ keV which we divide by our best value $\Gamma\big(\psi(2S) \to J/\psi(1S)\pi^+\pi^-\big) \times \Gamma\big(\psi(2S) \to e^+e^-\big)/\Gamma_{\text{total}} = 0.808 \pm 0.014$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] From $J/\psi \to \pi^+\pi^-\pi^0$ events directly.
[5] Mostly $\rho\pi$, see also $\rho\pi$ subsection.
[6] 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%.



$\Gamma(\pi^+\pi^-\pi^0 K^+K^-)/\Gamma_{total}$ Γ_{172}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.52±0.27 OUR AVERAGE	Error includes scale factor of 1.4.				
1.74±0.08±0.24	2616	ANASHIN	22	KEDR	$J/\psi \to K^+K^-\pi^+\pi^-\pi^0$
1.2 ±0.3	309	VANNUCCI	77	MRK1	e^+e^-

$\Gamma(\pi^+\pi^-)/\Gamma_{total}$ Γ_{173}/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_{174}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.20±0.25 OUR AVERAGE	Error includes scale factor of 1.2.				
2.88±0.14±0.24	2654	ANASHIN	22	KEDR	$J/\psi \to 2(\pi^+\pi^-)$
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 ± 0.0010.

$\Gamma(3(\pi^+\pi^-))/\Gamma_{total}$ — Γ_{175}/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_{177}/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_{178}/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 [$\Gamma(J/\psi(1S) \to 2(\pi^+\pi^-)\eta)/\Gamma_{total}$] × [$\Gamma(J/\psi(1S) \to e^+e^-)$] × [B($\eta \to 3\pi^0$)] = (5.6 ± 2.6 ± 0.8) × 10^{-3} keV which we divide by our best values $\Gamma(J/\psi(1S) \to e^+e^-)$ = 5.53 ± 0.10 keV, B($\eta \to 3\pi^0$) = (32.56 ± 0.21) × 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_{179}/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_{183}/Γ

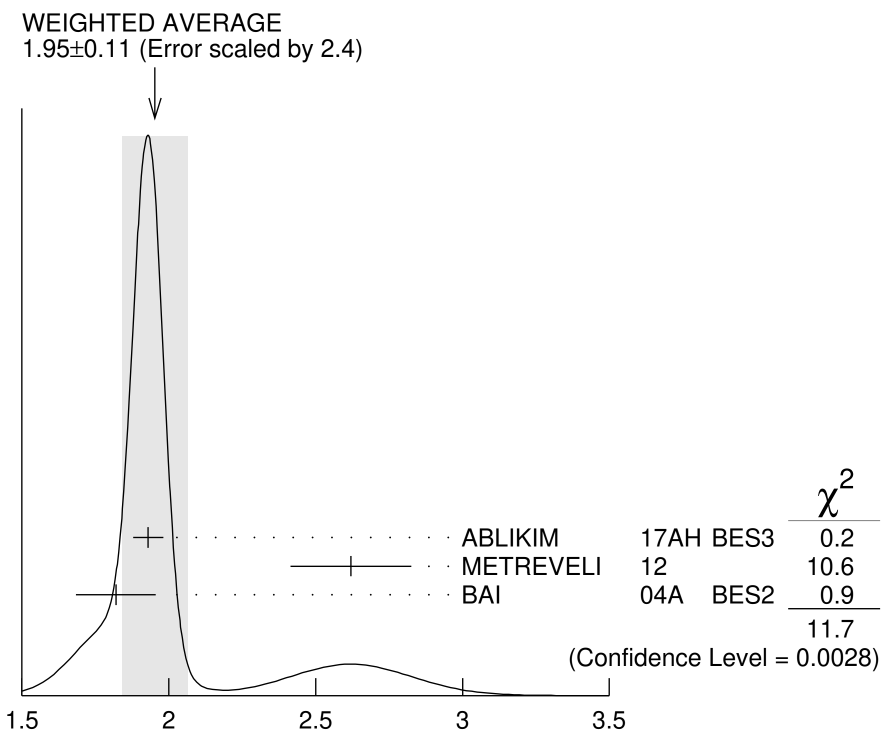
VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
3.06 ±0.05 OUR AVERAGE					
3.072±0.023±0.050	1.8 k	[1] ABLIKIM	24AB	BES3	$\psi(2S) \to \pi^+\pi^-K^+K^-$
2.86 ±0.09 ±0.19	1k	[2] METREVELI	12		$\psi(2S) \to \pi^+\pi^-K^+K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.39 ±0.24 ±0.22	107	[3] BALTRUSAIT...	85D	MRK3	e^+e^-
2.2 ±0.9	6	[3] BRANDELIK	79C	DASP	e^+e^-

[1] Using B($J/\psi \to \mu^+\mu^-$) = (5.916 ± 0.033)%.
[2] Obtained by analyzing CLEO-c data but not authored by the CLEO Collaboration.
[3] Interference with non-resonant K^+K^- production not taken into account.

$\Gamma(K^0_S K^0_L)/\Gamma_{total}$ — Γ_{184}/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±0.01±0.05	110k	ABLIKIM	17AH	BES3	$J/\psi \to K^0_S K^0_L \to \pi^+\pi^- X$
2.62±0.15±0.14	0.3k	[1] METREVELI	12		$\psi(2S) \to \pi^+\pi^- K^0_S K^0_L$
1.82±0.04±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±0.12±0.18		JOUSSET	90	DM2	$J/\psi \to$ hadrons
1.01±0.16±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 ± 0.0027.



$\Gamma(K^0_S K^0_L)/\Gamma_{total}$ Γ_{184}/Γ

$\Gamma(K^0_S K^0_S)/\Gamma_{total}$ — Γ_{185}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.4 × 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.

$\Gamma(K\overline{K}\pi)/\Gamma_{total}$ — Γ_{186}/Γ

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

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

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

$\Gamma(K^+K^-\pi^0)/\Gamma(\pi^+\pi^-\pi^0)$ — $\Gamma_{187}/\Gamma_{170}$

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

$\Gamma(K^0_S K^\pm \pi^\mp)/\Gamma(\pi^+\pi^-\pi^0)$ — $\Gamma_{188}/\Gamma_{170}$

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

$\Gamma(K^+K^-\pi^+\pi^-)/\Gamma_{total}$ — Γ_{192}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
7.04±0.26±0.92	2671	ANASHIN	22	KEDR	$J/\psi \to K^+K^-\pi^+\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
7.2 ±2.3	205	VANNUCCI	77	MRK1	e^+e^-

$\Gamma(K^+K^-2(\pi^+\pi^-))/\Gamma_{total}$ — Γ_{204}/Γ

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

$\Gamma(2(K^+K^-))/\Gamma_{total}$ — Γ_{206}/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	$B^+ \to 2(K^+K^-)\,K^+$
0.7±0.3		VANNUCCI	77	MRK1	e^+e^-

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

$\Gamma(p\overline{p})/\Gamma_{total}$ — Γ_{214}/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	$B^+ \to p\overline{p}K^+$
2.26 ±0.01 ±0.14	63316	BAI	04E	BES2	$e^+e^- \to J/\psi$
1.97 ±0.22	99	BALDINI	98	FENI	e^+e^-
1.91 ±0.04 ±0.30		PALLIN	87	DM2	e^+e^-

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

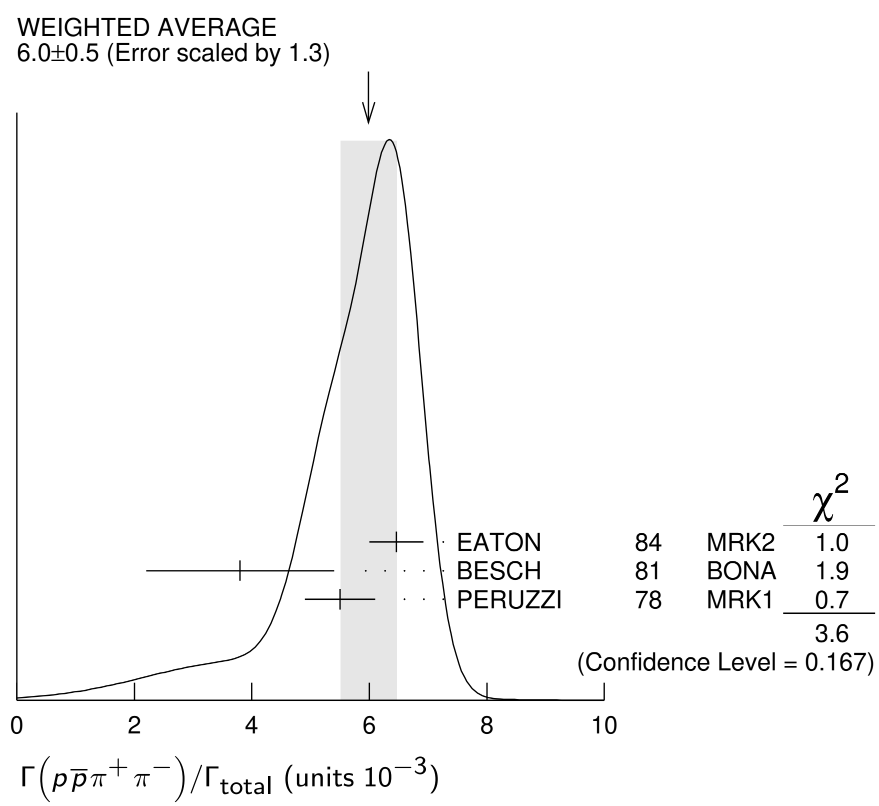
[2] Assuming angular distribution $(1+\cos^2\theta)$.

$\Gamma(p\overline{p}\pi^0)/\Gamma_{total}$ — Γ_{215}/Γ

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

$\Gamma(p\overline{p}\pi^+\pi^-)/\Gamma_{total}$ — Γ_{216}/Γ

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



$\Gamma(p\overline{p}\pi^+\pi^-\pi^0)/\Gamma_{total}$ Γ_{217}/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_{218}/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^-

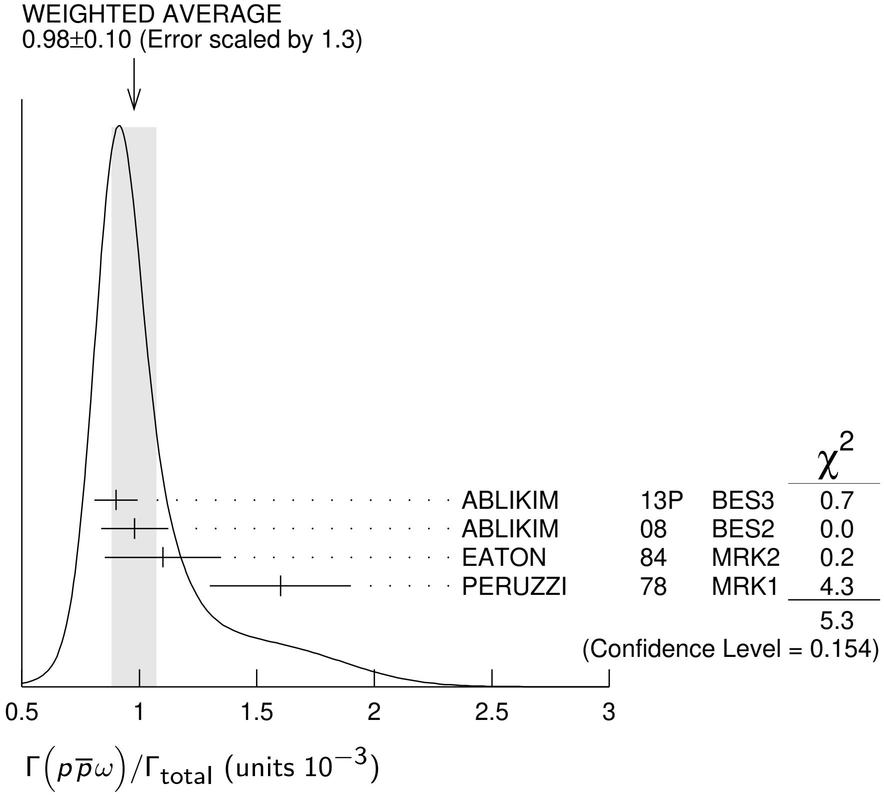
[1] From the combination of $p\overline{p}\eta \rightarrow p\overline{p}\gamma\gamma$ and $p\overline{p}\eta \rightarrow p\overline{p}\pi^+\pi^-\pi^0$ channels.

$\Gamma(p\overline{p}\rho)/\Gamma_{total}$ Γ_{219}/Γ

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

$\Gamma(p\overline{p}\omega)/\Gamma_{total}$ Γ_{220}/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^-



$\Gamma\left(p\overline{p}\eta'(958)\right)/\Gamma_{\text{total}}$ Γ_{221}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.129±0.014 OUR AVERAGE	Error includes scale factor of 2.0.				
$0.126\pm0.002\pm0.007$	16k	[1] ABLIKIM	19N	BES3	e^+e^-
$0.200\pm0.023\pm0.028$	265 ± 31	[2] ABLIKIM	09	BES2	e^+e^-
$0.68\pm0.23\pm0.17$	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.

$\Gamma\left(p\overline{p}a_0(980) \rightarrow p\overline{p}\pi^0\eta\right)/\Gamma_{\text{total}}$ Γ_{222}/Γ

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

$\Gamma\left(p\overline{p}\phi\right)/\Gamma_{\text{total}}$ Γ_{223}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
0.519±0.033 OUR AVERAGE					
$0.523\pm0.006\pm0.033$	14k	ABLIKIM	16K	BES3	$J/\psi \rightarrow p\overline{p}K^0_S K^0_L$, $p\overline{p}K^+K^-$
$0.45\pm0.13\pm0.07$		FALVARD	88	DM2	$J/\psi \rightarrow$ hadrons

$\Gamma(p\overline{n}\pi^-)/\Gamma_{total}$ — Γ_{224}/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	$J/\psi \to p\pi^-\overline{n}$
2.47±0.02±0.24	55k	ABLIKIM	06K	BES2	$J/\psi \to \overline{p}\pi^+ n$
2.02±0.07±0.16	1288	EATON	84	MRK2	$e^+e^- \to p\pi^-$
1.93±0.07±0.16	1191	EATON	84	MRK2	$e^+e^- \to \overline{p}\pi^+$
1.7 ±0.7	32	BESCH	81	BONA	$e^+e^- \to p\pi^-$
1.6 ±1.2	5	BESCH	81	BONA	$e^+e^- \to \overline{p}\pi^+$
2.16±0.29	194	PERUZZI	78	MRK1	$e^+e^- \to p\pi^-$
2.04±0.27	204	PERUZZI	78	MRK1	$e^+e^- \to \overline{p}\pi^+$

$\Gamma(n\overline{n})/\Gamma_{total}$ — Γ_{225}/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^-

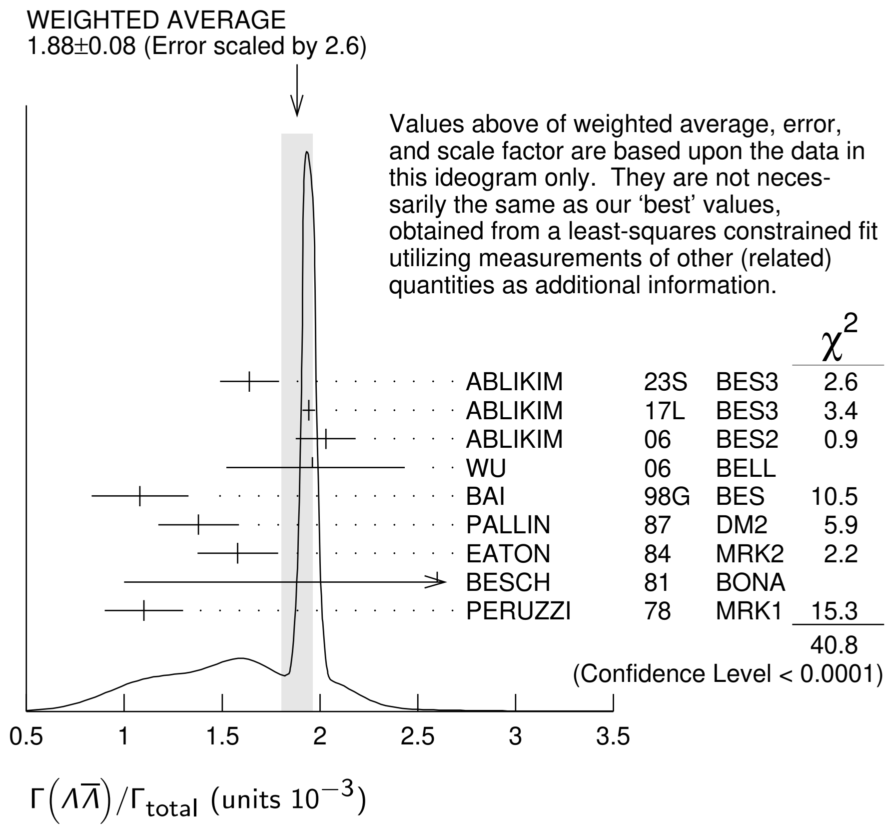
$\Gamma(n\overline{n}\pi^+\pi^-)/\Gamma_{total}$ — Γ_{226}/Γ

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_{230}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.88 ±0.08 OUR AVERAGE	Error includes scale factor of 2.6. See the ideogram below.				
1.64 ±0.12 ±0.09		ABLIKIM	23S	BES3	$e^+e^- \to \gamma\Lambda\overline{\Lambda}$
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.



$\Gamma(\Lambda\overline{\Lambda}\pi^0)/\Gamma_{total}$ — Γ_{231}/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_{232}/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_{233}/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%.

$\Gamma(\Lambda\overline{\Sigma}^-\pi^+ + c.c.)/\Gamma_{total}$ — Γ_{234}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.26 ±0.05 OUR AVERAGE	Error includes scale factor of 1.2.				
1.244±0.002±0.045	2.6M	ABLIKIM	23BU	BES3	e^+e^-
1.52 ±0.08 ±0.16	589	[1] ABLIKIM	07H	BES2	e^+e^-
1.11 ±0.06 ±0.20	342 ± 18	HENRARD	87	DM2	e^+e^-
1.38 ±0.21 ±0.35	118	EATON	84	MRK2	e^+e^-

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

$\Gamma(\Lambda\overline{\Sigma}^+\pi^- + c.c.)/\Gamma_{total}$ — Γ_{235}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.21 ±0.07 OUR AVERAGE	Error includes scale factor of 1.8.				
1.221±0.002±0.038	2.7M	ABLIKIM	23BU	BES3	e^+e^-
0.90 ±0.06 ±0.16	225	HENRARD	87	DM2	e^+e^-
1.53 ±0.17 ±0.38	135	EATON	84	MRK2	e^+e^-

$\Gamma(pK^-\overline{\Lambda}$+c.c.$)/\Gamma_{total}$ — Γ_{236}/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 [$\Gamma(J/\psi(1S) \to pK^-\overline{\Lambda}$+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_{237}/Γ

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

$\Gamma(pK^0_S\overline{\Sigma}^-$+c.c.$)/\Gamma_{total}$ — Γ_{238}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.725±0.009±0.050	120k	[1] ABLIKIM	24H	BES3	$e^+e^- \to J/\psi$

[1] The branching fractions for the charge-conjugate channels are measured separately as $(1.361 \pm 0.006 \pm 0.025) \times 10^{-4}$ for $\overline{p}K^0_S\Sigma^+$ and $(1.352 \pm 0.006 \pm 0.025) \times 10^{-4}$ for $pK^0_S\overline{\Sigma}^-$.

$\Gamma(\overline{\Lambda}nK^0_S + c.c.)/\Gamma_{total}$ — Γ_{239}/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%.

$\Gamma(\Lambda\overline{\Sigma}+\text{c.c.})/\Gamma_{\text{total}}$ — Γ_{240}/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.

$\Gamma(\Sigma^+\overline{\Sigma}^-)/\Gamma_{\text{total}}$ — Γ_{241}/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	$e^+e^- \to J/\psi$

$\Gamma(\Sigma^0\overline{\Sigma}^0)/\Gamma_{\text{total}}$ — Γ_{242}/Γ

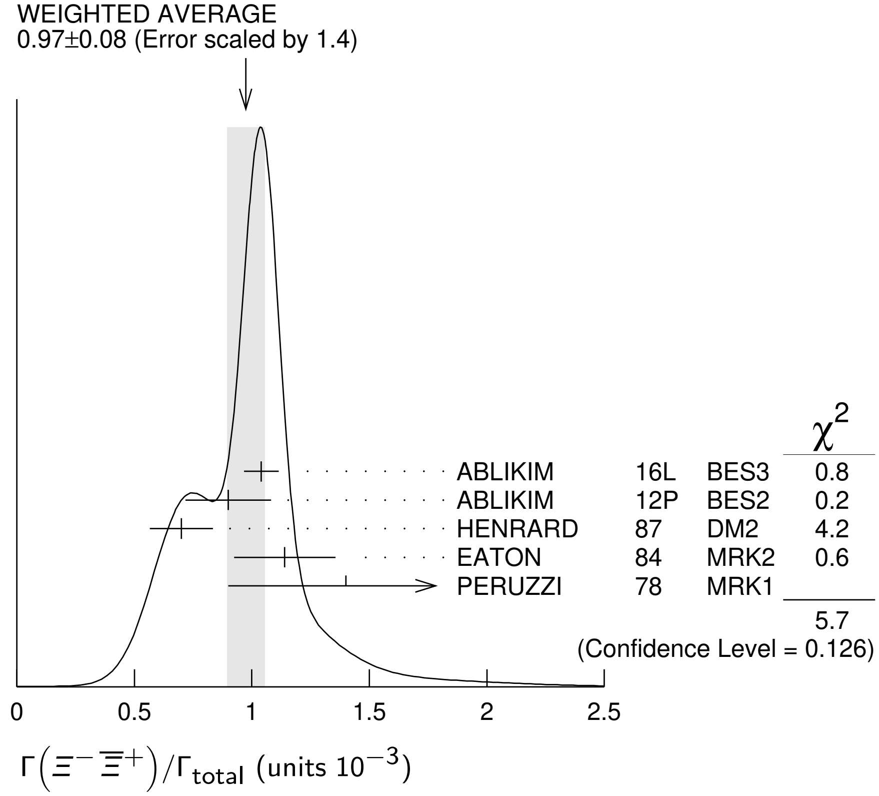
VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.172±0.032 OUR AVERAGE	Error includes scale factor of 1.4.				
1.164±0.004±0.023	111k	ABLIKIM	17L	BES3	$J/\psi \to \Sigma^0\overline{\Sigma}^0$
1.33 ±0.04 ±0.11	1.7k	ABLIKIM	06	BES2	$J/\psi \to \Sigma^0\overline{\Sigma}^0$
1.06 ±0.04 ±0.23	884	PALLIN	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	$e^+e^- \to \Sigma^+\overline{\Sigma}^-$

$\Gamma(\Sigma^+\overline{\Sigma}^-\eta)/\Gamma_{\text{total}}$ — Γ_{243}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
6.34±0.21±0.37	1821	ABLIKIM	22AY	BES3	$J/\psi \to \Sigma^+\overline{\Sigma}^-\eta$

$\Gamma(\Xi^-\overline{\Xi}^+)/\Gamma_{\text{total}}$ — Γ_{244}/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

$\Gamma(\gamma\eta_c(1S))/\Gamma_{total}$ — Γ_{245}/Γ

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
1.41±0.14 OUR FIT Error includes scale factor of 1.3.				
1.7 ±0.4 OUR AVERAGE Error includes scale factor of 1.5.				
2.00±0.31±0.02	[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. • • •				
3.40±0.33	[2] ANASHIN	14	KEDR	$J/\psi \to \gamma\eta_c$

[1] MITCHELL 09 reports $(1.98 \pm 0.09 \pm 0.30) \times 10^{-2}$ from a measurement of $[\Gamma(J/\psi(1S) \to \gamma\eta_c(1S))/\Gamma_{total}] \times [B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)]$ 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 $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (34.69 \pm 0.34) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Statistical uncertainty only.

$\Gamma(3\gamma)/\Gamma_{total}$ — Γ_{248}/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_{249}/Γ

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

$\Gamma(5\gamma)/\Gamma_{total}$ — Γ_{250}/Γ

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

$\Gamma(\gamma\pi^0)/\Gamma_{total}$ — Γ_{251}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
3.39±0.08 OUR AVERAGE					
3.34±0.02±0.09	176k	ABLIKIM	23BD	BES3	$J/\psi \to \pi^0\gamma$
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 $B(\pi^0 \to 2\gamma) = (98.823 \pm 0.034) \times 10^{-2}$, $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (34.69 \pm 0.34) \times 10^{-2}$. 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_{252}/Γ

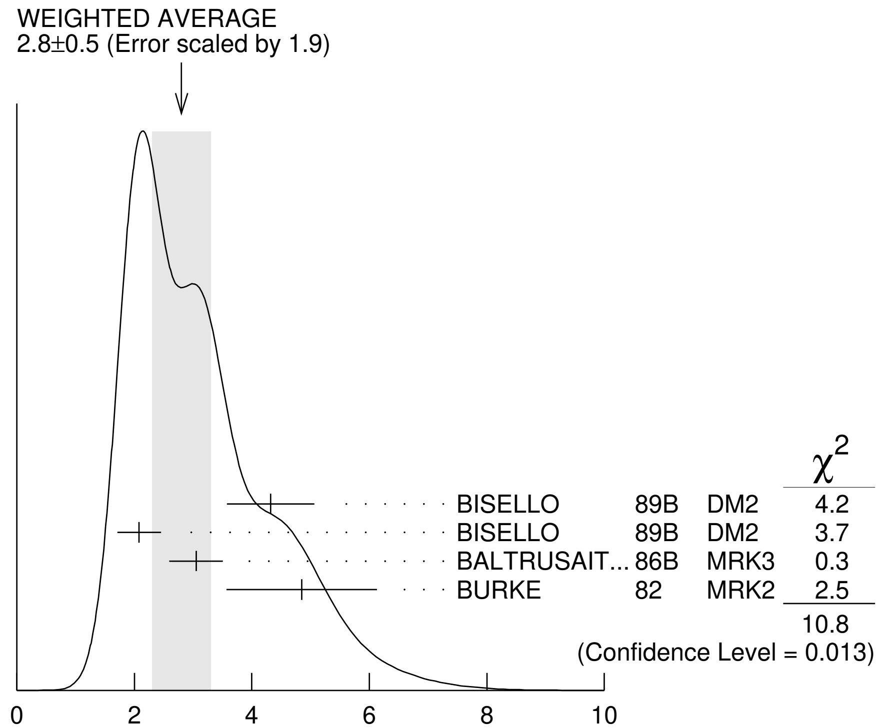
VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
1.15±0.05	[1] ABLIKIM	15AE	BES3	$J/\psi \to \gamma\pi^0\pi^0$

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

$\Gamma(\gamma 2\pi^+ 2\pi^-)/\Gamma_{total}$ — Γ_{253}/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±0.45±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.



$\Gamma\left(\gamma 2\pi^+ 2\pi^-\right)/\Gamma_{total}$ (units 10^{-3})

$\Gamma\left(\gamma f_2(1270) f_2(1270)\right)/\Gamma_{total}$ Γ_{254}/Γ

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

$\Gamma\left(\gamma f_2(1270) f_2(1270)(\text{non resonant})\right)/\Gamma_{total}$ Γ_{255}/Γ

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

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

$\Gamma\left(\gamma \pi^+ \pi^- 2\pi^0\right)/\Gamma_{total}$ Γ_{256}/Γ

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

[1] 4π mass less than 2.0 GeV.

$\Gamma\left(\gamma K^0_S K^0_S\right)/\Gamma_{total}$ Γ_{257}/Γ

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

$\Gamma\left(\gamma (K\overline{K}\pi)\,[J^{PC} = 0^{-+}]\right)/\Gamma_{total}$ Γ_{258}/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.

$\Gamma(\gamma K^+ K^- \pi^+ \pi^-)/\Gamma_{total}$ — Γ_{259}/Γ

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

$\Gamma(\gamma K^*(892) \overline{K}^*(892))/\Gamma_{total}$ — Γ_{260}/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.

$\Gamma(\gamma\eta)/\Gamma_{total}$ — Γ_{261}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.090±0.013 OUR AVERAGE					
1.096±0.001±0.019	2.2M	ABLIKIM	23BD	BES3	$J/\psi \to \eta\gamma$
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 $[\Gamma(J/\psi(1S) \to \gamma\eta)/\Gamma_{total}] \times [B(\eta \to 2\gamma)] = (4.42 \pm 0.04 \pm 0.18) \times 10^{-4}$ from a measurement of $[\Gamma(J/\psi(1S) \to \gamma\eta)/\Gamma_{total}] \times [B(\eta \to 2\gamma)] \times [B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)]$ 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 $B(\eta \to 2\gamma) = (39.36 \pm 0.18) \times 10^{-2}$, $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (34.69 \pm 0.34) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

$\Gamma(\gamma\eta\pi^0)/\Gamma_{total}$ — Γ_{262}/Γ

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

$\Gamma(\gamma f_0(500) \to \gamma\pi\pi)/\Gamma_{total}$ — Γ_{263}/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_{264}/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_{265}/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	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma a_0(980)^0 \to \gamma\eta\pi^0)/\Gamma_{total}$ — Γ_{266}/Γ

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

$\Gamma(\gamma a_2(1320)^0 \to \gamma\eta\pi^0)/\Gamma_{total}$ — Γ_{267}/Γ

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

$\Gamma(\gamma\eta\pi\pi)/\Gamma_{total}$ — Γ_{268}/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.

$\Gamma(\gamma\eta_2(1870) \to \gamma\eta\pi^+\pi^-)/\Gamma_{total}$ — Γ_{269}/Γ

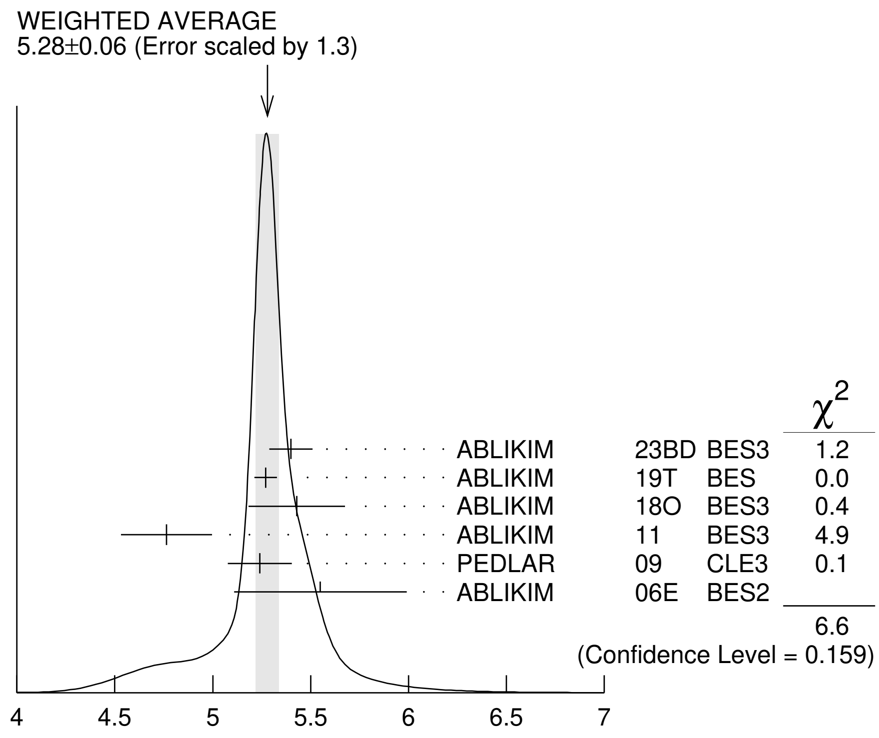
VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
6.2±2.2±0.9	BAI	99	BES	$J/\psi \to \gamma\eta\pi^+\pi^-$

$\Gamma(\gamma\eta'(958))/\Gamma_{total}$ — Γ_{270}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
5.28±0.06 OUR AVERAGE	Error includes scale factor of 1.3. See the ideogram below.				
5.40±0.01±0.11	638k	ABLIKIM	23BD	BES3	$J/\psi \to \gamma\eta'$
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	$\psi(2S) \to \pi^+\pi^-\gamma\gamma\gamma$
4.76±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 $[\Gamma(J/\psi(1S) \to \gamma\eta'(958))/\Gamma_{total}] \times [B(\eta'(958) \to \gamma\gamma)] = (1.26 \pm 0.02 \pm 0.05) \times 10^{-4}$ from a measurement of $[\Gamma(J/\psi(1S) \to \gamma\eta'(958))/\Gamma_{total}] \times [B(\eta'(958) \to \gamma\gamma)] \times [B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)]$ 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 $B(\eta'(958) \to \gamma\gamma) = (2.307 \pm 0.033) \times 10^{-2}$, $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (34.69 \pm 0.34) \times 10^{-2}$. 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 $[\Gamma(J/\psi(1S) \to \gamma\eta'(958))/\Gamma_{total}]$ / $[B(\eta'(958) \to \pi^+\pi^-\eta)]$ / $[B(\eta \to 2\gamma)]$ 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.



$\Gamma(\gamma\eta'(958))/\Gamma_{total}$ (units 10^{-3})

$\Gamma(\gamma f_0(980) \to \gamma\pi\pi)/\Gamma_{total}$ — Γ_{271}/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_{272}/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_{273}/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	$J/\psi \rightarrow 4\pi\gamma$
3.75±1.05±1.20		[2] BURKE	82	MRK2	$J/\psi \rightarrow 4\pi\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.09	90	[3] BISELLO	89B		$J/\psi \rightarrow 4\pi\gamma$

[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_{274}/Γ

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

$\Gamma(\gamma\rho\phi)/\Gamma_{total}$ — Γ_{275}/Γ

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

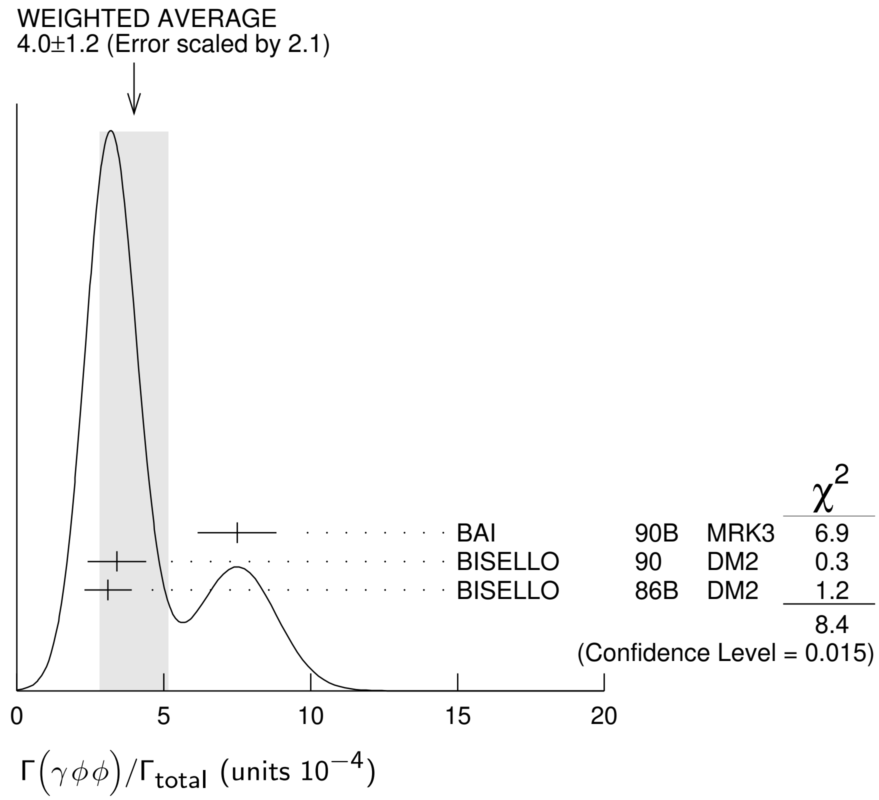
$\Gamma(\gamma\omega\omega)/\Gamma_{total}$ — Γ_{276}/Γ

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

$\Gamma(\gamma\phi\phi)/\Gamma_{total}$ — Γ_{277}/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	$J/\psi \rightarrow \gamma 4K$
3.4±0.8±0.6	33 ± 7	[1] BISELLO	90	DM2	$J/\psi \rightarrow \gamma K^+ K^- K^0_S K^0_L$
3.1±0.7±0.4		[1] BISELLO	86B	DM2	$J/\psi \rightarrow \gamma K^+ K^- K^+ K^-$

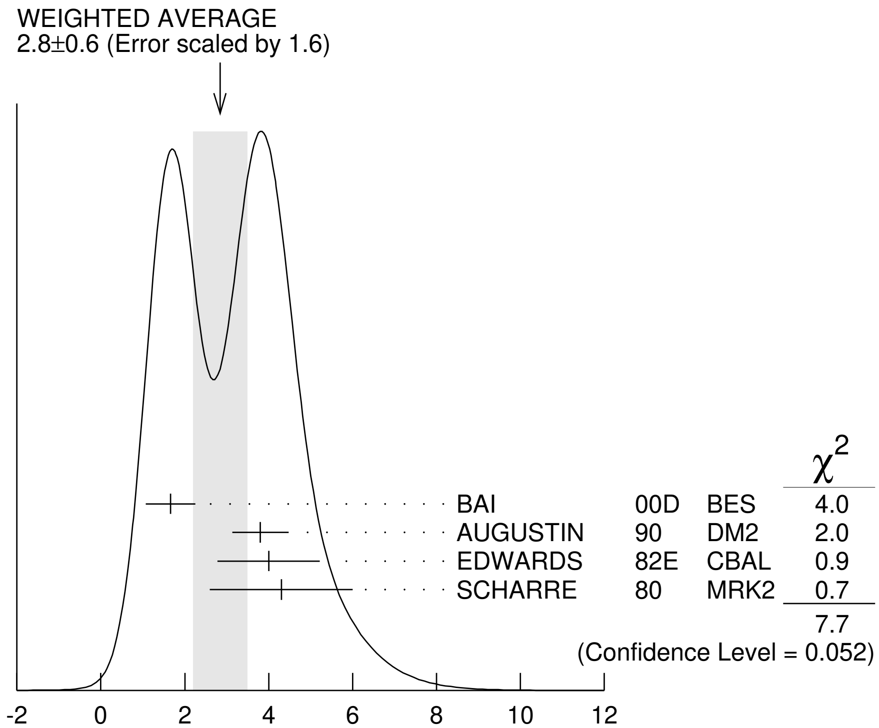
[1] $\phi\phi$ mass less than 2.9 GeV, η_c excluded.



$\Gamma(\gamma\eta(1405/1475) \rightarrow \gamma K\overline{K}\pi)/\Gamma_{total}$ $\qquad$ Γ_{278}/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.			
$1.66\pm0.1\ \pm0.58$	[1,2] BAI	00D	BES	$J/\psi \rightarrow \gamma K^{\pm} K^0_S \pi^{\mp}$
$3.8\ \pm0.3\ \pm0.6$	[3] AUGUSTIN	90	DM2	$J/\psi \rightarrow \gamma K\overline{K}\pi$
$4.0\ \pm0.7\ \pm1.0$	[3] EDWARDS	82E	CBAL	$J/\psi \rightarrow K^+ K^- \pi^0 \gamma$
$4.3\ \pm1.7$	[3,4] SCHARRE	80	MRK2	$e^+ e^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.78\pm0.21\pm0.33$	[3,5,6] AUGUSTIN	92	DM2	$J/\psi \rightarrow \gamma K\overline{K}\pi$
$0.83\pm0.13\pm0.18$	[3,7,8] AUGUSTIN	92	DM2	$J/\psi \rightarrow \gamma K\overline{K}\pi$
$0.66^{+0.17}_{-0.16}{}^{+0.24}_{-0.15}$	[3,6,9] BAI	90C	MRK3	$J/\psi \rightarrow \gamma K^0_S K^{\pm}\pi^{\mp}$
$1.03^{+0.21}_{-0.18}{}^{+0.26}_{-0.19}$	[3,8,10] BAI	90C	MRK3	$J/\psi \rightarrow \gamma K^0_S K^{\pm}\pi^{\mp}$

[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 $J/\psi \rightarrow \gamma f_1(1420)$ is $(-0.03 \pm 0.01 \pm 0.01) \times 10^{-3}$.
[3] Includes unknown branching fraction $\eta(1405) \rightarrow K\overline{K}\pi$.
[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.



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

$\Gamma\left(\gamma\eta(1405/1475) \to \gamma\gamma\rho^0\right)/\Gamma_{\rm total}$ Γ_{279}/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 $\eta(1405) \to \gamma\rho^0$.

$\Gamma\left(\gamma\eta(1405/1475) \to \gamma\eta\pi^+\pi^-\right)/\Gamma_{\rm total}$ Γ_{280}/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 $\eta\pi^+\pi^-$.

$\Gamma\left(\gamma\eta(1405/1475) \to \gamma\rho^0\rho^0\right)/\Gamma_{\rm total}$ Γ_{281}/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 $\rho^0\rho^0$.

$\Gamma(\gamma\eta(1405/1475) \to \gamma\gamma\phi)/\Gamma_{total}$ — Γ_{282}/Γ

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

$\Gamma(\gamma\eta(1405) \to \gamma f_0(980)\pi^0 \to \gamma\pi^+\pi^-\pi^0)/\Gamma_{total}$ — Γ_{283}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$1.5\pm0.11\pm0.11$	743	ABLIKIM	12E	BES3	$J/\psi \to \gamma\eta(1405)$

$\Gamma(\gamma\eta(1405) \to \gamma f_0(980)\pi^0 \to \gamma\pi^0\pi^0\pi^0)/\Gamma_{total}$ — Γ_{284}/Γ

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
$7.10\pm0.82\pm0.72$	198	ABLIKIM	12E	BES3	$J/\psi \to \gamma\eta(1405)$

$\Gamma(\gamma\eta(1405) \to \gamma\gamma\gamma)/\Gamma_{total}$ — Γ_{285}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.63\times10^{-6}$	90	ABLIKIM	18O	BES3	$\psi(2S) \to \pi^+\pi^-\gamma\gamma\gamma$

$\Gamma(\gamma\eta(1475) \to \gamma\gamma\gamma)/\Gamma_{total}$ — Γ_{286}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.86\times10^{-6}$	90	ABLIKIM	18O	BES3	$\psi(2S) \to \pi^+\pi^-\gamma\gamma\gamma$

$\Gamma(\gamma\eta(1760) \to \gamma\rho^0\rho^0)/\Gamma_{total}$ — Γ_{287}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.13 ± 0.09	[1,2] BISELLO	89B	DM2	$J/\psi \to 4\pi\gamma$

[1] Estimated by us from various fits.

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

$\Gamma(\gamma\eta(1760) \to \gamma\omega\omega)/\Gamma_{total}$ — Γ_{288}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$1.98\pm0.08\pm0.32$	1045	ABLIKIM	06H	BES	$J/\psi \to \gamma\omega\omega$

$\Gamma(\gamma\eta(1760) \to \gamma\gamma\gamma)/\Gamma_{total}$ — Γ_{289}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<4.80\times10^{-6}$	90	ABLIKIM	18O	BES3	$\psi(2S) \to \pi^+\pi^-\gamma\gamma\gamma$

$\Gamma(\gamma\eta(2225))/\Gamma_{total}$ — Γ_{290}/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	$J/\psi \to \gamma K^+K^-K^+K^-$
$4.4\ \pm0.4\ \pm0.8$	196	[2] ABLIKIM	08I	BES	$J/\psi \to \gamma K^+K^-K^0_S K^0_L$
$3.3\ \pm0.8\ \pm0.5$		[2] BAI	90B	MRK3	$J/\psi \to \gamma K^+K^-K^+K^-$
$2.7\ \pm0.6\ \pm0.6$		[2] BAI	90B	MRK3	$J/\psi \to \gamma K^+K^-K^0_S K^0_L$
$2.4\ ^{+1.5}_{-1.0}$		[3,4] BISELLO	89B	DM2	$J/\psi \to 4\pi\gamma$

[1] From a partial wave analysis of $J/\psi \to \gamma\phi\phi$ 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_{291}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.63±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		$J/\psi \to \gamma\pi\pi$
$1.63\pm0.26^{+0.02}_{-0.05}$		[3] ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^+\pi^-$
$1.42\pm0.21^{+0.02}_{-0.05}$		[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.

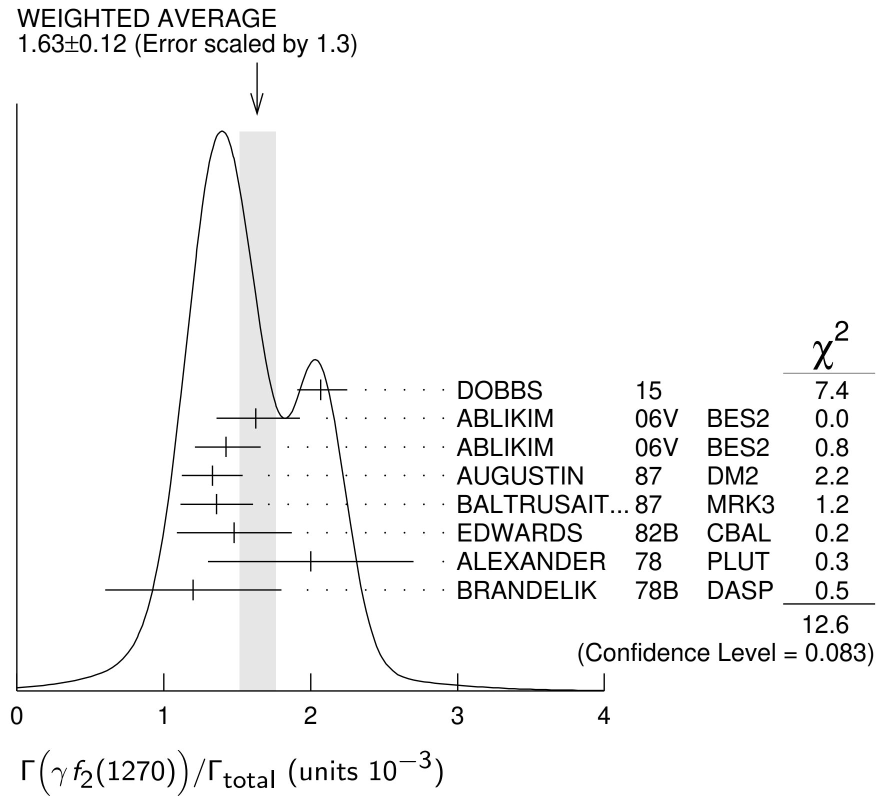
[2] DOBBS 15 reports $[\Gamma(J/\psi(1S) \to \gamma f_2(1270))/\Gamma_{total}] \times [B(f_2(1270) \to \pi\pi)] = (1.744 \pm 0.052 \pm 0.122) \times 10^{-3}$ which we divide by our best value $B(f_2(1270) \to \pi\pi) = (84.3^{+2.8}_{-1.0}) \times 10^{-2}$. Our first error is their experiment's error 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 $B(f_2(1270) \to \pi\pi) = (84.3^{+2.8}_{-1.0}) \times 10^{-2}$. 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 $B(f_2(1270) \to \pi\pi) = (84.3^{+2.8}_{-1.0}) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[5] Estimated using $B(f_2(1270) \to \pi\pi)=0.843 \pm 0.012$. 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.



$\Gamma\big(\gamma f_2(1270) \to \gamma K^0_S K^0_S\big)/\Gamma_{\rm total}$ — Γ_{292}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$\mathbf{2.58^{+0.08}_{-0.09}{}^{+0.59}_{-0.20}}$	ABLIKIM	18AA	BES3	$J/\psi \to \gamma K^0_S K^0_S$

$\Gamma\big(\gamma f_1(1285)\big)/\Gamma_{\rm total}$ — Γ_{293}/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 $B(f_1(1285) \to \rho^0\gamma) = 0.055 \pm 0.013$.

[2] Assuming $\Gamma(f_1(1285) \to K\overline{K}\pi)/\Gamma_{\rm total} = 0.090 \pm 0.004$.

[3] Assuming $\Gamma(f_1(1285) \to \eta\pi\pi)/\Gamma_{\rm total} = 0.5 \pm 0.18$.

[4] Obtained summing the sequential decay channels
$B(J/\psi \to \gamma f_1(1285), f_1(1285) \to \pi\pi\pi\pi) = (1.44 \pm 0.39 \pm 0.27) \times 10^{-4}$;
$B(J/\psi \to \gamma f_1(1285), f_1(1285) \to a_0(980)\pi, a_0(980) \to \eta\pi) = (3.90 \pm 0.42 \pm 0.87) \times 10^{-4}$;
$B(J/\psi \to \gamma f_1(1285), f_1(1285) \to a_0(980)\pi, a_0(980) \to K\overline{K}) = (0.66 \pm 0.26 \pm 0.29) \times 10^{-4}$;
$B(J/\psi \to \gamma f_1(1285), f_1(1285) \to \gamma\rho^0) = (0.25 \pm 0.07 \pm 0.03) \times 10^{-4}$.

[5] Using $B(f_1(1285) \to a_0(980)\pi) = 0.37$, and including unknown branching ratio for $a_0(980) \to \eta\pi$.

$\Gamma(\gamma f_0(1370) \to \gamma\pi\pi)/\Gamma_{\text{total}}$ — Γ_{294}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
38 ± 10	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_0(1370) \to \gamma K\overline{K})/\Gamma_{\text{total}}$ — Γ_{295}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$4.19\pm0.73\pm1.34$	478	[1] DOBBS	15		$J/\psi \to \gamma K\overline{K}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.3\ \pm0.4$		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.

$\Gamma(\gamma f_0(1370) \to \gamma K^0_S K^0_S)/\Gamma_{\text{total}}$ — Γ_{296}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$1.07^{+0.08}_{-0.07}{}^{+0.36}_{-0.34}$	ABLIKIM	18AA	BES3	$J/\psi \to \gamma K^0_S K^0_S$

$\Gamma(\gamma f_0(1370) \to \gamma\eta\eta)/\Gamma_{\text{total}}$ — Γ_{297}/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	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_0(1370) \to \gamma\eta\eta')/\Gamma_{\text{total}}$ — Γ_{298}/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	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_1(1420) \to \gamma K\overline{K}\pi)/\Gamma_{\text{total}}$ — Γ_{299}/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.

$\Gamma(\gamma f_0(1500) \to \gamma\pi\pi)/\Gamma_{\text{total}}$ — Γ_{300}/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_{301}/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 ±0.4		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_{302}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$1.59 \pm 0.16^{+0.18}_{-0.56}$	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 ±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_{303}/Γ

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$18.1 \pm 1.1^{+1.9}_{-1.3}$	[1] ABLIKIM	22AS	BES3	$J/\psi(1S) \to \gamma\eta\eta'$
12 ±5	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma(\pi\pi, K\overline{K}, \eta\eta, \omega\phi)$

[1] From a Breit-Wigner fit involving 9 resonances and a resonating exotic $\eta_1(1855) \to \eta\eta'$ P-wave.

$\Gamma(\gamma f_1(1510) \to \gamma\eta\pi^+\pi^-)/\Gamma_{total}$ — Γ_{304}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
4.5±1.0±0.7	BAI	99	BES	$J/\psi \to \gamma\eta\pi^+\pi^-$

$\Gamma(\gamma f'_2(1525))/\Gamma_{total}$ — Γ_{305}/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.						
8.0 ±0.9 ±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 ±1.4 ±0.9			[3] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^+K^-$
4.5 ±0.4 ±0.9			[3] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^0_S K^0_S$
6.8 ±1.6 ±1.4			[3] BALTRUSAIT...	87	MRK3	$J/\psi \to \gamma K^+K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •						

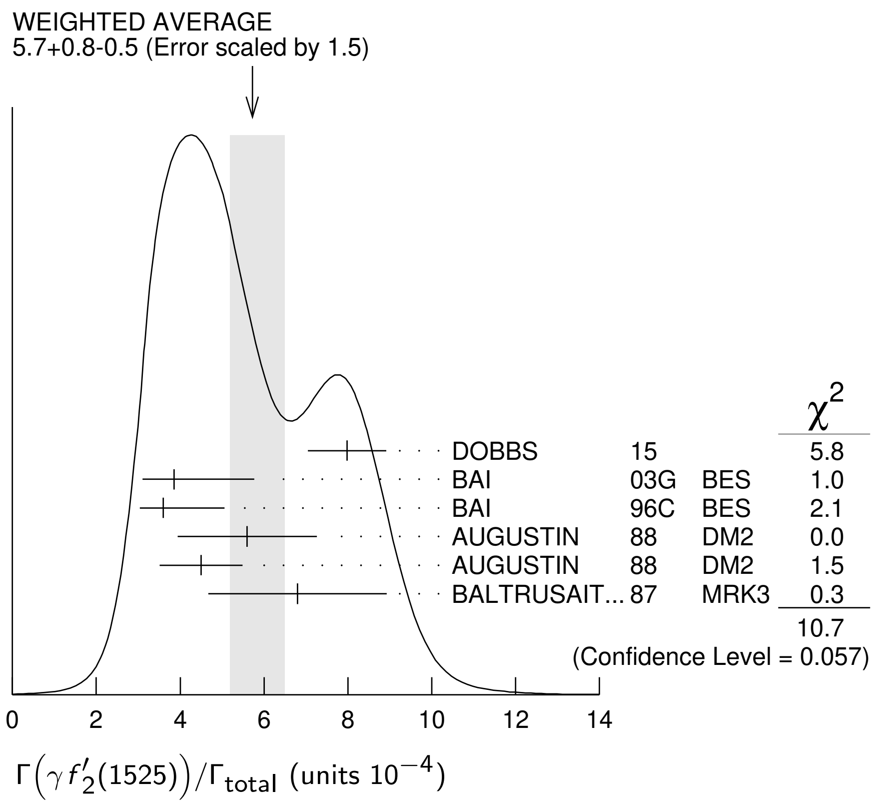
<3.4	90	4	[4] BRANDELIK	79C	DASP	$e^+e^- \to \pi^+\pi^-\gamma$
<2.3	90	3	ALEXANDER	78	PLUT	$e^+e^- \to K^+K^-\gamma$

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

[2] DOBBS 15 reports $[\Gamma(J/\psi(1S) \to \gamma f_2'(1525))/\Gamma_{\text{total}}] \times [B(f_2'(1525) \to K\overline{K})] = (7.09 \pm 0.46 \pm 0.67) \times 10^{-4}$ which we divide by our best value $B(f_2'(1525) \to K\overline{K}) = (88.8 \pm 2.2) \times 10^{-2}$. 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.



$\Gamma\big(\gamma f_2'(1525) \to \gamma K_S^0 K_S^0\big)/\Gamma_{\text{total}}$ $\qquad\qquad$ Γ_{306}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$\mathbf{7.99^{+0.03}_{-0.04}{}^{+0.69}_{-0.50}}$	ABLIKIM	18AA	BES3	$J/\psi \to \gamma K_S^0 K_S^0$

$\Gamma\big(\gamma f_2'(1525) \to \gamma\eta\eta\big)/\Gamma_{\text{total}}$ $\qquad\qquad$ Γ_{307}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{3.42^{+0.43}_{-0.51}{}^{+1.37}_{-1.30}}$	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.

$\Gamma(\gamma f_2(1565) \to \gamma\eta\eta')/\Gamma_{total}$ — Γ_{308}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.32\pm0.05^{+0.12}_{-0.02}$	[1] ABLIKIM	22AS	BES3	$J/\psi(1S) \to \gamma\eta\eta'$

[1] From a Breit-Wigner fit involving 9 resonances and a resonating exotic $\eta_1(1855) \to \eta\eta'$ P-wave.

$\Gamma(\gamma f_2(1640) \to \gamma\omega\omega)/\Gamma_{total}$ — Γ_{309}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.28±0.05±0.17	141	ABLIKIM	06H	BES	$J/\psi \to \gamma\omega\omega$

$\Gamma(\gamma f_0(1710) \to \gamma\pi\pi)/\Gamma_{total}$ — Γ_{310}/Γ

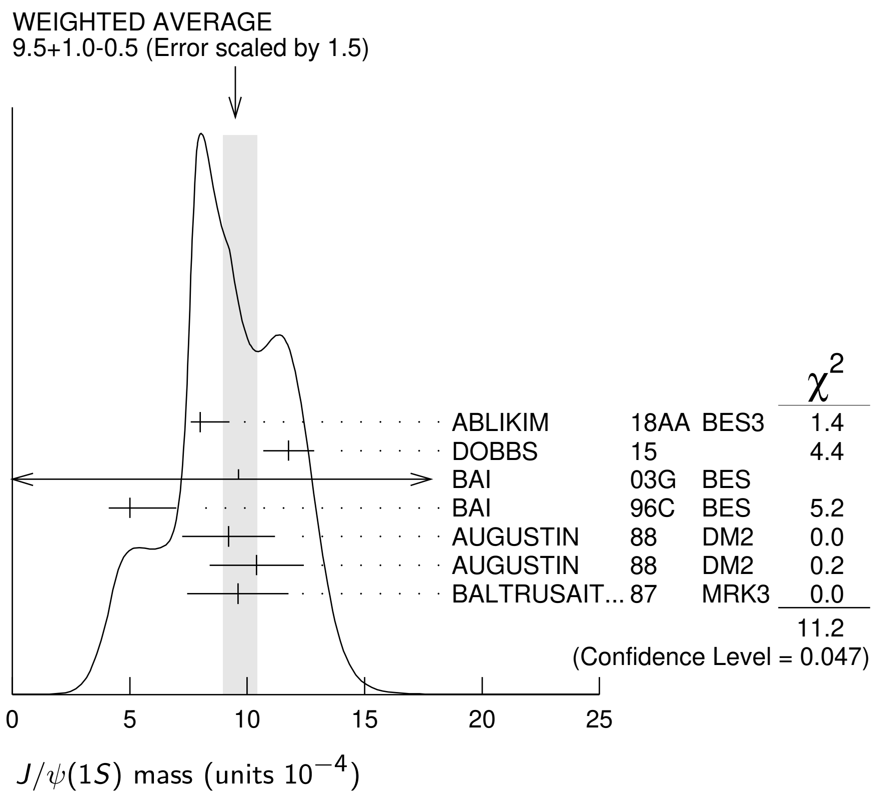
VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
3.8 ±0.5 OUR AVERAGE					
3.72±0.30±0.43	483	[1] DOBBS	15		$J/\psi \to \gamma\pi\pi$
3.96±0.06±1.12		[2] ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^+\pi^-$
3.99±0.15±2.64		[2] ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^0\pi^0$
• • • We 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_{311}/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.						
$8.00^{+0.12+1.24}_{-0.08-0.40}$			[1] ABLIKIM	18AA	BES3	$J/\psi \to \gamma K^0_S K^0_S$
11.76± 0.54±0.94		1.2k	[2] DOBBS	15		$J/\psi \to \gamma K\overline{K}$
$9.62\pm029^{+3.51}_{-1.86}$			[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 ± 1.4 ±1.4			[1] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^+K^-$
10.4 ± 1.2 ±1.6			[1] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^0_S K^0_S$
9.6 ± 1.2 ±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 ± 0.4 ±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 $\eta\eta$.



$\Gamma(\gamma f_0(1710) \to \gamma\omega\omega)/\Gamma_{total}$ Γ_{312}/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_{313}/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_{314}/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_{315}/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	$J/\psi \to \gamma\omega\phi$
$2.61\pm0.27\pm0.65$	95	ABLIKIM	06J	BES2	$J/\psi \to \gamma\omega\phi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.1\ \pm0.1$		[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.

$\Gamma(\gamma f_0(1770) \to \gamma K^0_S K^0_S)/\Gamma_{total}$ — Γ_{316}/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_{317}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		COMMENT
$\mathbf{5.40^{+0.60+3.42}_{-0.67-2.35}}$	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.

$\Gamma(\gamma\eta_1(1855) \to \gamma\eta\eta')/\Gamma_{total}$ — Γ_{318}/Γ

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
$\mathbf{2.70\pm0.41^{+0.16}_{-0.35}}$	[1] ABLIKIM	22AI	BES3	$J/\psi(1S) \to \gamma\eta\eta'$

[1] From a Breit-Wigner fit involving 9 resonances and the resonating exotic $\eta_1(1855) \to \eta\eta'$ P-wave. For analysis details see ABLIKIM 22AS.

$\Gamma(\gamma f_0(1770) \to \gamma\eta\eta')/\Gamma_{total}$ — Γ_{319}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.11\pm0.01^{+0.04}_{-0.03}$	[1] ABLIKIM	22AS	BES3	$J/\psi(1S) \to \gamma\eta\eta'$

[1] From a Breit-Wigner fit involving 9 resonances and a resonating exotic $\eta_1(1855) \to \eta\eta'$ P-wave.

$\Gamma(\gamma f_2(1910) \to \gamma\omega\omega)/\Gamma_{total}$ — Γ_{320}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.20\pm0.04\pm0.13}$	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_{321}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.7±0.1±0.2	BAI	00B	BES	$J/\psi \to \gamma K^+ K^0 \pi^+ \pi^-$

$\Gamma(\gamma f_2(2010) \to \gamma \eta \eta')/\Gamma_{total}$ Γ_{322}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.71 \pm 0.06 ^{+0.10}_{-0.06}$	[1] ABLIKIM	22AS	BES3	$J/\psi(1S) \to \gamma \eta \eta'$

[1] From a Breit-Wigner fit involving 9 resonances and a resonating exotic $\eta_1(1855) \to \eta \eta'$ P-wave.

$\Gamma(\gamma f_0(2020) \to \gamma \pi \pi)/\Gamma_{total}$ Γ_{323}/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_{324}/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_{325}/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	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_0(2020) \to \gamma \eta' \eta')/\Gamma_{total}$ Γ_{326}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
$\mathbf{2.63 \pm 0.06 ^{+0.31}_{-0.46}}$	[1] ABLIKIM	22C	BES3	$J/\psi \to \gamma \eta' \eta' \to 4/5 \gamma 2(\pi^+ \pi^-)$

[1] From a partial wave analysis of the systems (γX), with $X \to \eta' \eta'$, and ($\eta' X$), with $X \to \gamma \eta'$ in the decay $J/\psi \to \gamma \eta' \eta'$. The intermediate resonance X is parametrized by a constant-width, relativistic Breit-Wigner.

$\Gamma(\gamma f_0(2020) \to \gamma \eta \eta')/\Gamma_{total}$ Γ_{327}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$2.28 \pm 0.12 ^{+0.29}_{-0.20}$	[1] ABLIKIM	22AS	BES3	$J/\psi(1S) \to \gamma \eta \eta'$

[1] From a Breit-Wigner fit involving 9 resonances and a resonating exotic $\eta_1(1855) \to \eta \eta'$ P-wave.

$\Gamma(\gamma f_4(2050))/\Gamma_{total}$ Γ_{328}/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.

$\Gamma(\gamma f_4(2050) \to \gamma\eta\eta')/\Gamma_{total}$ — Γ_{329}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.06 \pm 0.01 {}^{+0.03}_{-0.01}$	[1] ABLIKIM	22AS	BES3	$J/\psi(1S) \to \gamma\eta\eta'$

[1] From a Breit-Wigner fit involving 9 resonances and a resonating exotic $\eta_1(1855) \to \eta\eta'$ P-wave.

$\Gamma(\gamma f_0(2100) \to \gamma\eta\eta)/\Gamma_{total}$ — Γ_{330}/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.

$\Gamma(\gamma f_0(2100) \to \gamma K\overline{K})/\Gamma_{total}$ — Γ_{331}/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	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_0(2100) \to \gamma\pi\pi)/\Gamma_{total}$ — Γ_{332}/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.

$\Gamma(\gamma f_0(2200))/\Gamma_{total}$ — Γ_{333}/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 $K^0_S K^0_S$.

$\Gamma(\gamma f_0(2200) \to \gamma K\overline{K})/\Gamma_{total}$ — Γ_{334}/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.

$\Gamma(\gamma f_0(2200) \to \gamma K^0_S K^0_S)/\Gamma_{total}$ — Γ_{335}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
$\mathbf{2.72^{+0.08}_{-0.06}{}^{+0.17}_{-0.47}}$	ABLIKIM	18AA	BES3	$J/\psi \to \gamma K^0_S K^0_S$

$\Gamma(\gamma f_0(2200) \to \gamma \pi\pi)/\Gamma_{total}$ — Γ_{336}/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	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_0(2200) \to \gamma \eta\eta)/\Gamma_{total}$ — Γ_{337}/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	$J/\psi(1S) \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\gamma f_J(2220))/\Gamma_{total}$ — Γ_{338}/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 $K^0_S K^0_S$.

$\Gamma(\gamma f_J(2220) \to \gamma \pi\pi)/\Gamma_{total}$ — Γ_{339}/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.

$\Gamma(\gamma f_J(2220) \to \gamma K\overline{K})/\Gamma_{total}$ — Γ_{340}/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.

$\Gamma(\gamma f_J(2220) \to \gamma p \overline{p})/\Gamma_{total}$ — Γ_{341}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
1.5±0.6±0.5	BAI	96B	BES	$e^+ e^- \to J/\psi \to \gamma p \overline{p}$

$\Gamma(\gamma f_0(2330) \to \gamma K^0_S K^0_S)/\Gamma_{total}$ — Γ_{342}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$4.95 \pm 0.21 ^{+0.66}_{-0.72}$	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_{343}/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_{344}/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	$J/\psi(1S) \to \gamma(\pi\pi, K\overline{K}, \eta\eta, \omega\phi)$

$\Gamma(\gamma f_0(2330) \to \gamma \eta' \eta')/\Gamma_{total}$ — Γ_{345}/Γ

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
$6.09 \pm 0.64 ^{+4.00}_{-1.68}$	[1] ABLIKIM	22C	BES3	$J/\psi \to \gamma \eta' \eta' \to 4/5 \gamma 2(\pi^+ \pi^-)$

[1] From a partial wave analysis of the systems (γX), with $X \to \eta' \eta'$, and $(\eta' X)$, with $X \to \gamma \eta'$ in the decay $J/\psi \to \gamma \eta' \eta'$. The intermediate resonance X is parametrized by a constant-width, relativistic Breit-Wigner.

$\Gamma(\gamma f_0(2330) \to \gamma \eta \eta')/\Gamma_{total}$ — Γ_{346}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.10 \pm 0.02 ^{+0.01}_{-0.02}$	[1] ABLIKIM	22AS	BES3	$J/\psi(1S) \to \gamma \eta \eta'$

[1] From a Breit-Wigner fit involving 9 resonances and a resonating exotic $\eta_1(1855) \to \eta\eta'$ P-wave.

$\Gamma(\gamma f_2(2340) \to \gamma \eta\eta)/\Gamma_{total}$ — Γ_{347}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$5.60 ^{+0.62}_{-0.65} {}^{+2.37}_{-2.07}$	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_{348}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$5.54^{+0.34+3.82}_{-0.40-1.49}$	ABLIKIM	18AA	BES3	$J/\psi \to \gamma K^0_S K^0_S$

$\Gamma(\gamma f_2(2340) \to \gamma \eta' \eta')/\Gamma_{total}$ — Γ_{349}/Γ

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
$8.67 \pm 0.70^{+0.61}_{-1.67}$	[1] ABLIKIM	22C	BES3	$J/\psi \to \gamma\eta'\eta' \to 4/5\gamma 2(\pi^+\pi^-)$

[1] From a partial wave analysis of the systems (γX), with $X \to \eta'\eta'$, and $(\eta' X)$, with $X \to \gamma\eta'$ in the decay $J/\psi \to \gamma\eta'\eta'$. The intermediate resonance X is parametrized by a constant-width, relativistic Breit-Wigner.

$\Gamma(\gamma f_0(2470) \to \gamma \eta' \eta')/\Gamma_{total}$ — Γ_{350}/Γ

VALUE (units 10^{-7})	DOCUMENT ID		TECN	COMMENT
$8.18 \pm 1.77^{+3.73}_{-2.23}$	[1] ABLIKIM	22C	BES3	$J/\psi \to \gamma\eta'\eta' \to 4/5\gamma 2(\pi^+\pi^-)$

[1] From a partial wave analysis of the systems (γX), with $X \to \eta'\eta'$, and $(\eta' X)$, with $X \to \gamma\eta'$ in the decay $J/\psi \to \gamma\eta'\eta'$. The intermediate resonance X is parametrized by a constant-width, relativistic Breit-Wigner.

$\Gamma(\gamma X(1835) \to \gamma \pi^+\pi^-\eta')/\Gamma_{total}$ — Γ_{351}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$2.7^{+0.6}_{-0.8}$ OUR AVERAGE Error includes scale factor of 1.6.					
$3.93 \pm 0.38^{+0.31}_{-0.84}$		[1] ABLIKIM	16J	BES3	$J/\psi \to \gamma\pi^+\pi^-\eta'$
$2.2 \pm 0.4 \pm 0.4$	264	ABLIKIM	05R	BES2	$J/\psi \to \gamma\pi^+\pi^-\eta'$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$2.87 \pm 0.09^{+0.49}_{-0.52}$	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; $\Gamma \approx$ 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 $\gamma\eta(2370)$, 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_{352}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$0.77^{+0.15}_{-0.09}$ OUR AVERAGE					
$0.90^{+0.04+0.27}_{-0.11-0.55}$		[1] ABLIKIM	12D	BES3	$J/\psi \to \gamma p\overline{p}$
$1.14^{+0.43+0.42}_{-0.30-0.26}$	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_{353}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$3.31^{+0.33+1.96}_{-0.30-1.29}$	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_{354}/Γ

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.77\pm0.35\pm0.25$	305	[1] ABLIKIM	18I	BES3	$J/\psi \to \gamma\gamma\phi(1020)$
$8.09\pm1.99\pm1.36$	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_{355}/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_{356}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$2.44\pm0.36^{+0.60}_{-0.74}$	0.6k	ABLIKIM	13U	BES3	$J/\psi \to \gamma 3(\pi^+\pi^-)$

$\Gamma(\gamma\eta(2370) \to \gamma K^+ K^- \eta')/\Gamma_{total}$ — Γ_{357}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$1.79\pm0.23\pm0.65$	ABLIKIM	20Q	BES3	$J/\psi \to \gamma K^+ K^- \eta'$

$\Gamma(\gamma\eta(2370) \to \gamma K^0_S K^0_S \eta')/\Gamma_{total}$ — Γ_{358}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$1.18\pm0.32\pm0.39$	ABLIKIM	20Q	BES3	$J/\psi \to \gamma K^0_S K^0_S \eta'$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.31\pm0.22^{+2.85}_{-0.84}$	[1] ABLIKIM	24	BES3	$J/\psi \to \gamma K^0_S K^0_S \eta'$

[1] Decaying via the intermediate $f_0(980)\eta'$, fitted together with $X(1835)$, a 600 MeV broad structure around 2.8 GeV, and the tail of the $\eta_c(1S)$.

$\Gamma(\gamma\eta(2370) \to \gamma\eta\eta\eta')/\Gamma_{total}$ — Γ_{359}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<9.2 \times 10^{-6}$	90	ABLIKIM	21C	BES3	$J/\psi(1S) \to \gamma\eta\eta\eta'$

$\Gamma(\gamma D^0 + \text{c.c.})/\Gamma_{total}$ — Γ_{360}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<9.1 \times 10^{-8}$	90	ABLIKIM	24BZ	BES3	$e^+e^- \to J/\psi(1S)$

$\Gamma(\gamma p\overline{p})/\Gamma_{total}$ — Γ_{361}/Γ

VALUE (units 10^{-3})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
0.38±0.07±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_{362}/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_{363}/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 × 10^{-3}	90	BAI	98G	BES	e^+e^-

$\Gamma(\gamma A^0 \to \gamma\,\text{invisible})/\Gamma_{total}$ — Γ_{364}/Γ

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<1.7 × 10^{-6}	90	88M	[1] ABLIKIM	20K	BES3	$\psi(2S) \to J/\psi\pi^+\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<6.3 × 10^{-6}	90	3.7M	[2] INSLER	10	CLEO	$\psi(2S) \to J/\psi\pi^+\pi^-$

[1] For a narrow state, A^0, with mass m_{A^0} < 1.2 GeV. The limit varies with m_{A^0}, reaching its largest value of 1.7×10^{-6} at 1.2 GeV and being 7.0×10^{-7} for $m_{A^0} = 0$.

[2] The limit varies with mass m_{A^0} of a narrow state A^0 and is 4.3×10^{-6} for $m_{A^0} = 0$, reaches its largest value of 6.3×10^{-6} at $m_{A^0} = 500$ MeV, and is 3.6×10^{-6} at $m_{A^0} = 960$ MeV.

$\Gamma(\gamma A^0 \to \gamma\gamma\gamma)/\Gamma_{total}$ — Γ_{365}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<4.9 × 10^{-7}	95	[1] ABLIKIM	24AD	BES3	$J/\psi \to \gamma\gamma\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.8 × 10^{-6}	95	[2] ABLIKIM	23E	BES3	$J/\psi \to \gamma\gamma\gamma$

[1] For a light pseudoscalar axion-like particle, A^0, with a mass in the range 0.18–2.85 GeV. The measured 95% CL limit as a function of m_{A^0} ranges from 3.7×10^{-8} to 4.85×10^{-7}.

[2] For a light pseudoscalar axion-like particle, A^0, with a mass in the range 0.165–2.84 GeV. The measured 95% CL limit as a function of m_{A^0} ranges from 8.3×10^{-8} to 1.8×10^{-6}.

$\Gamma(\gamma A^0 \to \gamma\mu^+\mu^-)/\Gamma_{total}$ — Γ_{366}/Γ
(narrow state A^0 with 0.2 GeV < m_{A^0} < 3 GeV)

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<7.8 × 10^{-7}	90	[1] ABLIKIM	22H	BES3	$J/\psi \to \gamma\mu^+\mu^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.5 × 10^{-5}	90	[2] ABLIKIM	16E	BES3	$J/\psi \to \gamma\mu^+\mu^-$
<2.1 × 10^{-5}	90	[3] ABLIKIM	12	BES3	$J/\psi \to \gamma\mu^+\mu^-$

[1] For a narrow scalar or pseudoscalar, A^0, with a mass in the range 0.212–3.0 GeV. The measured 90% CL limit as a function of m_{A^0} is in the range $(1.2–778.0) \times 10^{-9}$.

[2] 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 $(2.8–495.3) \times 10^{-8}$.

[3] 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_{367}/Γ

VALUE (units 10^{-7})	EVTS	DOCUMENT ID		TECN	COMMENT
7.56±1.32±0.50	39	ABLIKIM	14I	BES3	$J/\psi \to \pi^0 e^+ e^-$

$\Gamma(\eta e^+ e^-)/\Gamma_{total}$ — Γ_{368}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
1.42±0.04±0.07	2.47k	[1,2] ABLIKIM	19A	BES3	$J/\psi \to \eta e^+ e^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.16±0.07±0.06	320	[1] ABLIKIM	14I	BES3	$J/\psi \to \eta e^+ e^-$

[1] Using both $\eta \to \gamma\gamma$ and $\eta \to \pi^+\pi^-\pi^0$ 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 $m(\Lambda) = 2.56 \pm 0.04 \pm 0.03$ GeV. Supersedes ABLIKIM 14I.

$\Gamma(\eta'(958) e^+ e^-)/\Gamma_{total}$ — Γ_{369}/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.

$\Gamma(\eta(1405) e^+ e^- \to f_0(980)\pi^0 e^+ e^- \to \pi^+\pi^-\pi^0 e^+ e^-)/\Gamma_{total}$ — Γ_{370}/Γ

VALUE (units 10^{-7})	EVTS	DOCUMENT ID		TECN	COMMENT
2.04±0.20±0.08	203	[1] ABLIKIM	24I	BES3	$J/\psi \to e^+ e^- \eta(1405)$

[1] With a significance of 9.8 σ.

$\Gamma(X(1835) e^+ e^-,\ X \to \pi^+\pi^-\eta')/\Gamma_{total}$ — Γ_{371}/Γ

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
3.58±0.19±0.16	1364	[1] ABLIKIM	22B	BES3	$J/\psi \to \pi^+\pi^-\eta' e^+ e^-$

[1] Assuming constructive interference. Destructive interference gives a value of $(4.43 \pm 0.23 \pm 0.19) \times 10^{-6}$ for this branching fraction.

$\Gamma(X(2120) e^+ e^-,\ X \to \pi^+\pi^-\eta')/\Gamma_{total}$ — Γ_{372}/Γ

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
0.82±0.12±0.06	310	ABLIKIM	22B	BES3	$J/\psi \to \pi^+\pi^-\eta' e^+ e^-$

$\Gamma(\eta(2370)e^+e^-,\ \eta\to\pi^+\pi^-\eta')/\Gamma_{total}$ — Γ_{373}/Γ

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
1.08±0.14±0.10	397	ABLIKIM	22B	BES3	$J/\psi\to\pi^+\pi^-\eta' e^+e^-$

$\Gamma(\eta U\to\eta e^+e^-)/\Gamma_{total}$ — Γ_{374}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<9.11\times10^{-7}$	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_{375}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.0\times10^{-7}$	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_{376}/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_{377}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<7.1\times10^{-8}$	90	ABLIKIM	21Q	BES3	$e^+e^-\to J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.2\times10^{-5}$	90	ABLIKIM	06M	BES2	$e^+e^-\to J/\psi$

$\Gamma(D^-\mu^+\nu_\mu+\text{c.c.})/\Gamma_{total}$ — Γ_{378}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5.6\times10^{-7}$	90	[1] ABLIKIM	24AM	BES3	$e^+e^-\to J/\psi$

[1] Using B($D^-\to K^+\pi^-\pi^-$) = 9.38 ± 0.16 %.

$\Gamma(\overline{D}^0e^+e^-+\text{c.c.})/\Gamma_{total}$ — Γ_{379}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<8.5\times10^{-8}$	90	[1] ABLIKIM	17AF	BES3	$e^+e^-\to J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.1\times10^{-5}$	90	ABLIKIM	06M	BES2	$e^+e^-\to J/\psi$

[1] Using D^0 decays to $K^-\pi^+$, $K^-\pi^+\pi^0$, and $K^-\pi^+\pi^+\pi^-$.

$\Gamma(D_s^- e^+ \nu_e + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{380}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.3 × 10⁻⁶	90	ABLIKIM	14R	BES3	$e^+ e^- \rightarrow J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<3.6 \times 10^{-5}$	90	[1] ABLIKIM	06M	BES2	$e^+ e^- \rightarrow J/\psi$

[1] Using B($D_s^- \rightarrow \phi\pi^-$) = 4.4 ± 0.5 %.

$\Gamma(D_s^{*-} e^+ \nu_e + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{381}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.8 \times 10^{-6}$	90	ABLIKIM	14R	BES3	$e^+ e^- \rightarrow J/\psi$

$\Gamma(D^- \pi^+ + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{382}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<7.0 \times 10^{-8}$	90	ABLIKIM	24BI	BES3	$e^+ e^- \rightarrow J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<7.5 \times 10^{-5}$	90	ABLIKIM	08J	BES2	$e^+ e^- \rightarrow J/\psi$

$\Gamma(D^- \rho^+ + \text{c.c})/\Gamma_{\text{total}}$ — Γ_{383}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6.0 \times 10^{-7}$	90	ABLIKIM	24BI	BES3	$e^+ e^- \rightarrow J/\psi$

$\Gamma(\overline{D}^0 \pi^0 + \text{c.c})/\Gamma_{\text{total}}$ — Γ_{384}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<4.7 \times 10^{-7}$	90	ABLIKIM	24BI	BES3	$e^+ e^- \rightarrow J/\psi$

$\Gamma(\overline{D}^0 \overline{K}^0 + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{385}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.7 \times 10^{-4}$	90	ABLIKIM	08J	BES2	$e^+ e^- \rightarrow J/\psi$

$\Gamma(\overline{D}^0 \overline{K}^{*0} + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{386}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.5 \times 10^{-6}$	90	ABLIKIM	14K	BES3	$e^+ e^- \rightarrow J/\psi$

$\Gamma(\overline{D}^0 \eta + \text{c.c})/\Gamma_{\text{total}}$ — Γ_{387}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6.8 \times 10^{-7}$	90	ABLIKIM	24BI	BES3	$e^+ e^- \rightarrow J/\psi$

$\Gamma(\overline{D}^0 \rho^0 + \text{c.c})/\Gamma_{\text{total}}$ — Γ_{388}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5.2 \times 10^{-7}$	90	ABLIKIM	24BI	BES3	$e^+ e^- \rightarrow J/\psi$

$\Gamma(D_s^- \pi^+ + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{389}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.3 \times 10^{-4}$	90	ABLIKIM	08J	BES2	$e^+ e^- \rightarrow J/\psi$

$\Gamma(D_s^- \rho^+ + c.c.)/\Gamma_{total}$ — Γ_{390}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.3 \times 10^{-5}$	90	ABLIKIM	14K	BES3	$e^+ e^- \rightarrow J/\psi$

CHARGE CONJUGATION (C), PARITY (P), LEPTON FAMILY NUMBER (LF) VIOLATING MODES

$\Gamma(\gamma\gamma)/\Gamma_{total}$ — Γ_{391}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$< 2.7 \times 10^{-7}$	90	ABLIKIM	14Q	BES3	$\psi(2S) \rightarrow \pi^+ \pi^- J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$< 0.5 \times 10^{-5}$	90	ADAMS	08	CLEO	$\psi(2S) \rightarrow \pi^+ \pi^- J/\psi$
$< 1.6 \times 10^{-4}$	90	[1] WICHT	08	BELL	$B^\pm \rightarrow K^\pm \gamma\gamma$
$< 2.2 \times 10^{-5}$	90	ABLIKIM	07J	BES2	$\psi(2S) \rightarrow J/\psi \pi^+ \pi^-$
$<50 \times 10^{-5}$	90	BARTEL	77	CNTR	$e^+ e^-$

[1] WICHT 08 reports $[\Gamma(J/\psi(1S) \rightarrow \gamma\gamma)/\Gamma_{total}] \times [B(B^+ \rightarrow J/\psi(1S) K^+)] < 0.16 \times 10^{-6}$ which we divide by our best value $B(B^+ \rightarrow J/\psi(1S) K^+) = 1.020 \times 10^{-3}$.

$\Gamma(\gamma\phi)/\Gamma_{total}$ — Γ_{392}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.4 \times 10^{-6}$	90	ABLIKIM	14Q	BES3	$\psi(2S) \rightarrow \pi^+ \pi^- J/\psi$

$\Gamma(e^\pm \mu^\mp)/\Gamma_{total}$ — Γ_{393}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.6 \times 10^{-7}$	90	ABLIKIM	13L	BES3	$e^+ e^- \rightarrow J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.1 \times 10^{-6}$	90	BAI	03D	BES	$e^+ e^- \rightarrow J/\psi$

$\Gamma(e^\pm \tau^\mp)/\Gamma_{total}$ — Γ_{394}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<7.5 \times 10^{-8}$	90	ABLIKIM	21M	BES3	$e^+ e^- \rightarrow J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<8.3 \times 10^{-6}$	90	[1] ABLIKIM	04	BES	$e^+ e^- \rightarrow J/\psi$

[1] Superseded by ABLIKIM 21M.

$\Gamma(\mu^\pm \tau^\mp)/\Gamma_{total}$ — Γ_{395}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.0 \times 10^{-6}$	90	ABLIKIM	04	BES	$e^+ e^- \rightarrow J/\psi$

$\Gamma(\Lambda_c^+ e^- + c.c.)/\Gamma_{total}$ — Γ_{396}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6.9 \times 10^{-8}$	90	ABLIKIM	19AF	BES3	$e^+ e^- \rightarrow J/\psi \rightarrow p K^- \pi^+ e^-$ (+ c.c.)

OTHER DECAYS

$\Gamma(\text{invisible})/\Gamma(e^+ e^-)$ — Γ_{397}/Γ_5

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6.6 \times 10^{-2}$	90	LEES	13I	BABR	$B \rightarrow K^{(*)} J/\psi$

$\Gamma(\text{invisible})/\Gamma(\mu^+\mu^-)$ — Γ_{397}/Γ_7

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.2 \times 10^{-2}$	90	ABLIKIM	08G	BES2	$\psi(2S) \to \pi^+\pi^- J/\psi$

$\Gamma(\mu^+\mu^- X^0 \to \mu^+\mu^- + \text{invisible})/\Gamma_{\text{total}}$ — Γ_{398}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5.5 \times 10^{-7}$	90	[1] ABLIKIM	24G	BES3	$J/\psi \to \mu^+\mu^- X^0$(scalar) $\to \mu^+\mu^- +$ invisible
$<9.6 \times 10^{-7}$	90	[2] ABLIKIM	24G	BES3	$J/\psi \to \mu^+\mu^- X^0$(vector) $\to \mu^+\mu^- +$ invisible

[1] For a light scalar, X^0, with a mass in the range 1–1000 MeV. The measured limit at the 90% credibility level as a function of m_{X^0} ranges from 6.2×10^{-9} to 5.5×10^{-7}.

[2] For a light vector, X^0, with a mass in the range 1–1000 MeV. The measured limit at the 90% credibility level as a function of m_{X^0} ranges from 4.5×10^{-9} to 9.6×10^{-7}.

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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	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)
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...	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.		
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)