$J/\psi(1S)$

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

$J/\psi(1S)$ 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[5] Superseded by ARTAMONOV 00.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
92.9± 2.8 OUR AVERAGE Error includes scale factor of 1.1.					
96.1± 3.2	13k	[1] ADAMS	06A	CLEO	$e^+e^- \to \mu^+\mu^-\gamma$
84.4± 8.9		BAI	95B	BES	e^+e^-
91 ±11 ±6		[2] ARMSTRONG	93B	E760	$\overline{p}p \to e^+e^-$
$85.5^{+6.1}_{-5.8}$		[3] HSUEH	92	RVUE	See Υ mini-review
• • • We do not use the following data for averages, fits, limits, etc. • • •					
94.1± 2.7		[4] ANASHIN	10	KEDR	3.097 $e^+e^- \to e^+e^-$, $\mu^+\mu^-$
93.7± 3.5	7.8k	[1] AUBERT	04	BABR	$e^+e^- \to \mu^+\mu^-\gamma$

[1] 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 $B(\mu^+\mu^-) = (5.93 \pm 0.06)\%$.
[2] The initial-state radiation correction reevaluated by ANDREOTTI 07 in its Ref. [4].
[3] Using data from COFFMAN 92, BALDINI-CELIO 75, BOYARSKI 75, ESPOSITO 75B, BRANDELIK 79C.
[4] 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 ± 0.5) %	
Γ_2	virtual $\gamma \to$ hadrons		(13.50 ± 0.30) %	
Γ_3	$g g g$		(64.1 ± 1.0) %	
Γ_4	$\gamma g g$		(8.8 ± 1.1) %	
Γ_5	$e^+ e^-$		(5.971 ± 0.032) %	
Γ_6	$e^+ e^- \gamma$	[a]	$(8.8 \pm 1.4) \times 10^{-3}$	
Γ_7	$\mu^+ \mu^-$		(5.961 ± 0.033) %	
	Decays involving hadronic resonances			
Γ_8	$\rho \pi$		(1.69 ± 0.15) %	S=2.4
Γ_9	$\rho^0 \pi^0$		$(5.6 \pm 0.7) \times 10^{-3}$	
Γ_{10}	$a_2(1320) \rho$		(1.09 ± 0.22) %	
Γ_{11}	$\omega \pi^+ \pi^+ \pi^- \pi^-$		$(8.5 \pm 3.4) \times 10^{-3}$	
Γ_{12}	$\omega \pi^+ \pi^- \pi^0$		$(4.0 \pm 0.7) \times 10^{-3}$	
Γ_{13}	$\omega \pi^+ \pi^-$		$(8.6 \pm 0.7) \times 10^{-3}$	S=1.1
Γ_{14}	$\omega f_2(1270)$		$(4.3 \pm 0.6) \times 10^{-3}$	
Γ_{15}	$K^*(892)^0 \overline{K}^*(892)^0$		$(2.3 \pm 0.6) \times 10^{-4}$	
Γ_{16}	$K^*(892)^\pm K^*(892)^\mp$		$(1.00 {}^{+0.22}_{-0.40}) \times 10^{-3}$	
Γ_{17}	$K^*(892)^\pm K^*(800)^\mp$		$(1.1 {}^{+1.0}_{-0.6}) \times 10^{-3}$	
Γ_{18}	$K^0_S \pi^- K^*(892)^+ +$ c.c.		$(2.7 \pm 0.9) \times 10^{-3}$	
Γ_{19}	$K^0_S \pi^- K^*(892)^+ +$ c.c. $\to K^0_S K^0_S \pi^+ \pi^-$		$(6.7 \pm 2.2) \times 10^{-4}$	
Γ_{20}	$\eta K^*(892)^0 \overline{K}^*(892)^0$		$(1.15 \pm 0.26) \times 10^{-3}$	
Γ_{21}	$K^*(892)^0 \overline{K}^*_2(1430)^0 +$ c.c.		$(4.66 \pm 0.31) \times 10^{-3}$	
Γ_{22}	$K^*(892)^+ K^*_2(1430)^- +$ c.c.		$(3.4 \pm 2.9) \times 10^{-3}$	
Γ_{23}	$K^*(892)^+ K^*_2(1430)^- +$ c.c. $\to K^*(892)^+ K^0_S \pi^- +$ c.c.		$(4 \pm 4) \times 10^{-4}$	
Γ_{24}	$K^*(892)^0 \overline{K}_2(1770)^0 +$ c.c. $\to K^*(892)^0 K^- \pi^+ +$ c.c.		$(6.9 \pm 0.9) \times 10^{-4}$	
Γ_{25}	$\omega K^*(892) \overline{K} +$ c.c.		$(6.1 \pm 0.9) \times 10^{-3}$	
Γ_{26}	$K^+ K^*(892)^- +$ c.c.		$(5.12 \pm 0.30) \times 10^{-3}$	
Γ_{27}	$K^+ K^*(892)^- +$ c.c. $\to K^+ K^- \pi^0$		$(1.97 \pm 0.20) \times 10^{-3}$	
Γ_{28}	$K^+ K^*(892)^- +$ c.c. $\to K^0 K^\pm \pi^\mp +$ c.c.		$(3.0 \pm 0.4) \times 10^{-3}$	
Γ_{29}	$K^0 \overline{K}^*(892)^0 +$ c.c.		$(4.39 \pm 0.31) \times 10^{-3}$	
Γ_{30}	$K^0 \overline{K}^*(892)^0 +$ c.c. $\to K^0 K^\pm \pi^\mp +$ c.c.		$(3.2 \pm 0.4) \times 10^{-3}$	
Γ_{31}	$K_1(1400)^\pm K^\mp$		$(3.8 \pm 1.4) \times 10^{-3}$	
Γ_{32}	$\overline{K}^*(892)^0 K^+ \pi^- +$ c.c.		seen	

Γ_{33}	$\omega\pi^0\pi^0$		(3.4	±0.8) × 10^{-3}	
Γ_{34}	$b_1(1235)^{\pm}\pi^{\mp}$	[b]	(3.0	±0.5) × 10^{-3}	
Γ_{35}	$\omega K^{\pm}K^0_S\pi^{\mp}$	[b]	(3.4	±0.5) × 10^{-3}	
Γ_{36}	$b_1(1235)^0\pi^0$		(2.3	±0.6) × 10^{-3}	
Γ_{37}	$\eta K^{\pm}K^0_S\pi^{\mp}$	[b]	(2.2	±0.4) × 10^{-3}	
Γ_{38}	$\phi K^*(892)\overline{K}$ + c.c.		(2.18	±0.23) × 10^{-3}	
Γ_{39}	$\omega K\overline{K}$		(1.70	±0.32) × 10^{-3}	
Γ_{40}	$\omega f_0(1710) \to \omega K\overline{K}$		(4.8	±1.1) × 10^{-4}	
Γ_{41}	$\phi 2(\pi^+\pi^-)$		(1.66	±0.23) × 10^{-3}	
Γ_{42}	$\Delta(1232)^{++}\overline{p}\pi^-$		(1.6	±0.5) × 10^{-3}	
Γ_{43}	$\omega\eta$		(1.74	±0.20) × 10^{-3}	S=1.6
Γ_{44}	$\phi K\overline{K}$		(1.77	±0.16) × 10^{-3}	S=1.3
Γ_{45}	$\phi K^0_S K^0_S$		(5.9	±1.5) × 10^{-4}	
Γ_{46}	$\phi f_0(1710) \to \phi K\overline{K}$		(3.6	±0.6) × 10^{-4}	
Γ_{47}	ϕK^+K^-		(8.3	±1.2) × 10^{-4}	
Γ_{48}	$\phi f_2(1270)$		(3.2	±0.6) × 10^{-4}	
Γ_{49}	$\Delta(1232)^{++}\overline{\Delta}(1232)^{--}$		(1.10	±0.29) × 10^{-3}	
Γ_{50}	$\Sigma(1385)^-\overline{\Sigma}(1385)^+$ (or c.c.)	[b]	(1.16	±0.05) × 10^{-3}	
Γ_{51}	$K^+K^-f'_2(1525)$		(1.04	±0.35) × 10^{-3}	
Γ_{52}	$\phi f'_2(1525)$		(8	±4) × 10^{-4}	S=2.7
Γ_{53}	$\phi\pi^+\pi^-$		(8.7	±0.9) × 10^{-4}	S=1.4
Γ_{54}	$\phi\pi^0\pi^0$		(5.0	±1.0) × 10^{-4}	
Γ_{55}	$\phi K^{\pm}K^0_S\pi^{\mp}$	[b]	(7.2	±0.8) × 10^{-4}	
Γ_{56}	$\omega f_1(1420)$		(6.8	±2.4) × 10^{-4}	
Γ_{57}	$\phi\eta$		(7.5	±0.8) × 10^{-4}	S=1.5
Γ_{58}	$\Xi^0\overline{\Xi}^0$		(1.20	±0.24) × 10^{-3}	
Γ_{59}	$\Xi(1530)^-\overline{\Xi}^+$		(5.9	±1.5) × 10^{-4}	
Γ_{60}	$pK^-\overline{\Sigma}(1385)^0$		(5.1	±3.2) × 10^{-4}	
Γ_{61}	$\omega\pi^0$		(4.5	±0.5) × 10^{-4}	S=1.4
Γ_{62}	$\phi\eta'(958)$		(4.6	±0.5) × 10^{-4}	S=2.2
Γ_{63}	$\phi f_0(980)$		(3.2	±0.9) × 10^{-4}	S=1.9
Γ_{64}	$\phi f_0(980) \to \phi\pi^+\pi^-$		(2.60	±0.35) × 10^{-4}	
Γ_{65}	$\phi f_0(980) \to \phi\pi^0\pi^0$		(1.8	±0.5) × 10^{-4}	
Γ_{66}	$\phi\pi^0 f_0(980) \to \phi\pi^0\pi^+\pi^-$		(4.5	±1.0) × 10^{-6}	
Γ_{67}	$\phi\pi^0 f_0(980) \to \phi\pi^0 p^0\pi^0$		(1.7	±0.6) × 10^{-6}	
Γ_{68}	$\eta\phi f_0(980) \to \eta\phi\pi^+\pi^-$		(3.2	±1.0) × 10^{-4}	
Γ_{69}	$\phi a_0(980)^0 \to \phi\eta\pi^0$		(5	±4) × 10^{-6}	
Γ_{70}	$\Xi(1530)^0\overline{\Xi}^0$		(3.2	±1.4) × 10^{-4}	
Γ_{71}	$\Sigma(1385)^-\overline{\Sigma}^+$ (or c.c.)	[b]	(3.1	±0.5) × 10^{-4}	
Γ_{72}	$\phi f_1(1285)$		(2.6	±0.5) × 10^{-4}	
Γ_{73}	$\phi f_1(1285) \to \phi\pi^0 f_0(980) \to \phi\pi^0\pi^+\pi^-$		(9.4	±2.8) × 10^{-7}	
Γ_{74}	$\phi f_1(1285) \to \phi\pi^0 f_0(980) \to \phi\pi^0\pi^0\pi^0$		(2.1	±2.2) × 10^{-7}	

Γ_{75}	$\eta \pi^+ \pi^-$		$(4.0 \pm 1.7) \times 10^{-4}$	
Γ_{76}	$\eta \rho$		$(1.93 \pm 0.23) \times 10^{-4}$	
Γ_{77}	$\omega \eta'(958)$		$(1.82 \pm 0.21) \times 10^{-4}$	
Γ_{78}	$\omega f_0(980)$		$(1.4 \pm 0.5) \times 10^{-4}$	
Γ_{79}	$\rho \eta'(958)$		$(1.05 \pm 0.18) \times 10^{-4}$	
Γ_{80}	$a_2(1320)^{\pm} \pi^{\mp}$	[b]	$< 4.3 \times 10^{-3}$	CL=90%
Γ_{81}	$K \overline{K}{}_2^*(1430)+$ c.c.		$< 4.0 \times 10^{-3}$	CL=90%
Γ_{82}	$K_1(1270)^{\pm} K^{\mp}$		$< 3.0 \times 10^{-3}$	CL=90%
Γ_{83}	$K^0_S \pi^- K^*_2(1430)^+ +$ c.c.		$(3.6 \pm 1.8) \times 10^{-3}$	
Γ_{84}	$K^0_S \pi^- K^*_2(1430)^+ +$ c.c. $\rightarrow K^0_S K^0_S \pi^+ \pi^-$		$(4.5 \pm 2.2) \times 10^{-4}$	
Γ_{85}	$K^*_2(1430)^0 \overline{K}{}^*_2(1430)^0$		$< 2.9 \times 10^{-3}$	CL=90%
Γ_{86}	$\phi \pi^0$		3×10^{-6} or 1×10^{-7}	
Γ_{87}	$\phi \eta(1405) \rightarrow \phi \eta \pi^+ \pi^-$		$(2.0 \pm 1.0) \times 10^{-5}$	
Γ_{88}	$\omega f'_2(1525)$		$< 2.2 \times 10^{-4}$	CL=90%
Γ_{89}	$\omega X(1835) \rightarrow \omega p \overline{p}$		$< 3.9 \times 10^{-6}$	CL=95%
Γ_{90}	$\phi X(1835) \rightarrow \phi p \overline{p}$		$< 2.1 \times 10^{-7}$	CL=90%
Γ_{91}	$\phi X(1835) \rightarrow \phi \eta \pi^+ \pi^-$		$< 2.8 \times 10^{-4}$	CL=90%
Γ_{92}	$\phi X(1870) \rightarrow \phi \eta \pi^+ \pi^-$		$< 6.13 \times 10^{-5}$	CL=90%
Γ_{93}	$\eta \phi(2170) \rightarrow \eta \phi f_0(980) \rightarrow \eta \phi \pi^+ \pi^-$		$(1.2 \pm 0.4) \times 10^{-4}$	
Γ_{94}	$\eta \phi(2170) \rightarrow \eta K^*(892)^0 \overline{K}{}^*(892)^0$		$< 2.52 \times 10^{-4}$	CL=90%
Γ_{95}	$\Sigma(1385)^0 \overline{\Lambda}+$ c.c.		$< 8.2 \times 10^{-6}$	CL=90%
Γ_{96}	$\Delta(1232)^+ \overline{p}$		$< 1 \times 10^{-4}$	CL=90%
Γ_{97}	$\Lambda(1520) \overline{\Lambda}+$ c.c. $\rightarrow \gamma \Lambda \overline{\Lambda}$		$< 4.1 \times 10^{-6}$	CL=90%
Γ_{98}	$\Theta(1540) \overline{\Theta}(1540) \rightarrow K^0_S p K^- \overline{n}+$ c.c.		$< 1.1 \times 10^{-5}$	CL=90%
Γ_{99}	$\Theta(1540) K^- \overline{n} \rightarrow K^0_S p K^- \overline{n}$		$< 2.1 \times 10^{-5}$	CL=90%
Γ_{100}	$\Theta(1540) K^0_S \overline{p} \rightarrow K^0_S \overline{p} K^+ n$		$< 1.6 \times 10^{-5}$	CL=90%
Γ_{101}	$\overline{\Theta}(1540) K^+ n \rightarrow K^0_S \overline{p} K^+ n$		$< 5.6 \times 10^{-5}$	CL=90%
Γ_{102}	$\overline{\Theta}(1540) K^0_S p \rightarrow K^0_S p K^- \overline{n}$		$< 1.1 \times 10^{-5}$	CL=90%
Γ_{103}	$\Sigma^0 \overline{\Lambda}$		$< 9 \times 10^{-5}$	CL=90%

Decays into stable hadrons

Γ_{104}	$2(\pi^+ \pi^-) \pi^0$	(4.1 ± 0.5) %	S=2.4
Γ_{105}	$3(\pi^+ \pi^-) \pi^0$	(2.9 ± 0.6) %	
Γ_{106}	$\pi^+ \pi^- \pi^0$	(2.11 ± 0.07) %	S=1.5
Γ_{107}	$\pi^+ \pi^- \pi^0 K^+ K^-$	(1.79 ± 0.29) %	S=2.2
Γ_{108}	$4(\pi^+ \pi^-) \pi^0$	$(9.0 \pm 3.0) \times 10^{-3}$	
Γ_{109}	$\pi^+ \pi^- K^+ K^-$	$(6.84 \pm 0.32) \times 10^{-3}$	
Γ_{110}	$\pi^+ \pi^- K^0_S K^0_L$	$(3.8 \pm 0.6) \times 10^{-3}$	
Γ_{111}	$\pi^+ \pi^- K^0_S K^0_S$	$(1.68 \pm 0.19) \times 10^{-3}$	

Γ_{112}	$K^+K^-K^0_S K^0_S$		$(4.1 \pm 0.8) \times 10^{-4}$	
Γ_{113}	$\pi^+\pi^-K^+K^-\eta$		$(1.84 \pm 0.28) \times 10^{-3}$	
Γ_{114}	$\pi^0\pi^0K^+K^-$		$(2.12 \pm 0.23) \times 10^{-3}$	
Γ_{115}	$K\overline{K}\pi$		$(6.1 \pm 1.0) \times 10^{-3}$	
Γ_{116}	$2(\pi^+\pi^-)$		$(3.57 \pm 0.30) \times 10^{-3}$	
Γ_{117}	$3(\pi^+\pi^-)$		$(4.3 \pm 0.4) \times 10^{-3}$	
Γ_{118}	$2(\pi^+\pi^-\pi^0)$		(1.62 ± 0.21) %	
Γ_{119}	$2(\pi^+\pi^-)\eta$		$(2.29 \pm 0.24) \times 10^{-3}$	
Γ_{120}	$3(\pi^+\pi^-)\eta$		$(7.2 \pm 1.5) \times 10^{-4}$	
Γ_{121}	$p\overline{p}$		$(2.120 \pm 0.029) \times 10^{-3}$	
Γ_{122}	$p\overline{p}\pi^0$		$(1.19 \pm 0.08) \times 10^{-3}$	S=1.1
Γ_{123}	$p\overline{p}\pi^+\pi^-$		$(6.0 \pm 0.5) \times 10^{-3}$	S=1.3
Γ_{124}	$p\overline{p}\pi^+\pi^-\pi^0$	[c]	$(2.3 \pm 0.9) \times 10^{-3}$	S=1.9
Γ_{125}	$p\overline{p}\eta$		$(2.00 \pm 0.12) \times 10^{-3}$	
Γ_{126}	$p\overline{p}\rho$		$< 3.1 \times 10^{-4}$	CL=90%
Γ_{127}	$p\overline{p}\omega$		$(9.8 \pm 1.0) \times 10^{-4}$	S=1.3
Γ_{128}	$p\overline{p}\eta'(958)$		$(2.1 \pm 0.4) \times 10^{-4}$	
Γ_{129}	$p\overline{p}a_0(980) \rightarrow p\overline{p}\pi^0\eta$		$(6.8 \pm 1.8) \times 10^{-5}$	
Γ_{130}	$p\overline{p}\phi$		$(5.19 \pm 0.33) \times 10^{-5}$	
Γ_{131}	$n\overline{n}$		$(2.09 \pm 0.16) \times 10^{-3}$	
Γ_{132}	$n\overline{n}\pi^+\pi^-$		$(4 \pm 4) \times 10^{-3}$	
Γ_{133}	$\Sigma^+\overline{\Sigma}^-$		$(1.50 \pm 0.24) \times 10^{-3}$	
Γ_{134}	$\Sigma^0\overline{\Sigma}^0$		$(1.29 \pm 0.09) \times 10^{-3}$	
Γ_{135}	$2(\pi^+\pi^-)K^+K^-$		$(4.7 \pm 0.7) \times 10^{-3}$	S=1.3
Γ_{136}	$p\overline{n}\pi^-$		$(2.12 \pm 0.09) \times 10^{-3}$	
Γ_{137}	$nN(1440)$		seen	
Γ_{138}	$nN(1520)$		seen	
Γ_{139}	$nN(1535)$		seen	
Γ_{140}	$\Xi^-\overline{\Xi}^+$		$(9.7 \pm 0.8) \times 10^{-4}$	S=1.4
Γ_{141}	$\Lambda\overline{\Lambda}$		$(1.61 \pm 0.15) \times 10^{-3}$	S=1.9
Γ_{142}	$\Lambda\overline{\Sigma}^-\pi^+$ (or c.c.)	[b]	$(8.3 \pm 0.7) \times 10^{-4}$	S=1.2
Γ_{143}	$pK^-\overline{\Lambda}$		$(8.9 \pm 1.6) \times 10^{-4}$	
Γ_{144}	$2(K^+K^-)$		$(7.4 \pm 0.7) \times 10^{-4}$	
Γ_{145}	$pK^-\overline{\Sigma}^0$		$(2.9 \pm 0.8) \times 10^{-4}$	
Γ_{146}	K^+K^-		$(2.86 \pm 0.21) \times 10^{-4}$	
Γ_{147}	$K^0_S K^0_L$		$(2.1 \pm 0.4) \times 10^{-4}$	S=3.2
Γ_{148}	$\Lambda\overline{\Lambda}\pi^+\pi^-$		$(4.3 \pm 1.0) \times 10^{-3}$	
Γ_{149}	$\Lambda\overline{\Lambda}\eta$		$(1.62 \pm 0.17) \times 10^{-4}$	
Γ_{150}	$\Lambda\overline{\Lambda}\pi^0$		$(3.8 \pm 0.4) \times 10^{-5}$	
Γ_{151}	$\overline{\Lambda}nK^0_S$ + c.c.		$(6.5 \pm 1.1) \times 10^{-4}$	
Γ_{152}	$\pi^+\pi^-$		$(1.47 \pm 0.14) \times 10^{-4}$	
Γ_{153}	$\Lambda\overline{\Sigma}$ + c.c.		$(2.83 \pm 0.23) \times 10^{-5}$	
Γ_{154}	$K^0_S K^0_S$		$< 1 \times 10^{-6}$	CL=95%

Radiative decays

Γ_{155}	3γ		$(1.16\pm0.22)\times10^{-5}$		
Γ_{156}	4γ		$<9\times10^{-6}$	CL=90%	
Γ_{157}	5γ		$<1.5\times10^{-5}$	CL=90%	
Γ_{158}	$\gamma\pi^0\pi^0$		$(1.15\pm0.05)\times10^{-3}$		
Γ_{159}	$\gamma\eta\pi^0$		$(2.14\pm0.31)\times10^{-5}$		
Γ_{160}	$\gamma a_0(980)^0\to\gamma\eta\pi^0$		$<2.5\times10^{-6}$	CL=95%	
Γ_{161}	$\gamma a_2(1320)^0\to\gamma\eta\pi^0$		$<6.6\times10^{-6}$	CL=95%	
Γ_{162}	$\gamma\eta_c(1S)$		$(1.7\pm0.4)\%$	S=1.5	
Γ_{163}	$\gamma\eta_c(1S)\to3\gamma$		$(3.8{}^{+1.3}_{-1.0})\times10^{-6}$	S=1.1	
Γ_{164}	$\gamma\pi^+\pi^-2\pi^0$		$(8.3\pm3.1)\times10^{-3}$		
Γ_{165}	$\gamma\eta\pi\pi$		$(6.1\pm1.0)\times10^{-3}$		
Γ_{166}	$\gamma\eta_2(1870)\to\gamma\eta\pi^+\pi^-$		$(6.2\pm2.4)\times10^{-4}$		
Γ_{167}	$\gamma\eta(1405/1475)\to\gamma K\overline{K}\pi$	[d]	$(2.8\pm0.6)\times10^{-3}$	S=1.6	
Γ_{168}	$\gamma\eta(1405/1475)\to\gamma\gamma\rho^0$		$(7.8\pm2.0)\times10^{-5}$	S=1.8	
Γ_{169}	$\gamma\eta(1405/1475)\to\gamma\eta\pi^+\pi^-$		$(3.0\pm0.5)\times10^{-4}$		
Γ_{170}	$\gamma\eta(1405/1475)\to\gamma\gamma\phi$		$<8.2\times10^{-5}$	CL=95%	
Γ_{171}	$\gamma\rho\rho$		$(4.5\pm0.8)\times10^{-3}$		
Γ_{172}	$\gamma\rho\omega$		$<5.4\times10^{-4}$	CL=90%	
Γ_{173}	$\gamma\rho\phi$		$<8.8\times10^{-5}$	CL=90%	
Γ_{174}	$\gamma\eta'(958)$		$(5.13\pm0.17)\times10^{-3}$	S=1.3	
Γ_{175}	$\gamma2\pi^+2\pi^-$		$(2.8\pm0.5)\times10^{-3}$	S=1.9	
Γ_{176}	$\gamma f_2(1270)f_2(1270)$		$(9.5\pm1.7)\times10^{-4}$		
Γ_{177}	$\gamma f_2(1270)f_2(1270)$(non resonant)		$(8.2\pm1.9)\times10^{-4}$		
Γ_{178}	$\gamma K^+K^-\pi^+\pi^-$		$(2.1\pm0.6)\times10^{-3}$		
Γ_{179}	$\gamma f_4(2050)$		$(2.7\pm0.7)\times10^{-3}$		
Γ_{180}	$\gamma\omega\omega$		$(1.61\pm0.33)\times10^{-3}$		
Γ_{181}	$\gamma\eta(1405/1475)\to\gamma\rho^0\rho^0$		$(1.7\pm0.4)\times10^{-3}$	S=1.3	
Γ_{182}	$\gamma f_2(1270)$		$(1.64\pm0.12)\times10^{-3}$	S=1.3	
Γ_{183}	$\gamma f_0(1370)\to\gamma K\overline{K}$		$(4.2\pm1.5)\times10^{-4}$		
Γ_{184}	$\gamma f_0(1710)\to\gamma K\overline{K}$		$(1.00{}^{+0.11}_{-0.09})\times10^{-3}$	S=1.5	
Γ_{185}	$\gamma f_0(1710)\to\gamma\pi\pi$		$(3.8\pm0.5)\times10^{-4}$		
Γ_{186}	$\gamma f_0(1710)\to\gamma\omega\omega$		$(3.1\pm1.0)\times10^{-4}$		
Γ_{187}	$\gamma f_0(1710)\to\gamma\eta\eta$		$(2.4{}^{+1.2}_{-0.7})\times10^{-4}$		
Γ_{188}	$\gamma\eta$		$(1.104\pm0.034)\times10^{-3}$		
Γ_{189}	$\gamma f_1(1420)\to\gamma K\overline{K}\pi$		$(7.9\pm1.3)\times10^{-4}$		
Γ_{190}	$\gamma f_1(1285)$		$(6.1\pm0.8)\times10^{-4}$		
Γ_{191}	$\gamma f_1(1510)\to\gamma\eta\pi^+\pi^-$		$(4.5\pm1.2)\times10^{-4}$		
Γ_{192}	$\gamma f'_2(1525)$		$(5.7{}^{+0.8}_{-0.5})\times10^{-4}$	S=1.5	
Γ_{193}	$\gamma f'_2(1525)\to\gamma\eta\eta$		$(3.4\pm1.4)\times10^{-5}$		

Γ_{194}	$\gamma f_2(1640) \to \gamma\omega\omega$		$(2.8 \pm 1.8) \times 10^{-4}$	
Γ_{195}	$\gamma f_2(1910) \to \gamma\omega\omega$		$(2.0 \pm 1.4) \times 10^{-4}$	
Γ_{196}	$\gamma f_0(1800) \to \gamma\omega\phi$		$(2.5 \pm 0.6) \times 10^{-4}$	
Γ_{197}	$\gamma f_2(1810) \to \gamma\eta\eta$		$(5.4\ ^{+3.5}_{-2.4}) \times 10^{-5}$	
Γ_{198}	$\gamma f_2(1950) \to \gamma K^*(892)\overline{K}^*(892)$		$(7.0 \pm 2.2) \times 10^{-4}$	
Γ_{199}	$\gamma K^*(892)\overline{K}^*(892)$		$(4.0 \pm 1.3) \times 10^{-3}$	
Γ_{200}	$\gamma\phi\phi$		$(4.0 \pm 1.2) \times 10^{-4}$	S=2.1
Γ_{201}	$\gamma p\overline{p}$		$(3.8 \pm 1.0) \times 10^{-4}$	
Γ_{202}	$\gamma\eta(2225)$		$(3.14\ ^{+0.50}_{-0.19}) \times 10^{-4}$	
Γ_{203}	$\gamma\eta(1760) \to \gamma\rho^0\rho^0$		$(1.3 \pm 0.9) \times 10^{-4}$	
Γ_{204}	$\gamma\eta(1760) \to \gamma\omega\omega$		$(1.98 \pm 0.33) \times 10^{-3}$	
Γ_{205}	$\gamma X(1835) \to \gamma\pi^+\pi^-\eta'$		$(2.77\ ^{+0.34}_{-0.40}) \times 10^{-4}$	S=1.1
Γ_{206}	$\gamma X(1835) \to \gamma p\overline{p}$		$(7.7\ ^{+1.5}_{-0.9}) \times 10^{-5}$	
Γ_{207}	$\gamma X(1835) \to \gamma K^0_S K^0_S \eta$		$(3.3\ ^{+2.0}_{-1.3}) \times 10^{-5}$	
Γ_{208}	$\gamma X(1840) \to \gamma 3(\pi^+\pi^-)$		$(2.4\ ^{+0.7}_{-0.8}) \times 10^{-5}$	
Γ_{209}	$\gamma(K\overline{K}\pi)\ [J^{PC} = 0^{-+}]$		$(7 \pm 4) \times 10^{-4}$	S=2.1
Γ_{210}	$\gamma\pi^0$		$(3.49\ ^{+0.33}_{-0.30}) \times 10^{-5}$	
Γ_{211}	$\gamma p\overline{p}\pi^+\pi^-$		$< 7.9 \times 10^{-4}$	CL=90%
Γ_{212}	$\gamma\Lambda\overline{\Lambda}$		$< 1.3 \times 10^{-4}$	CL=90%
Γ_{213}	$\gamma f_0(2100) \to \gamma\eta\eta$		$(1.13\ ^{+0.60}_{-0.30}) \times 10^{-4}$	
Γ_{214}	$\gamma f_0(2100) \to \gamma\pi\pi$		$(6.2 \pm 1.0) \times 10^{-4}$	
Γ_{215}	$\gamma f_0(2200)$			
Γ_{216}	$\gamma f_0(2200) \to \gamma K\overline{K}$		$(5.9 \pm 1.3) \times 10^{-4}$	
Γ_{217}	$\gamma f_J(2220)$			
Γ_{218}	$\gamma f_J(2220) \to \gamma\pi\pi$		$< 3.9 \times 10^{-5}$	CL=90%
Γ_{219}	$\gamma f_J(2220) \to \gamma K\overline{K}$		$< 4.1 \times 10^{-5}$	CL=90%
Γ_{220}	$\gamma f_J(2220) \to \gamma p\overline{p}$		$(1.5 \pm 0.8) \times 10^{-5}$	
Γ_{221}	$\gamma f_2(2340) \to \gamma\eta\eta$		$(5.6\ ^{+2.4}_{-2.2}) \times 10^{-5}$	
Γ_{222}	$\gamma f_0(1500) \to \gamma\pi\pi$		$(1.09 \pm 0.24) \times 10^{-4}$	
Γ_{223}	$\gamma f_0(1500) \to \gamma\eta\eta$		$(1.7\ ^{+0.6}_{-1.4}) \times 10^{-5}$	
Γ_{224}	$\gamma A \to \gamma$invisible	[e]	$< 6.3 \times 10^{-6}$	CL=90%
Γ_{225}	$\gamma A^0 \to \gamma\mu^+\mu^-$	[f]	$< 5 \times 10^{-6}$	CL=90%

Dalitz decays

Γ_{226}	$\pi^0 e^+ e^-$	$(7.6 \pm 1.4) \times 10^{-7}$	
Γ_{227}	$\eta e^+ e^-$	$(1.16 \pm 0.09) \times 10^{-5}$	
Γ_{228}	$\eta'(958) e^+ e^-$	$(5.81 \pm 0.35) \times 10^{-5}$	

Weak decays

Γ_{229}	$D^- e^+ \nu_e$ + c.c.		< 1.2	$\times 10^{-5}$	CL=90%
Γ_{230}	$\overline{D}^0 e^+ e^-$ + c.c.		< 1.1	$\times 10^{-5}$	CL=90%
Γ_{231}	$D_s^- e^+ \nu_e$ + c.c.		< 1.3	$\times 10^{-6}$	CL=90%
Γ_{232}	$D_s^{*-} e^+ \nu_e$ + c.c.		< 1.8	$\times 10^{-6}$	CL=90%
Γ_{233}	$D^- \pi^+$ + c.c.		< 7.5	$\times 10^{-5}$	CL=90%
Γ_{234}	$\overline{D}^0 \overline{K}^0$ + c.c.		< 1.7	$\times 10^{-4}$	CL=90%
Γ_{235}	$\overline{D}^0 \overline{K}^{*0}$ + c.c.		< 2.5	$\times 10^{-6}$	CL=90%
Γ_{236}	$D_s^- \pi^+$ + c.c.		< 1.3	$\times 10^{-4}$	CL=90%
Γ_{237}	$D_s^- \rho^+$ + c.c.		< 1.3	$\times 10^{-5}$	CL=90%

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

Γ_{238}	$\gamma\gamma$	C	< 2.7	$\times 10^{-7}$	CL=90%
Γ_{239}	$\gamma\phi$	C	< 1.4	$\times 10^{-6}$	CL=90%
Γ_{240}	$e^\pm \mu^\mp$	LF	< 1.6	$\times 10^{-7}$	CL=90%
Γ_{241}	$e^\pm \tau^\mp$	LF	< 8.3	$\times 10^{-6}$	CL=90%
Γ_{242}	$\mu^\pm \tau^\mp$	LF	< 2.0	$\times 10^{-6}$	CL=90%

Other decays

Γ_{243}	invisible		< 7	$\times 10^{-4}$	CL=90%

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

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

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

[d] See the "Note on the $\eta(1405)$" in the $\eta(1405)$ Particle Listings.

[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.

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

Γ(hadrons) Γ_1

VALUE (keV)	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • 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	$e^+ e^-$

$\Gamma(e^+e^-)$ — Γ_5

VALUE (keV)	EVTS	DOCUMENT ID		TECN	COMMENT
5.55±0.14±0.02 OUR EVALUATION					
• • • We do not use the following data for averages, fits, limits, etc. • • •					
5.58±0.05±0.08		[1] ABLIKIM	16Q	BES3	3.773 $e^+e^- \rightarrow \mu^+\mu^-\gamma$
5.71±0.16	13k	[2] ADAMS	06A	CLEO	$e^+e^- \rightarrow \mu^+\mu^-\gamma$
5.57±0.19	7.8k	[2] AUBERT	04	BABR	$e^+e^- \rightarrow \mu^+\mu^-\gamma$
5.14±0.39		BAI	95B	BES	e^+e^-
$5.36^{+0.29}_{-0.28}$		[3] HSUEH	92	RVUE	See Υ mini-review
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		[4] BALDINI-...	75	FRAG	e^+e^-
4.8 ±0.6		BOYARSKI	75	MRK1	e^+e^-
4.6 ±1.0		ESPOSITO	75B	FRAM	e^+e^-

[1] Using B($J/\psi \rightarrow \mu^+\mu^-$) = (5.973 ± 0.007 ± 0.037)% from ABLIKIM 13R.
[2] Calculated by us from the reported values of $\Gamma(e^+e^-)\times$B($\mu^+\mu^-$) using B($\mu^+\mu^-$) = (5.93 ± 0.06)%.
[3] From a simultaneous fit to e^+e^-, $\mu^+\mu^-$, and hadronic channels assuming $\Gamma(e^+e^-) = \Gamma(\mu^+\mu^-)$.
[4] 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_{238}

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 $\text{channel}_{\text{I}}$ 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 ±0.8	[1] BALDINI-...	75	FRAG	e^+e^-
3.9±0.8	[1] ESPOSITO	75B	FRAM	e^+e^-

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

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

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
332.3± 6.4±4.8	ANASHIN	10	KEDR	3.097 $e^+e^- \to e^+e^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
350 ± 20	BRANDELIK	79C	DASP	e^+e^-
320 ± 70	[1] BALDINI-...	75	FRAG	e^+e^-
340 ± 90	[1] ESPOSITO	75B	FRAM	e^+e^-
360 ±100	[1] FORD	75	SPEC	e^+e^-

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

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

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

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

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

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

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

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.

$\Gamma(K^*(892)^0\overline{K}^*(892)^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{15}\Gamma_5/\Gamma$

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.

$\Gamma\big(K^*(892)^0\overline{K}^*_2(1430)^0+\text{c.c.}\big)\times\Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ $\Gamma_{21}\Gamma_5/\Gamma$

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

[1] LEES 12F reports $[\Gamma(J/\psi(1S)\to K^*(892)^0\overline{K}^*_2(1430)^0+\text{c.c.})\times\Gamma(J/\psi(1S)\to e^+e^-)/\Gamma_{\text{total}}]\times[\text{B}(K^*_2(1430)\to K\pi)]=12.89\pm0.54\pm0.41$ eV which we divide by our best value $\text{B}(K^*_2(1430)\to K\pi)=(49.9\pm1.2)\times10^{-2}$. 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 $\text{B}(K^{*0}\to K^+\pi^-)=2/3\ \text{B}(K^{*0}\to K\pi)$.

[3] The $K^*_2(1430)$ cannot be distinguished from the $K^*_0(1430)$.

[4] Superseded by LEES 12F. AUBERT 07AK reports $[\Gamma(J/\psi(1S)\to K^*(892)^0\overline{K}^*_2(1430)^0+\text{c.c.})\times\Gamma(J/\psi(1S)\to e^+e^-)/\Gamma_{\text{total}}]\times[\text{B}(K^*_2(1430)\to K\pi)]=16.4\pm1.1\pm1.4$ eV which we divide by our best value $\text{B}(K^*_2(1430)\to K\pi)=(49.9\pm1.2)\times10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(K^*(892)^0\overline{K}_2(1770)^0+\text{c.c.}\to K^*(892)^0K^-\pi^++\text{c.c.}\big)\times\Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ $\Gamma_{24}\Gamma_5/\Gamma$

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

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

$\Gamma\big(K^+K^*(892)^-+\text{c.c.}\big)\times\Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ $\Gamma_{26}\Gamma_5/\Gamma$

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

$\Gamma\big(K^+K^*(892)^-+\text{c.c.}\to K^+K^-\pi^0\big)\times\Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ $\Gamma_{27}\Gamma_5/\Gamma$

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

$\Gamma\big(K^+K^*(892)^-+\text{c.c.}\to K^0K^\pm\pi^\mp+\text{c.c.}\big)\times\Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ $\Gamma_{28}\Gamma_5/\Gamma$

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

$\Gamma\big(K^0\overline{K}^*(892)^0+\text{c.c.}\big)\times\Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ $\Gamma_{29}\Gamma_5/\Gamma$

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

$\Gamma\big(K^0\overline{K}^*(892)^0+\text{c.c.}\to K^0K^\pm\pi^\mp+\text{c.c.}\big)\times\Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ $\Gamma_{30}\Gamma_5/\Gamma$

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

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

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.

$\Gamma(\phi 2(\pi^+\pi^-)) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{41}\Gamma_5/\Gamma$

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

[1] AUBERT 06D reports $[\Gamma(J/\psi(1S) \to \phi 2(\pi^+\pi^-)) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{\text{total}}] \times [B(\phi(1020) \to K^+K^-)] = (0.47 \pm 0.09 \pm 0.03) \times 10^{-2}$ keV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (48.9 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi K^+K^-) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{47}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
4.62±0.62±0.04	163	[1] LEES	12F	BABR	10.6 $e^+e^- \to K^+K^-K^+K^-\gamma$

[1] LEES 12F reports $[\Gamma(J/\psi(1S) \to \phi K^+K^-) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{\text{total}}] \times [B(\phi(1020) \to K^+K^-)] = 2.26 \pm 0.26 \pm 0.16$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (48.9 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi f_2(1270)) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{48}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
$1.79 \pm 0.32^{+0.02}_{-0.06}$	61 ± 10	[1,2,3] LEES	12F	BABR	10.6 $e^+e^- \to \pi^+\pi^-K^+K^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$4.08 \pm 0.73^{+0.04}_{-0.14}$	44 ± 7	[2,4] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^+\pi^-K^+K^-\gamma$

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

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

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

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

$\Gamma(\phi\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{53}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
4.50±0.35 OUR AVERAGE				
4.47±0.49±0.04	181	[1] LEES 12F	BABR	10.6 $e^+e^- \to K^+K^-\pi^+\pi^-\gamma$
4.52±0.48±0.04	254±23	[2] SHEN 09	BELL	10.6 $e^+e^- \to K^+K^-\pi^+\pi^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5.33±0.71±0.05	103	[3] AUBERT,BE 06D	BABR	10.6 $e^+e^- \to K^+K^-\pi^+\pi^-\gamma$

[1] LEES 12F reports $[\Gamma(J/\psi(1S) \to \phi\pi^+\pi^-) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \to K^+K^-)] = 2.19 \pm 0.23 \pm 0.07$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (48.9 \pm 0.5) \times 10^{-2}$. 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 $[\Gamma(J/\psi(1S) \to \phi\pi^+\pi^-) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \to K^+K^-)]$ assuming $B(\phi(1020) \to K^+K^-) = (49.2 \pm 0.6) \times 10^{-2}$, which we rescale to our best value $B(\phi(1020) \to K^+K^-) = (48.9 \pm 0.5) \times 10^{-2}$. 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 $[\Gamma(J/\psi(1S) \to \phi\pi^+\pi^-) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \to K^+K^-)] = 2.61 \pm 0.30 \pm 0.18$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (48.9 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi\pi^0\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{54}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
2.78±0.57±0.03	45	[1] LEES 12F	BABR	10.6 $e^+e^- \to K^+K^-\pi^0\pi^0\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
3.15±0.88±0.03	23	[2] AUBERT,BE 06D	BABR	10.6 $e^+e^- \to K^+K^-\pi^0\pi^0\gamma$

[1] LEES 12F reports $[\Gamma(J/\psi(1S) \to \phi\pi^0\pi^0) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \to K^+K^-)] = 1.36 \pm 0.27 \pm 0.07$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (48.9 \pm 0.5) \times 10^{-2}$. 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 $[\Gamma(J/\psi(1S) \to \phi\pi^0\pi^0) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \to K^+K^-)] = 1.54 \pm 0.40 \pm 0.16$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (48.9 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{57}\Gamma_5/\Gamma$

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

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

$\Gamma(\phi f_0(980) \to \phi\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{64}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
1.44±0.19 OUR AVERAGE					
1.41±0.25±0.01	57 ± 9	[1] LEES	12F	BABR	10.6 $e^+e^- \to \pi^+\pi^-K^+K^-\gamma$
1.48±0.27±0.09	60±11	[2] SHEN	09	BELL	10.6 $e^+e^- \to K^+K^-\pi^+\pi^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.02±0.24±0.01	20 ± 5	[3] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^+\pi^-K^+K^-\gamma$

[1] LEES 12F reports $[\Gamma(J/\psi(1S) \to \phi f_0(980) \to \phi\pi^+\pi^-) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \to K^+K^-)] = 0.69 \pm 0.11 \pm 0.05$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (48.9 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

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

[3] Superseded by LEES 12F. AUBERT 07AK reports $[\Gamma(J/\psi(1S) \to \phi f_0(980) \to \phi\pi^+\pi^-) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \to K^+K^-)] = 0.50 \pm 0.11 \pm 0.04$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (48.9 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi f_0(980) \to \phi\pi^0\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{65}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
0.98±0.27±0.01	16 ± 4	[1] LEES	12F	BABR	10.6 $e^+e^- \to \pi^0\pi^0K^+K^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.96±0.40±0.01	7.0 ± 2.8	[2] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^0\pi^0K^+K^-\gamma$

[1] LEES 12F reports $[\Gamma(J/\psi(1S) \to \phi f_0(980) \to \phi\pi^0\pi^0) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \to K^+K^-)] = 0.48 \pm 0.12 \pm 0.05$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (48.9 \pm 0.5) \times 10^{-2}$. 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 07AK reports $[\Gamma(J/\psi(1S) \to \phi f_0(980) \to \phi\pi^0\pi^0) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \to K^+K^-)] = 0.47 \pm 0.19 \pm 0.05$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (48.9 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\eta\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{75}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
2.23±0.97±0.03	9	[1] AUBERT	07AU	BABR	10.6 $e^+e^- \to \eta\pi^+\pi^-\gamma$

[1] AUBERT 07AU reports $[\Gamma(J/\psi(1S) \to \eta\pi^+\pi^-) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\eta \to \pi^+\pi^-\pi^0)] = 0.51 \pm 0.22 \pm 0.03$ eV which we divide by our best value $B(\eta \to \pi^+\pi^-\pi^0) = (22.92 \pm 0.28) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(2(\pi^+\pi^-)\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{104}\Gamma_5/\Gamma$

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

$\Gamma(\pi^+\pi^-\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{106}\Gamma_5/\Gamma$

VALUE (keV)	DOCUMENT ID		TECN	COMMENT
0.122±0.005±0.008	AUBERT,B	04N	BABR	10.6 $e^+e^- \to \pi^+\pi^-\pi^0\gamma$

$\Gamma(\pi^+\pi^-\pi^0 K^+K^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{107}\Gamma_5/\Gamma$

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

$\Gamma(\pi^+\pi^- K^+K^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{109}\Gamma_5/\Gamma$

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.

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

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 $[\Gamma(J/\psi(1S) \to \pi^+\pi^-K^+K^-\eta) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\eta \to 2\gamma)] = 10.2 \pm 1.3 \pm 0.8$ eV which we divide by our best value $B(\eta \to 2\gamma) = (39.41 \pm 0.20) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\pi^0\pi^0 K^+K^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{114}\Gamma_5/\Gamma$

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.

$\Gamma(\pi^+\pi^- K^0_S K^0_L) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{110}\Gamma_5/\Gamma$

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

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

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

$\Gamma(K^+K^- K^0_S K^0_S) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{112}\Gamma_5/\Gamma$

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

$\Gamma\big(K^0_S\pi^- K^*(892)^+ + \text{c.c.}\big) \times \Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ — $\Gamma_{18}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
14.8±4.8±1.2	53	[1] LEES	14H	BABR	$e^+e^- \rightarrow \pi^+\pi^- K^0_S K^0_S \gamma$

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

$\Gamma\big(K^0_S\pi^- K^*(892)^+ + \text{c.c.} \rightarrow K^0_S K^0_S \pi^+\pi^-\big) \times \Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ — $\Gamma_{19}\Gamma_5/\Gamma$

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

$\Gamma\big(K^0_S\pi^- K^*_2(1430)^+ + \text{c.c.}\big) \times \Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ — $\Gamma_{83}\Gamma_5/\Gamma$

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

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

[2] LEES 14H reports $[\Gamma\big(J/\psi(1S) \rightarrow K^0_S\pi^- K^*_2(1430)^+ + \text{c.c.}\big) \times \Gamma\big(J/\psi(1S) \rightarrow e^+e^-\big)/\Gamma_{\text{total}}] \times [B(K^*_2(1430) \rightarrow K\pi)] = 10.0 \pm 4.8 \pm 0.8$ 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.

$\Gamma\big(K^0_S\pi^- K^*_2(1430)^+ + \text{c.c.} \rightarrow K^0_S K^0_S \pi^+\pi^-\big) \times \Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ — $\Gamma_{84}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
2.5±1.2±0.2	35	LEES	14H	BABR	$e^+e^- \rightarrow \pi^+\pi^- K^0_S K^0_S \gamma$

$\Gamma\big(K^*(892)^\pm K^*(892)^\mp\big) \times \Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ — $\Gamma_{16}\Gamma_5/\Gamma$

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

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

$\Gamma\big(K^*(892)^+ K^*_2(1430)^- + \text{c.c.}\big) \times \Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ — $\Gamma_{22}\Gamma_5/\Gamma$

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

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

[2] LEES 14H reports $[\Gamma\big(J/\psi(1S) \rightarrow K^*(892)^+ K^*_2(1430)^- + \text{c.c.}\big) \times \Gamma\big(J/\psi(1S) \rightarrow e^+e^-\big)/\Gamma_{\text{total}}] \times [B(K^*_2(1430) \rightarrow K\pi)] = 9.28 \pm 8.0 \pm 0.32$ 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.

$\Gamma\big(K^*(892)^+ K^*_2(1430)^- + \text{c.c.} \rightarrow K^*(892)^+ K^0_S \pi^- + \text{c.c.}\big) \times \Gamma\big(e^+e^-\big)/\Gamma_{\text{total}}$ — $\Gamma_{23}\Gamma_5/\Gamma$

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

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

$\Gamma(\phi K^0_S K^0_S) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{45}\Gamma_5/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
3.27±0.84±0.03	29	[1] LEES	14H	BABR	$e^+e^- \to K^0_S K^0_S K^+ K^- \gamma$

[1] LEES 14H reports $[\Gamma(J/\psi(1S) \to \phi K^0_S K^0_S) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(\phi(1020) \to K^+K^-)] = 1.6 \pm 0.4 \pm 0.1$ eV which we divide by our best value $B(\phi(1020) \to K^+K^-) = (48.9 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi f'_2(1525)) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{52}\Gamma_5/\Gamma$

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

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

[2] LEES 14H reports $[\Gamma(J/\psi(1S) \to \phi f'_2(1525)) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(f'_2(1525) \to K\overline{K})] = 7.2 \pm 2.8 \pm 0.3$ eV which we divide by our best value $B(f'_2(1525) \to K\overline{K}) = (88.7 \pm 2.2) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(K^+K^- f'_2(1525)) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{51}\Gamma_5/\Gamma$

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 $[\Gamma(J/\psi(1S) \to K^+K^- f'_2(1525)) \times \Gamma(J/\psi(1S) \to e^+e^-)/\Gamma_{total}] \times [B(f'_2(1525) \to K\overline{K})] = 5.12 \pm 1.68 \pm 0.20$ eV which we divide by our best value $B(f'_2(1525) \to K\overline{K}) = (88.7 \pm 2.2) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(2(\pi^+\pi^-)) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{116}\Gamma_5/\Gamma$

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.

$\Gamma(3(\pi^+\pi^-)) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{117}\Gamma_5/\Gamma$

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

$\Gamma(2(\pi^+\pi^-\pi^0)) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{118}\Gamma_5/\Gamma$

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

$\Gamma(2(\pi^+\pi^-)\eta) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ — $\Gamma_{119}\Gamma_5/\Gamma$

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

[1] AUBERT 07AU reports $[\Gamma(J/\psi(1S) \rightarrow 2(\pi^+\pi^-)\eta) \times \Gamma(J/\psi(1S) \rightarrow e^+e^-)/\Gamma_{\text{total}}] \times [B(\eta \rightarrow 2\gamma)] = 5.16 \pm 0.85 \pm 0.39$ eV which we divide by our best value $B(\eta \rightarrow 2\gamma) = (39.41 \pm 0.20) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(p\overline{p}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ — $\Gamma_{121}\Gamma_5/\Gamma$

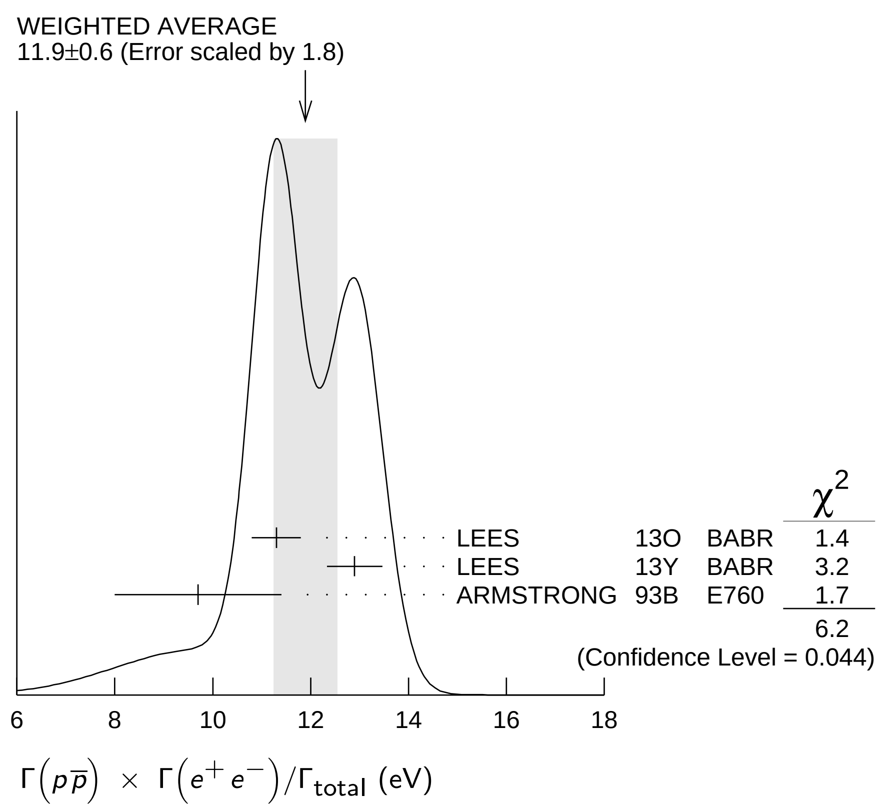
VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
11.9±0.6 OUR AVERAGE	Error includes scale factor of 1.8. See the ideogram below.				
11.3±0.4±0.3	821	[1] LEES	13O	BABR	$e^+e^- \rightarrow p\overline{p}\gamma$
12.9±0.4±0.4	918	[2] LEES	13Y	BABR	$e^+e^- \rightarrow p\overline{p}\gamma$
9.7±1.7		[3] ARMSTRONG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

[1] ISR photon reconstructed in the detector

[2] ISR photon undetected

[3] Using $\Gamma_{\text{total}} = 85.5^{+6.1}_{-5.8}$ MeV.

[4] Superseded by LEES 13O



$\Gamma(\Sigma^0\overline{\Sigma}^0) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ — $\Gamma_{134}\Gamma_5/\Gamma$

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

$\Gamma(2(\pi^+\pi^-)K^+K^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{135}\Gamma_5/\Gamma$

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

$\Gamma(\Lambda\overline{\Lambda}) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{141}\Gamma_5/\Gamma$

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

$\Gamma(2(K^+K^-)) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{144}\Gamma_5/\Gamma$

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.

$\Gamma(K^+K^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_{146}\Gamma_5/\Gamma$

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.

$J/\psi(1S)$ 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
0.135±0.003	[1,2] SETH	04	RVUE	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.17 ±0.02	[1] BOYARSKI	75	MRK1	e^+e^-

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

$\Gamma(ggg)/\Gamma_{\rm total}$ $\qquad\Gamma_3/\Gamma$

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

$\Gamma(\gamma gg)/\Gamma_{\rm total}$ $\qquad\Gamma_4/\Gamma$

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 $\Gamma(ggg)/\Gamma_{\rm total}$. The statistical error is negligible and the systematic error is partially correlated with that of $\Gamma(ggg)/\Gamma_{\rm total}$ measurement of BESSON 08.

$\Gamma(\gamma gg)/\Gamma(ggg)$ $\qquad\Gamma_4/\Gamma_3$

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

$\Gamma(e^+e^-)/\Gamma_{\rm total}$ $\qquad\Gamma_5/\Gamma$

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^-

$\Gamma(e^+e^-\gamma)/\Gamma_{\rm total}$ $\qquad\Gamma_6/\Gamma$

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.

$\Gamma(\mu^+\mu^-)/\Gamma_{\rm total}$ $\qquad\Gamma_7/\Gamma$

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
5.961±0.033 OUR AVERAGE					
5.973±0.007±0.038	770k	ABLIKIM	13R	BES3	$\psi(2S) \to J/\psi\pi^+\pi^-$
5.960±0.065±0.050	17k	LI	05C	CLEO	$\psi(2S) \to J/\psi\pi^+\pi^-$
5.84 ±0.06 ±0.10		BAI	98D	BES	$\psi(2S) \to J/\psi\pi^+\pi^-$
6.08 ±0.33		BAI	95B	BES	e^+e^-
5.90 ±0.15 ±0.19		COFFMAN	92	MRK3	$\psi(2S) \to J/\psi\pi^+\pi^-$
6.9 ±0.9		BOYARSKI	75	MRK1	e^+e^-

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

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

[1] From 235.3k $J/\psi \to e^+e^-$ and 156.6k $J/\psi \to \mu^+\mu^-$ observed events.

[2] Not independent of the corresponding measurements of Γ(e+ e-)/Γ_{total} and Γ(mu+ mu-)/Γ_{total}.

[3] Not independent of the corresponding measurements of $\Gamma(e^+e^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ and $\Gamma(\mu^+\mu^-) \times \Gamma(e^+e^-)/\Gamma_{total}$.

HADRONIC DECAYS

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

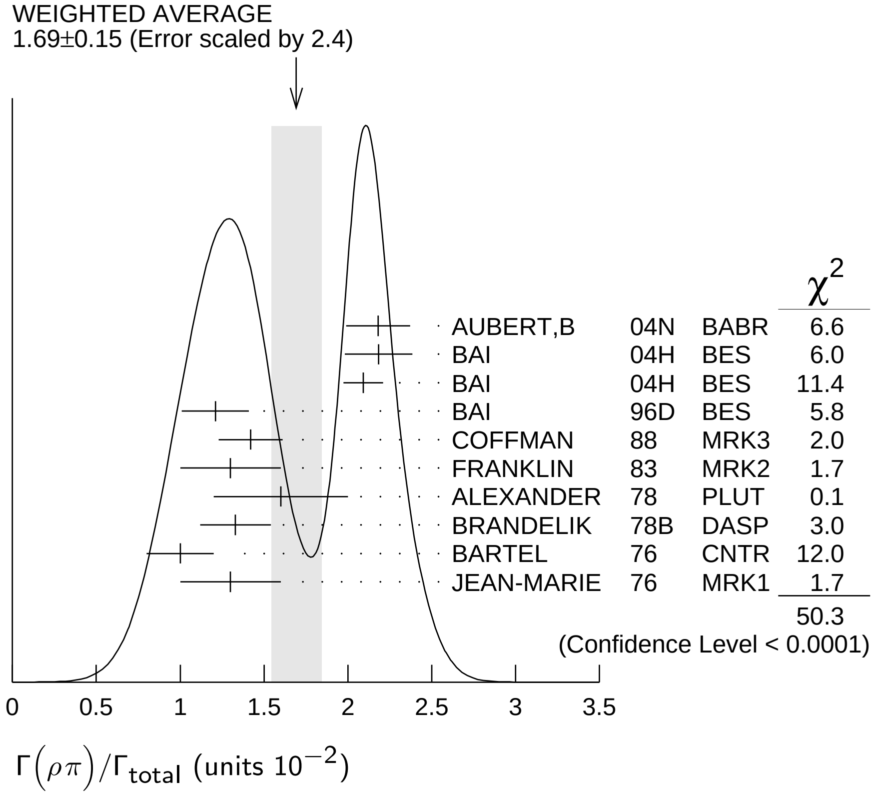
VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.69 ±0.15 OUR AVERAGE		Error includes scale factor of 2.4. See the ideogram below.			
2.18 ±0.19		[1,2] AUBERT,B	04N	BABR	10.6 $e^+e^- \to \pi^+\pi^-\pi^0\gamma$
2.184±0.005±0.201	220k	[2,3] BAI	04H	BES	$e^+e^- \to J/\psi \to \pi^+\pi^-\pi^0$
2.091±0.021±0.116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

[1] From the ratio of $\Gamma(e^+e^-)$ B$(\pi^+\pi^-\pi^0)$ and $\Gamma(e^+e^-)$ B$(\mu^+\mu^-)$ (AUBERT 04).

[2] Not independent of their B$(\pi^+\pi^-\pi^0)$.

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

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



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

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

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

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

$\Gamma\big(\omega\pi^+\pi^+\pi^-\pi^-\big)/\Gamma_{\text{total}}$ Γ_{11}/Γ

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

$\Gamma\big(\omega\pi^+\pi^-\pi^0\big)/\Gamma_{\text{total}}$ Γ_{12}/Γ

VALUE (units 10^{-2})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.40±0.06±0.04	170	[1] AUBERT	06D	BABR	10.6 $e^+e^- \to \omega\pi^+\pi^-\pi^0\gamma$

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

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

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
8.6±0.7 OUR AVERAGE	Error includes scale factor of 1.1.				
9.7±0.6±0.6	788	[1] AUBERT	07AU	BABR	10.6 $e^+e^- \to \omega\pi^+\pi^-\gamma$
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] AUBERT 07AU quotes $\Gamma^{J/\psi}_{ee} \cdot B(J/\psi \to \omega\pi^+\pi^-) \cdot B(\omega \to 3\pi) = 47.8 \pm 3.1 \pm 3.2$ eV.

$\Gamma(\omega f_2(1270))/\Gamma_{total}$ — Γ_{14}/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	$e^+e^- \to 2(\pi^+\pi^-)\pi^0$

$\Gamma(K^*(892)^0\overline{K}^*(892)^0)/\Gamma_{total}$ — Γ_{15}/Γ

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
2.3±0.7±0.1		25 ± 8	[1] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^+\pi^-K^+K^-\gamma$
<5	90		VANNUCCI	77	MRK1	$e^+e^- \to \pi^+\pi^-K^+K^-$

[1] Superseded by LEES 12F. AUBERT 07AK reports $[\Gamma(J/\psi(1S) \to K^*(892)^0\overline{K}^*(892)^0)/\Gamma_{total}] \times [\Gamma(J/\psi(1S) \to e^+e^-)] = (1.28 \pm 0.40 \pm 0.11) \times 10^{-3}$ keV which we divide by our best value $\Gamma(J/\psi(1S) \to e^+e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(K^*(892)^\pm K^*(892)^\mp)/\Gamma_{total}$ — Γ_{16}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$1.00\pm0.19^{+0.11}_{-0.32}$	323	ABLIKIM	10E	BES2	$J/\psi \to K^\pm K^0_S\pi^\mp\pi^0$

$\Gamma(K^*(892)^\pm K^*(800)^\mp)/\Gamma_{total}$ — Γ_{17}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$1.09\pm0.18^{+0.94}_{-0.54}$	655	ABLIKIM	10E	BES2	$J/\psi \to K^\pm K^0_S\pi^\mp\pi^0$

$\Gamma(\eta K^*(892)^0\overline{K}^*(892)^0)/\Gamma_{total}$ — Γ_{20}/Γ

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

$\Gamma\big(K^*(892)^0\overline{K}{}^*_2(1430)^0 + \text{c.c.}\big)/\Gamma_{\text{total}}$ — Γ_{21}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$5.9\pm0.6\pm0.2$	317 ± 23	[1,2] AUBERT	07AK	BABR	$10.6\ e^+e^- \to \pi^+\pi^-K^+K^-\gamma$
6.7 ± 2.6	40	VANNUCCI	77	MRK1	$e^+e^- \to \pi^+\pi^-K^+K^-$

[1] Using $B(K^*_2(1430)^0 \to K\pi) = (49.9 \pm 1.2)\%$.

[2] Superseded by LEES 12F. AUBERT 07AK reports $[\Gamma\big(J/\psi(1S) \to K^*(892)^0\overline{K}{}^*_2(1430)^0 + \text{c.c.}\big)/\Gamma_{\text{total}}] \times [\Gamma\big(J/\psi(1S) \to e^+e^-\big)] = (32.9 \pm 2.3 \pm 2.7) \times 10^{-3}$ keV which we divide by our best value $\Gamma\big(J/\psi(1S) \to e^+e^-\big) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(\omega K^*(892)\overline{K} + \text{c.c.}\big)/\Gamma_{\text{total}}$ — Γ_{25}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
61 ± 9 OUR AVERAGE					
$62.0\pm\ 6.8\pm10.6$	899 ± 98	ABLIKIM	08E	BES2	$J/\psi \to \omega K^0_S K^\pm\pi^\mp$
$65.3\pm10.2\pm13.5$	176 ± 28	ABLIKIM	08E	BES2	$J/\psi \to \omega K^+K^-\pi^0$
$53\ \pm14\ \pm14$	530 ± 140	BECKER	87	MRK3	$e^+e^- \to$ hadrons

$\Gamma\big(K^+K^*(892)^- + \text{c.c.}\big)/\Gamma_{\text{total}}$ — Γ_{26}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
5.12±0.30 OUR AVERAGE					
$5.2\ \pm0.4\ \pm0.1$		[1] AUBERT	08S	BABR	$10.6\ e^+e^- \to K^+K^*(892)^-\gamma$
$4.57\pm0.17\pm0.70$	2285	JOUSSET	90	DM2	$J/\psi \to$ hadrons
$5.26\pm0.13\pm0.53$		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. • • •					
$2.6\ \pm0.6$	24	FRANKLIN	83	MRK2	$J/\psi \to K^+K^-\pi^0$
$3.2\ \pm0.6$	48	VANNUCCI	77	MRK1	$J/\psi \to K^\pm K^0_S\pi^\mp$
$4.1\ \pm1.2$	39	BRAUNSCH...	76	DASP	$J/\psi \to K^\pm X$

[1] AUBERT 08S reports $[\Gamma\big(J/\psi(1S) \to K^+K^*(892)^- + \text{c.c.}\big)/\Gamma_{\text{total}}] \times [\Gamma\big(J/\psi(1S) \to e^+e^-\big)] = (29.0\pm1.7\pm1.3)\times10^{-3}$ keV which we divide by our best value $\Gamma\big(J/\psi(1S) \to e^+e^-\big) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(K^+K^*(892)^- + \text{c.c.} \to K^+K^-\pi^0\big)/\Gamma_{\text{total}}$ — Γ_{27}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.97±0.20±0.05	155	[1] AUBERT	08S	BABR	$10.6\ e^+e^- \to K^+K^-\pi^0\gamma$

[1] AUBERT 08S reports $[\Gamma\big(J/\psi(1S) \to K^+K^*(892)^- + \text{c.c.} \to K^+K^-\pi^0\big)/\Gamma_{\text{total}}] \times [\Gamma\big(J/\psi(1S) \to e^+e^-\big)] = (10.96 \pm 0.85 \pm 0.70) \times 10^{-3}$ keV which we divide by our best value $\Gamma\big(J/\psi(1S) \to e^+e^-\big) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(K^+ K^*(892)^- + \text{c.c.} \to K^0 K^\pm \pi^\mp + \text{c.c.}\big)/\Gamma_{\text{total}}$ — Γ_{28}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.0±0.4±0.1	89	[1] AUBERT	08S	BABR	10.6 $e^+ e^- \to K^0_S K^\pm \pi^\mp \gamma$

[1] AUBERT 08S reports $[\Gamma(J/\psi(1S) \to K^+ K^*(892)^- + \text{c.c.} \to K^0 K^\pm \pi^\mp + \text{c.c.})/\Gamma_{\text{total}}] \times [\Gamma(J/\psi(1S) \to e^+ e^-)] = (16.76 \pm 1.70 \pm 1.00) \times 10^{-3}$ keV which we divide by our best value $\Gamma(J/\psi(1S) \to e^+ e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(K^0 \overline{K}^*(892)^0 + \text{c.c.}\big)/\Gamma_{\text{total}}$ — Γ_{29}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
4.39±0.31 OUR AVERAGE					
4.8 ±0.5 ±0.1		[1] AUBERT	08S	BABR	10.6 $e^+ e^- \to K^0 \overline{K}^*(892)^0 \gamma$
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	$J/\psi \to K^\pm K^0_S \pi^\mp$

[1] AUBERT 08S reports $[\Gamma(J/\psi(1S) \to K^0 \overline{K}^*(892)^0 + \text{c.c.})/\Gamma_{\text{total}}] \times [\Gamma(J/\psi(1S) \to e^+ e^-)] = (26.6 \pm 2.5 \pm 1.5) \times 10^{-3}$ keV which we divide by our best value $\Gamma(J/\psi(1S) \to e^+ e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(K^0 \overline{K}^*(892)^0 + \text{c.c.}\big)/\Gamma\big(K^+ K^*(892)^- + \text{c.c.}\big)$ — Γ_{29}/Γ_{26}

VALUE	DOCUMENT ID		TECN	COMMENT
0.82±0.05±0.09	COFFMAN	88	MRK3	$J/\psi \to K \overline{K}^*(892)$+c.c.

$\Gamma\big(K^0 \overline{K}^*(892)^0 + \text{c.c.} \to K^0 K^\pm \pi^\mp + \text{c.c.}\big)/\Gamma_{\text{total}}$ — Γ_{30}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.2±0.4±0.1	94	[1] AUBERT	08S	BABR	10.6 $e^+ e^- \to K^0_S K^\pm \pi^\mp \gamma$

[1] AUBERT 08S reports $[\Gamma(J/\psi(1S) \to K^0 \overline{K}^*(892)^0 + \text{c.c.} \to K^0 K^\pm \pi^\mp + \text{c.c.})/\Gamma_{\text{total}}] \times [\Gamma(J/\psi(1S) \to e^+ e^-)] = (17.70 \pm 1.70 \pm 1.00) \times 10^{-3}$ keV which we divide by our best value $\Gamma(J/\psi(1S) \to e^+ e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(K_1(1400)^\pm K^\mp\big)/\Gamma_{\text{total}}$ — Γ_{31}/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

$\Gamma\big(\overline{K}^*(892)^0 K^+ \pi^- + \text{c.c.}\big)/\Gamma_{\text{total}}$ — Γ_{32}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[1] ABLIKIM	06C	BES2	$J/\psi \to \overline{K}^*(892)^0 K^+ \pi^-$

[1] A $K^*_0(800)$ 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.

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

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

$\Gamma(b_1(1235)^\pm\pi^\mp)/\Gamma_{total}$ — Γ_{34}/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^-

$\Gamma(\omega K^\pm K^0_S\pi^\mp)/\Gamma_{total}$ — Γ_{35}/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

$\Gamma(b_1(1235)^0\pi^0)/\Gamma_{total}$ — Γ_{36}/Γ

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

$\Gamma(\eta K^\pm K^0_S\pi^\mp)/\Gamma_{total}$ — Γ_{37}/Γ

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

$\Gamma(\phi K^*(892)\overline{K}+\text{c.c.})/\Gamma_{total}$ — Γ_{38}/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

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

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
17.0± 3.2 OUR AVERAGE					
13.6± 5.0±1.0	24	[1] AUBERT	07AU	BABR	10.6 $e^+e^- \to \omega K^+K^-\gamma$
19.8± 2.1±3.9		[2] FALVARD	88	DM2	$J/\psi \to$ hadrons
16 ±10	22	FELDMAN	77	MRK1	e^+e^-

[1] AUBERT 07AU quotes $\Gamma^{J/\psi}_{ee} \cdot B(J/\psi \to \omega K^+K^-) \cdot B(\eta \to 3\pi) = 3.3 \pm 1.3 \pm 0.2$ eV.

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

$\Gamma(\omega f_0(1710) \to \omega K\overline{K})/\Gamma_{total}$ — Γ_{40}/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.

$\Gamma(\phi 2(\pi^+\pi^-))/\Gamma_{total}$ Γ_{41}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
16.6±2.3 OUR AVERAGE					
17.3±3.3±1.2	35	[1] AUBERT	06D	BABR	10.6 $e^+e^- \rightarrow \phi 2(\pi^+\pi^-)\gamma$
16.0±1.0±3.0		FALVARD	88	DM2	$J/\psi \rightarrow$ hadrons

[1] Using $\Gamma(J/\psi \rightarrow e^+e^-) = 5.52 \pm 0.14 \pm 0.04$ keV.

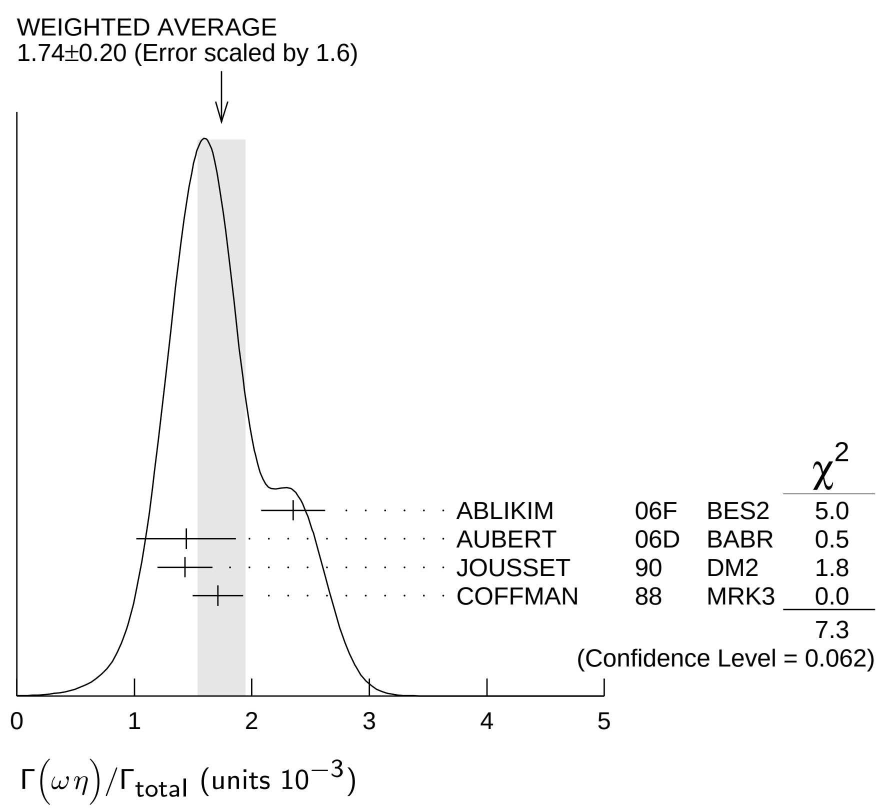
$\Gamma(\Delta(1232)^{++}\overline{p}\pi^-)/\Gamma_{total}$ Γ_{42}/Γ

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

$\Gamma(\omega\eta)/\Gamma_{total}$ Γ_{43}/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	$J/\psi \rightarrow \omega\eta$
1.44 ±0.40 ±0.14	13	[2] AUBERT	06D	BABR	10.6 $e^+e^- \rightarrow \omega\eta\gamma$
1.43 ±0.10 ±0.21	378	JOUSSET	90	DM2	$J/\psi \rightarrow$ hadrons
1.71 ±0.08 ±0.20		COFFMAN	88	MRK3	$e^+e^- \rightarrow 3\pi\eta$

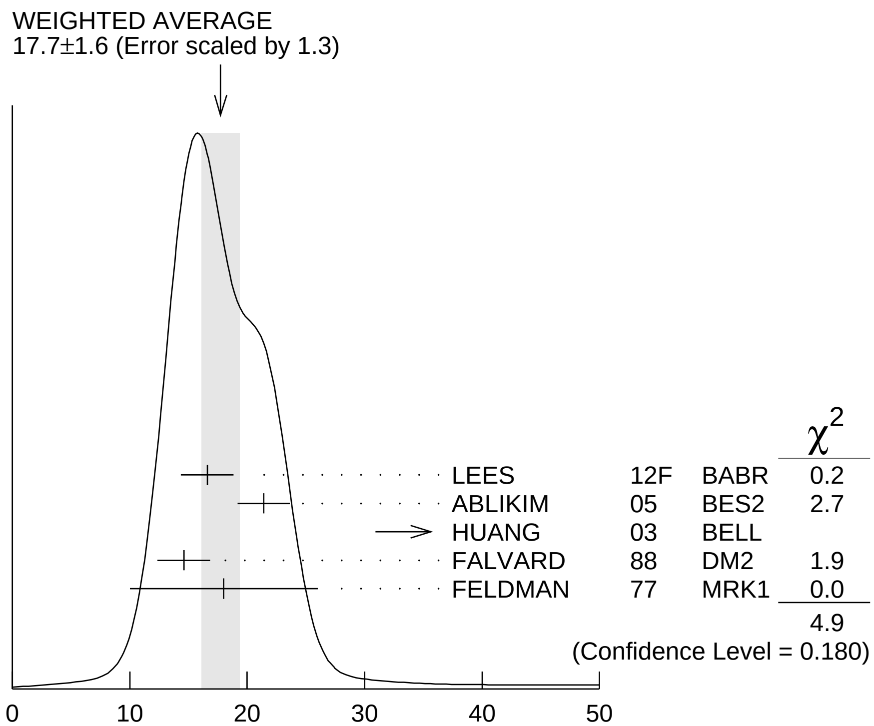
[1] Using B($\eta \rightarrow 2\gamma$) = (39.43 ± 0.26)%, B($\eta \rightarrow \pi^+\pi^-\pi^0$) = 22.6 ± 0.4%, B($\eta \rightarrow \pi^+\pi^-\gamma$) = 4.68 ± 0.11%, and B($\omega \rightarrow \pi^+\pi^-\pi^0$) = (89.1 ± 0.7)%.
[2] Using $\Gamma(J/\psi \rightarrow e^+e^-) = 5.52 \pm 0.14 \pm 0.04$ keV.



$\Gamma(\phi K\overline{K})/\Gamma_{total}$ Γ_{44}/Γ

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



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

$\Gamma(\phi f_0(1710) \to \phi K\overline{K})/\Gamma_{total}$ Γ_{46}/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 $f_0(1710) \to K\overline{K}$.

$\Gamma(\phi f_2(1270))/\Gamma_{total}$ Γ_{48}/Γ

VALUE (units 10^{-3})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$0.72\pm0.13\pm0.02$		44 ± 7	[1,2] AUBERT	07AK	BABR	$10.6\ e^+e^- \rightarrow \pi^+\pi^-K^+K^-\gamma$
<0.45	90		FALVARD	88	DM2	$J/\psi \rightarrow$ hadrons
<0.37	90		VANNUCCI	77	MRK1	$e^+e^- \rightarrow \pi^+\pi^-K^+K^-$

[1] Using $B(f_2(1270) \rightarrow \pi\pi) = (84.8^{+2.4}_{-1.2})\%$

[2] Superseded by LEES 12F. AUBERT 07AK reports $[\Gamma(J/\psi(1S) \rightarrow \phi f_2(1270))/\Gamma_{total}] \times [\Gamma(J/\psi(1S) \rightarrow e^+e^-)] = (4.02\pm0.65\pm0.33)\times10^{-3}$ keV which we divide by our best value $\Gamma(J/\psi(1S) \rightarrow e^+e^-) = 5.55\pm0.14\pm0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\Delta(1232)^{++}\overline{\Delta}(1232)^{--})/\Gamma_{total}$ Γ_{49}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$1.10\pm0.09\pm0.28$	233	EATON	84	MRK2	e^+e^-

$\Gamma(\Sigma(1385)^-\overline{\Sigma}(1385)^+ \text{(or c.c.)})/\Gamma_{total}$ Γ_{50}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.16 ± 0.05 OUR AVERAGE					
$1.096\pm0.012\pm0.071$	43K	ABLIKIM	16L	BES3	$J/\psi \rightarrow \Sigma(1385)^-\overline{\Sigma}(1385)^+$
$1.258\pm0.014\pm0.078$	53k	ABLIKIM	16L	BES3	$J/\psi \rightarrow \Sigma(1385)^+\overline{\Sigma}(1385)^-$
$1.23\pm0.07\pm0.30$	0.8k	ABLIKIM	12P	BES2	$J/\psi \rightarrow \Sigma(1385)^-\overline{\Sigma}(1385)^+$
$1.50\pm0.08\pm0.38$	1k	ABLIKIM	12P	BES2	$J/\psi \rightarrow \Sigma(1385)^+\overline{\Sigma}(1385)^-$
$1.00\pm0.04\pm0.21$	0.6k	HENRARD	87	DM2	$e^+e^- \rightarrow \Sigma^{*-}$
$1.19\pm0.04\pm0.25$	0.7k	HENRARD	87	DM2	$e^+e^- \rightarrow \Sigma^{*+}$
$0.86\pm0.18\pm0.22$	56	EATON	84	MRK2	$e^+e^- \rightarrow \Sigma^{*-}$
$1.03\pm0.24\pm0.25$	68	EATON	84	MRK2	$e^+e^- \rightarrow \Sigma^{*+}$

$\Gamma(\phi f'_2(1525))/\Gamma_{total}$ Γ_{52}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
8 ± 4 OUR AVERAGE Error includes scale factor of 2.7.					
$12.3\pm0.6\pm2.0$		[1,2] FALVARD	88	DM2	$J/\psi \rightarrow$ hadrons
4.8 ± 1.8	46	[1] GIDAL	81	MRK2	$J/\psi \rightarrow K^+K^-K^+K^-$

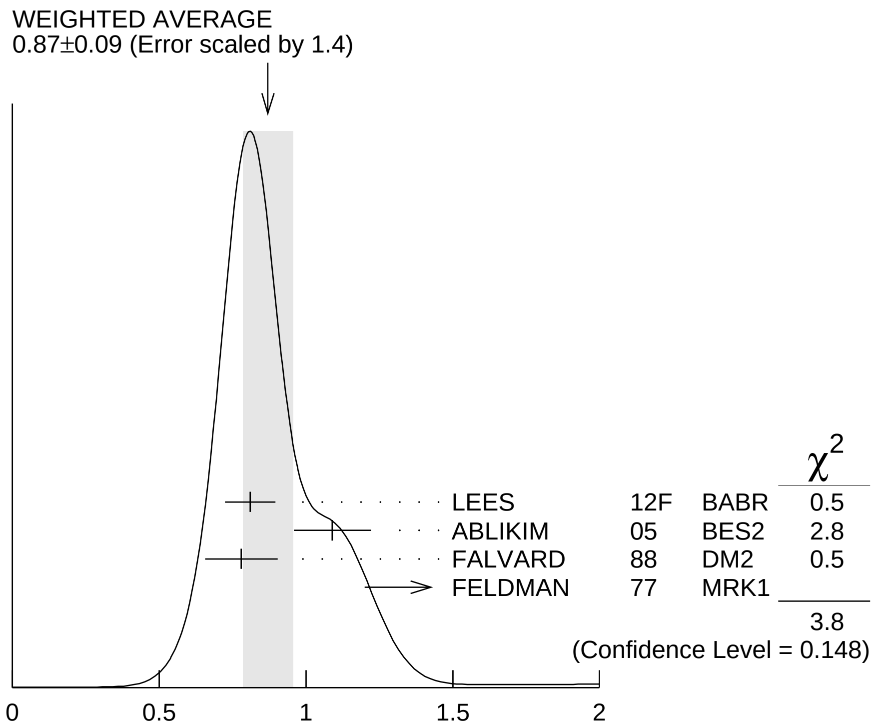
[1] Re-evaluated using $B(f'_2(1525) \rightarrow K\overline{K}) = 0.713$.

[2] Including interference with $f_0(1710)$.

$\Gamma(\phi\pi^+\pi^-)/\Gamma_{total}$ Γ_{53}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.87 ± 0.09 OUR AVERAGE Error includes scale factor of 1.4. See the ideogram below.					
$0.81\pm0.08\pm0.03$	181	LEES	12F	BABR	$10.6\ e^+e^- \rightarrow K^+K^-\pi^+\pi^-\gamma$
$1.09\pm0.02\pm0.13$		ABLIKIM	05	BES2	$J/\psi \rightarrow \phi\pi^+\pi^-$
$0.78\pm0.03\pm0.12$		FALVARD	88	DM2	$J/\psi \rightarrow$ hadrons
2.1 ± 0.9	23	FELDMAN	77	MRK1	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.96 ± 0.13	103	[1] AUBERT,BE	06D	BABR	$10.6\ e^+e^- \rightarrow K^+K^-\pi^+\pi^-\gamma$

[1] Superseded by LEES 12F. Derived by us. AUBERT,BE 06D measures $\Gamma(J/\psi \to e^+e^-) \times B(J/\psi \to \phi\pi^+\pi^-) \times B(\phi \to K^+K^-) = (2.61 \pm 0.30 \pm 0.18)$ eV



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

$\Gamma\left(\phi\pi^0\pi^0\right)/\Gamma_{total}$ Γ_{54}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.56 ± 0.16	23	[1] AUBERT,BE	06D	BABR	10.6 $e^+e^- \to K^+K^-\pi^0\pi^0\gamma$

[1] Superseded by LEES 12F. Derived by us. AUBERT,BE 06D measures $\Gamma(J/\psi \to e^+e^-) \times B(J/\psi \to \phi\pi^0\pi^0) \times B(\phi \to K^+K^-) = (1.54 \pm 0.40 \pm 0.16)$ eV

$\Gamma\left(\phi K^\pm K^0_S\pi^\mp\right)/\Gamma_{total}$ Γ_{55}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
7.2 ± 0.8 OUR AVERAGE					
$7.4\pm0.6\pm1.4$	227 ± 19	ABLIKIM	08E	BES2	$e^+e^- \to J/\psi$
$7.4\pm0.9\pm1.1$		FALVARD	88	DM2	$J/\psi \to$ hadrons
$7 \pm0.6\pm1.0$	163 ± 15	BECKER	87	MRK3	$e^+e^- \to$ hadrons

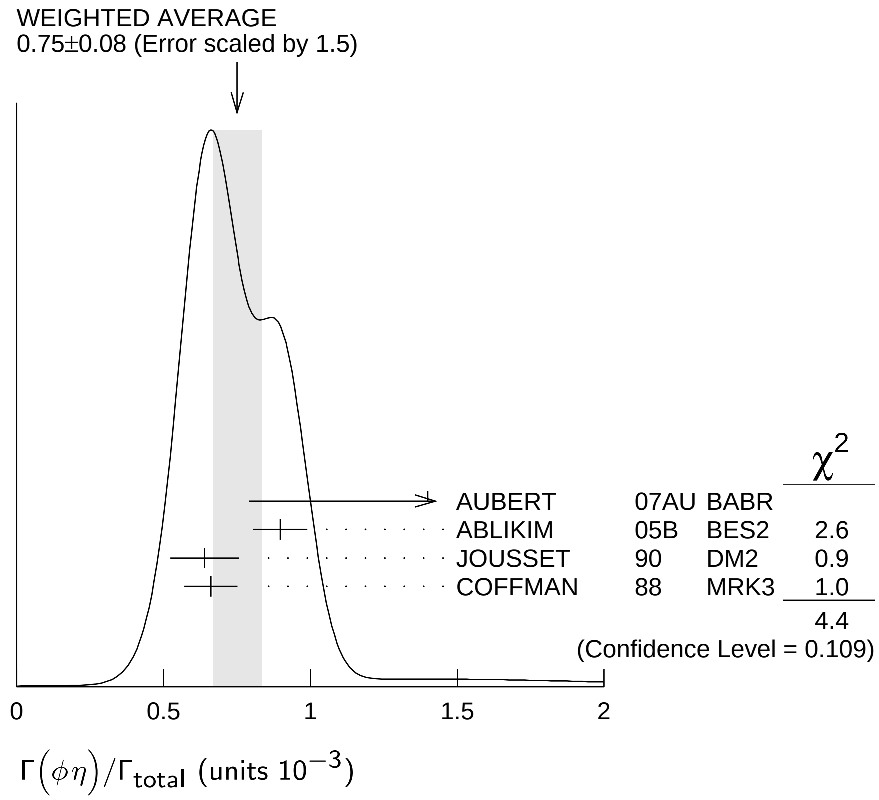
$\Gamma\left(\omega f_1(1420)\right)/\Gamma_{total}$ Γ_{56}/Γ

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

$\Gamma(\phi\eta)/\Gamma_{total}$ — Γ_{57}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
0.75 ±0.08 OUR AVERAGE		Error includes scale factor of 1.5. See the ideogram below.		
1.4 ±0.6 ±0.1	6	[1] AUBERT 07AU	BABR	10.6 $e^+e^- \to \phi\eta\gamma$
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] AUBERT 07AU quotes $\Gamma_{ee}^{J/\psi} \cdot B(J/\psi \to \phi\eta) \cdot B(\phi \to K^+K^-) \cdot B(\eta \to \gamma\gamma)= 0.84 \pm 0.37 \pm 0.05$ eV.



$\Gamma(\Xi^0\overline{\Xi}^0)/\Gamma_{total}$ — Γ_{58}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
1.20±0.12±0.21	206	ABLIKIM 08O	BES2	$e^+e^- \to J/\psi$

$\Gamma(\Xi(1530)^-\overline{\Xi}^+)/\Gamma_{total}$ — Γ_{59}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
0.59±0.09±0.12	75 ± 11	HENRARD 87	DM2	e^+e^-

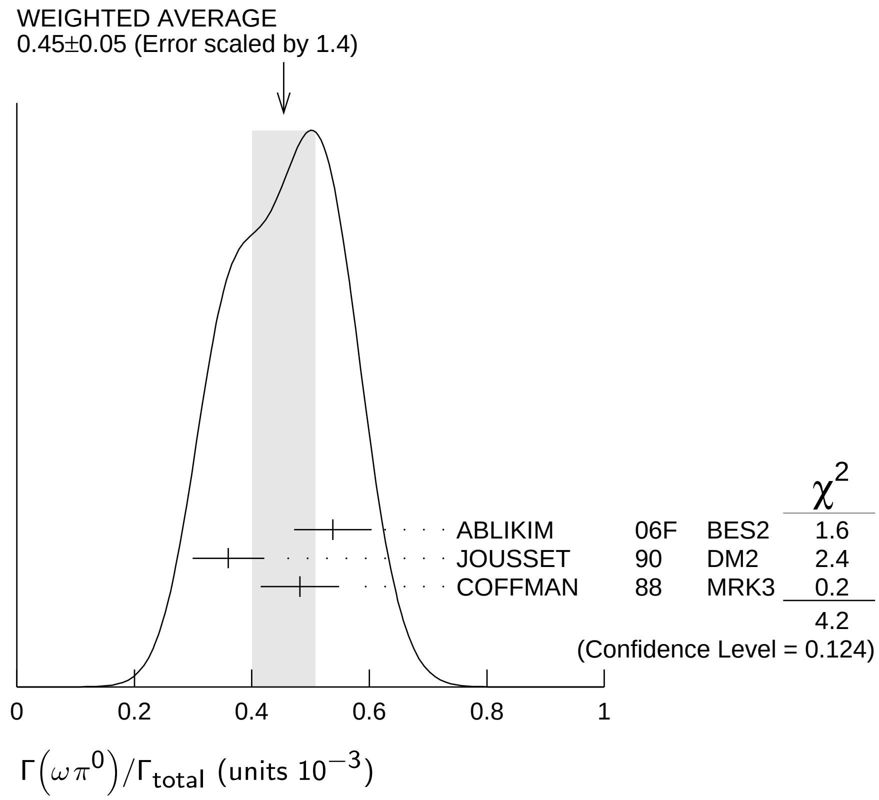
$\Gamma(pK^-\overline{\Sigma}(1385)^0)/\Gamma_{total}$ — Γ_{60}/Γ

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

$\Gamma(\omega\pi^0)/\Gamma_{total}$ Γ_{61}/Γ

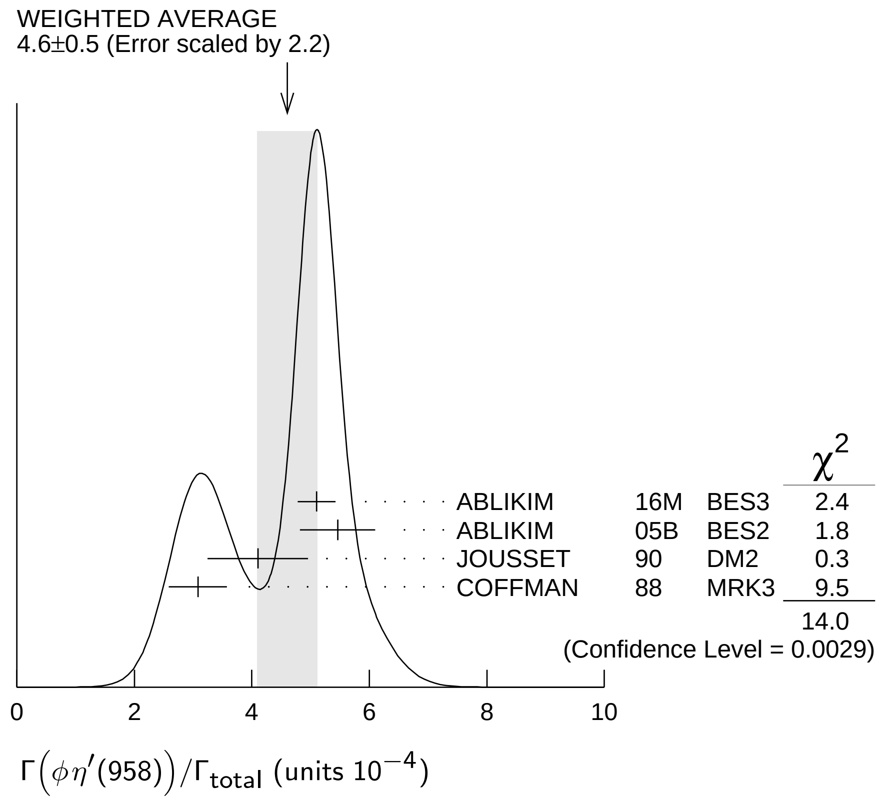
VALUE (units 10^{-3})	*EVTS*	*DOCUMENT ID*	*TECN*	*COMMENT*
0.45 ±0.05 OUR AVERAGE		Error includes scale factor of 1.4. See the ideogram below.		
$0.538 \pm 0.012 \pm 0.065$	2090	[1] ABLIKIM 06F	BES2	$J/\psi \to \omega\pi^0$
$0.360 \pm 0.028 \pm 0.054$	222	JOUSSET 90	DM2	$J/\psi \to$ hadrons
$0.482 \pm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

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



$\Gamma(\phi\eta'(958))/\Gamma_{total}$ Γ_{62}/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.		
$5.10 \pm 0.03 \pm 0.32$		31k	ABLIKIM 16M	BES3	$e^+e^- \to J/\psi \to$ hadrons
$5.46 \pm 0.31 \pm 0.56$			ABLIKIM 05B	BES2	$e^+e^- \to J/\psi \to$ hadrons
$4.1 \pm 0.3 \pm 0.8$		167	JOUSSET 90	DM2	$J/\psi \to$ hadrons
$3.08 \pm 0.34 \pm 0.36$			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^-



$\Gamma\big(\phi f_0(980)\big)/\Gamma_{total}$ — Γ_{63}/Γ

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

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

$\Gamma\big(\phi f_0(980) \to \phi\pi^+\pi^-\big)/\Gamma_{total}$ — Γ_{64}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.182±0.042±0.005	19.5 ± 4.5	[1,2] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^+\pi^-K^+K^-\gamma$

[1] Using B($\phi \to K^+K^-$) = (49.3 ± 0.6)%.

[2] Superseded by LEES 12F. AUBERT 07AK reports $[\Gamma\big(J/\psi(1S) \to \phi f_0(980) \to \phi\pi^+\pi^-\big)/\Gamma_{total}] \times [\Gamma\big(J/\psi(1S) \to e^+e^-\big)] = (1.01 \pm 0.22 \pm 0.08) \times 10^{-3}$ keV which we divide by our best value $\Gamma\big(J/\psi(1S) \to e^+e^-\big) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(\phi f_0(980) \to \phi\pi^0\pi^0\big)/\Gamma_{total}$ — Γ_{65}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.171±0.073±0.004	7.0 ± 2.8	[1,2] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^0\pi^0K^+K^-\gamma$

[1] Using B($\phi \rightarrow K^+ K^-$) = (49.3 ± 0.6)%.

[2] Superseded by LEES 12F. AUBERT 07AK reports [$\Gamma(J/\psi(1S) \rightarrow \phi f_0(980) \rightarrow \phi \pi^0 \pi^0)/\Gamma_{total}$] × [$\Gamma(J/\psi(1S) \rightarrow e^+ e^-)$] = $(0.95 \pm 0.39 \pm 0.10) \times 10^{-3}$ keV which we divide by our best value $\Gamma(J/\psi(1S) \rightarrow e^+ e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\phi \pi^0 f_0(980) \rightarrow \phi \pi^0 \pi^+ \pi^-)/\Gamma_{total}$ — Γ_{66}/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_{67}/Γ

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

$\Gamma(\eta \phi f_0(980) \rightarrow \eta \phi \pi^+ \pi^-)/\Gamma_{total}$ — Γ_{68}/Γ

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

$\Gamma(\phi a_0(980)^0 \rightarrow \phi \eta \pi^0)/\Gamma_{total}$ — Γ_{69}/Γ

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
5.0±2.7±2.5	[1] ABLIKIM	11D	BES3	$J/\psi \rightarrow \phi \eta \pi^0$

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

$\Gamma(\Xi(1530)^0 \overline{\Xi}^0)/\Gamma_{total}$ — Γ_{70}/Γ

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

$\Gamma(\Sigma(1385)^- \overline{\Sigma}^+ \text{(or c.c.)})/\Gamma_{total}$ — Γ_{71}/Γ

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

$\Gamma(\phi f_1(1285))/\Gamma_{total}$ — Γ_{72}/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	$e^+ e^- \rightarrow J/\psi \rightarrow \phi \eta \pi^+ \pi^-$
3.2±0.6±0.4		JOUSSET	90	DM2	$J/\psi \rightarrow \phi 2(\pi^+ \pi^-)$
2.1±0.5±0.4	25	[2] JOUSSET	90	DM2	$J/\psi \rightarrow \phi \eta \pi^+ \pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.6±0.2±0.1	16	BECKER	87	MRK3	$J/\psi \rightarrow \phi K \overline{K} \pi$

[1] ABLIKIM 15H reports $[\Gamma(J/\psi(1S) \rightarrow \phi f_1(1285))/\Gamma_{total}] \times [B(f_1(1285) \rightarrow \eta\pi^+\pi^-)] = (1.20 \pm 0.6 \pm 0.14) \times 10^{-4}$ which we divide by our best value $B(f_1(1285) \rightarrow \eta\pi^+\pi^-) = (35 \pm 15) \times 10^{-2}$. 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.

$\Gamma(\phi f_1(1285) \rightarrow \phi\pi^0 f_0(980) \rightarrow \phi\pi^0\pi^+\pi^-)/\Gamma_{total}$ — Γ_{73}/Γ

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

$\Gamma(\phi f_1(1285) \rightarrow \phi\pi^0 f_0(980) \rightarrow \phi\pi^0\pi^0\pi^0)/\Gamma_{total}$ — Γ_{74}/Γ

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

$\Gamma(\eta\pi^+\pi^-)/\Gamma_{total}$ — Γ_{75}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.40±0.17±0.03	9	[1] AUBERT	07AU	BABR	10.6 $e^+e^- \rightarrow \eta\pi^+\pi^-\gamma$

[1] AUBERT 07AU quotes $\Gamma_{ee}^{J/\psi} \cdot B(J/\psi \rightarrow \eta\pi^+\pi^-) \cdot B(\eta \rightarrow 3\pi) = 0.51 \pm 0.22 \pm 0.03$ eV.

$\Gamma(\eta\rho)/\Gamma_{total}$ — Γ_{76}/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	$J/\psi \rightarrow$ hadrons
0.193±0.013±0.029		COFFMAN	88	MRK3	$e^+e^- \rightarrow \pi^+\pi^-\eta$

$\Gamma(\omega\eta'(958))/\Gamma_{total}$ — Γ_{77}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.182±0.021 OUR AVERAGE					
0.226±0.043	218	[1] ABLIKIM	06F	BES2	$J/\psi \rightarrow \omega\eta'$
$0.18\ ^{+0.10}_{-0.08} \pm 0.03$	6	JOUSSET	90	DM2	$J/\psi \rightarrow$ hadrons
0.166±0.017±0.019		COFFMAN	88	MRK3	$e^+e^- \rightarrow 3\pi\eta'$

[1] Using $B(\eta' \rightarrow \pi^+\pi^-\eta) = (44.3 \pm 1.5)\%$, $B(\eta' \rightarrow \pi^+\pi^-\gamma) = 29.5 \pm 1.0\%$, $B(\eta \rightarrow 2\gamma) = 39.43 \pm 0.26\%$, and $B(\omega \rightarrow \pi^+\pi^-\pi^0) = (89.1 \pm 0.7)\%$.

$\Gamma(\omega f_0(980))/\Gamma_{total}$ — Γ_{78}/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 $B(f_0(980) \rightarrow \pi\pi) = 0.78$.

$\Gamma(\rho\eta'(958))/\Gamma_{total}$ — Γ_{79}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.105±0.018 OUR AVERAGE					
0.083±0.030±0.012	19	JOUSSET	90	DM2	$J/\psi \rightarrow$ hadrons
0.114±0.014±0.016		COFFMAN	88	MRK3	$J/\psi \rightarrow \pi^+\pi^-\eta'$

$\Gamma(a_2(1320)^{\pm}\pi^{\mp})/\Gamma_{total}$ — Γ_{80}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<43	90	BRAUNSCH...	76	DASP	e^+e^-

$\Gamma(K\overline{K}{}^*_2(1430)+\text{c.c.})/\Gamma_{total}$ — Γ_{81}/Γ

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

$\Gamma(K_1(1270)^{\pm}K^{\mp})/\Gamma_{total}$ — Γ_{82}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<3.0	90	[1] BAI	99C	BES	e^+e^-

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

$\Gamma(K^*_2(1430)^0\overline{K}{}^*_2(1430)^0)/\Gamma_{total}$ — Γ_{85}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<29	90	VANNUCCI	77	MRK1	$e^+e^- \rightarrow \pi^+\pi^-K^+K^-$

$\Gamma(\phi\pi^0)/\Gamma_{total}$ — Γ_{86}/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	$e^+e^- \rightarrow J/\psi \rightarrow K^+K^-\gamma\gamma$
0.124±0.033±0.030		35 ± 9	[2] ABLIKIM	15K	BES3	$e^+e^- \rightarrow J/\psi \rightarrow K^+K^-\gamma\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<6.4	90		[3] ABLIKIM	05B	BES2	$e^+e^- \rightarrow J/\psi \rightarrow \phi\gamma\gamma$
<6.8	90		COFFMAN	88	MRK3	$e^+e^- \rightarrow K^+K^-\pi^0$

[1] Corresponding to one of the two fit solutions with $\delta = (-95.9 \pm 1.5)^{\circ}$ for the phase angle between the resonant $J/\psi \rightarrow \phi\pi^0$ and non-phi $J/\psi \rightarrow K^+K^-\pi^0$ 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 $J/\psi \rightarrow \phi\pi^0$ and non-phi $J/\psi \rightarrow K^+K^-\pi^0$ contributions.
[3] Superseded by ABLIKIM 15K.

$\Gamma(\phi\eta(1405) \rightarrow \phi\eta\pi^+\pi^-)/\Gamma_{total}$ — Γ_{87}/Γ

VALUE (units 10^{-5})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
2.01±0.58±0.82		172	[1] ABLIKIM	15H	BES3	$e^+e^- \rightarrow J/\psi \rightarrow \phi\eta\pi^+\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
< 17	90		[2] FALVARD	88	DM2	$J/\psi \rightarrow$ hadrons

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

$\Gamma(\omega f'_2(1525))/\Gamma_{total}$ — Γ_{88}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<2.2	90	[1] VANNUCCI	77	MRK1	$e^+e^- \rightarrow \pi^+\pi^-\pi^0 K^+K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<2.8	90	[1] FALVARD	88	DM2	$J/\psi \rightarrow$ hadrons

[1] Re-evaluated assuming B($f'_2(1525) \rightarrow K\overline{K}$) = 0.713.

$\Gamma(\omega X(1835) \rightarrow \omega p\overline{p})/\Gamma_{total}$ — Γ_{89}/Γ

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

$\Gamma(\phi X(1835) \rightarrow \phi p\overline{p})/\Gamma_{total}$ — Γ_{90}/Γ

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

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

$\Gamma(\phi X(1835) \rightarrow \phi\eta\pi^+\pi^-)/\Gamma_{total}$ — Γ_{91}/Γ

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

$\Gamma(\phi X(1870) \rightarrow \phi\eta\pi^+\pi^-)/\Gamma_{total}$ — Γ_{92}/Γ

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

$\Gamma(\eta\phi(2170) \rightarrow \eta\phi f_0(980) \rightarrow \eta\phi\pi^+\pi^-)/\Gamma_{total}$ — Γ_{93}/Γ

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

$\Gamma(\eta\phi(2170) \rightarrow \eta K^*(892)^0\overline{K}^*(892)^0)/\Gamma_{total}$ — Γ_{94}/Γ

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

$\Gamma(\Sigma(1385)^0\overline{\Lambda}+\text{c.c.})/\Gamma_{total}$ — Γ_{95}/Γ

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
< 0.82	90	ABLIKIM	13F	BES3	$J/\psi \rightarrow p\overline{p}\pi^+\pi^-\gamma\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<20	90	HENRARD	87	DM2	e^+e^-

$\Gamma(\Delta(1232)^+\overline{p})/\Gamma_{total}$ — Γ_{96}/Γ

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

$\Gamma(\Lambda(1520)\overline{\Lambda}+\text{c.c.} \rightarrow \gamma\Lambda\overline{\Lambda})/\Gamma_{total}$ — Γ_{97}/Γ

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

$\Gamma(\Theta(1540)\overline{\Theta}(1540) \to K^0_S p K^- \overline{n} + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{98}/Γ

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

$\Gamma(\Theta(1540) K^- \overline{n} \to K^0_S p K^- \overline{n})/\Gamma_{\text{total}}$ Γ_{99}/Γ

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

$\Gamma(\Theta(1540) K^0_S \overline{p} \to K^0_S \overline{p} K^+ n)/\Gamma_{\text{total}}$ Γ_{100}/Γ

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

$\Gamma(\overline{\Theta}(1540) K^+ n \to K^0_S \overline{p} K^+ n)/\Gamma_{\text{total}}$ Γ_{101}/Γ

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

$\Gamma(\overline{\Theta}(1540) K^0_S p \to K^0_S p K^- \overline{n})/\Gamma_{\text{total}}$ Γ_{102}/Γ

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

$\Gamma(\Sigma^0 \overline{\Lambda})/\Gamma_{\text{total}}$ Γ_{103}/Γ

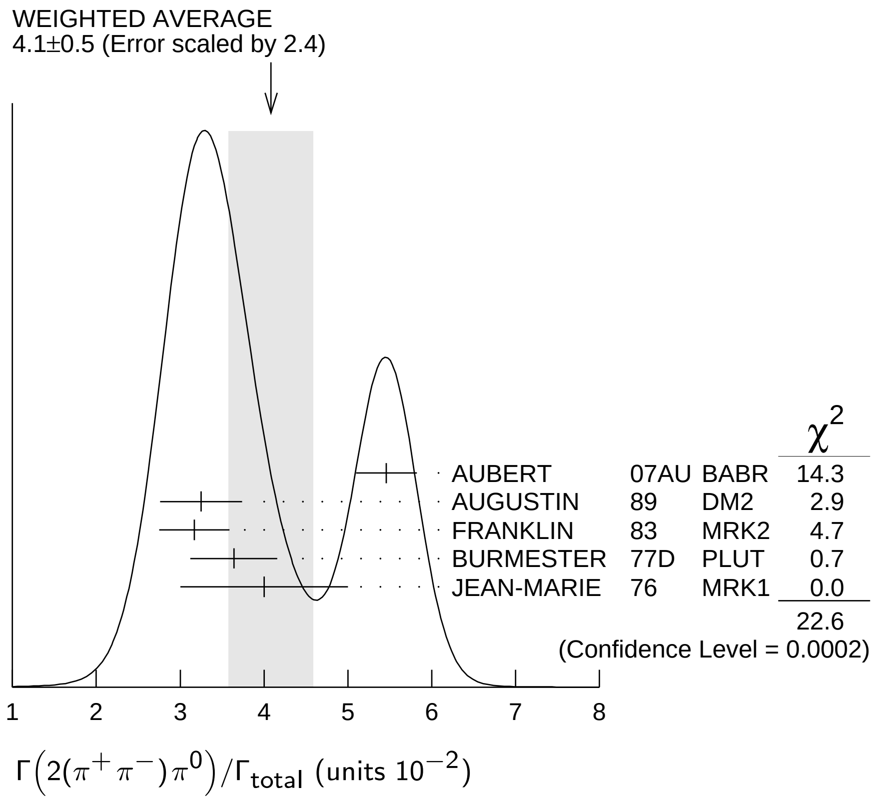
VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<0.9	90	HENRARD	87	DM2	$e^+ e^-$

STABLE HADRONS

$\Gamma(2(\pi^+\pi^-)\pi^0)/\Gamma_{\text{total}}$ Γ_{104}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
4.1 ±0.5 OUR AVERAGE		Error includes scale factor of 2.4. See the ideogram below.			
5.46±0.34±0.14	4990	[1] AUBERT	07AU	BABR	10.6 $e^+ e^- \to 2(\pi^+\pi^-)\pi^0\gamma$
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] AUBERT 07AU reports $[\Gamma(J/\psi(1S) \to 2(\pi^+\pi^-)\pi^0)/\Gamma_{\text{total}}] \times [\Gamma(J/\psi(1S) \to e^+e^-)] = 0.303 \pm 0.005 \pm 0.018$ keV which we divide by our best value $\Gamma(J/\psi(1S) \to e^+e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.



$\Gamma\big(\omega\pi^+\pi^-\big)/\Gamma\big(2(\pi^+\pi^-)\pi^0\big)$ — Γ_{13}/Γ_{104}

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.3	[1] JEAN-MARIE	76	MRK1	e^+e^-

[1] Final state $(\pi^+\pi^-)\pi^0$ under the assumption that $\pi\pi$ is isospin 0.

$\Gamma\big(3(\pi^+\pi^-)\pi^0\big)/\Gamma_{total}$ — Γ_{105}/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^-

$\Gamma\big(\pi^+\pi^-\pi^0\big)/\Gamma_{total}$ — Γ_{106}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
21.1 ±0.7 OUR AVERAGE		Error includes scale factor of 1.5. See the ideogram below.			
$21.37\pm0.04^{+0.64}_{-0.62}$	1.8M	[1,2] ABLIKIM	12H	BES3	$e^+e^- \to J/\psi$
23.0 ±2.0 ±0.4	256	[3] AUBERT	07AU	BABR	10.6 $e^+e^- \to J/\psi\pi^+\pi^-\gamma$
21.8 ±1.9		[4,5] AUBERT,B	04N	BABR	10.6 $e^+e^- \to \pi^+\pi^-\pi^0\gamma$
21.84±0.05±2.01	220k	[1,5] 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] From $J/\psi \to \pi^+\pi^-\pi^0$ events directly.

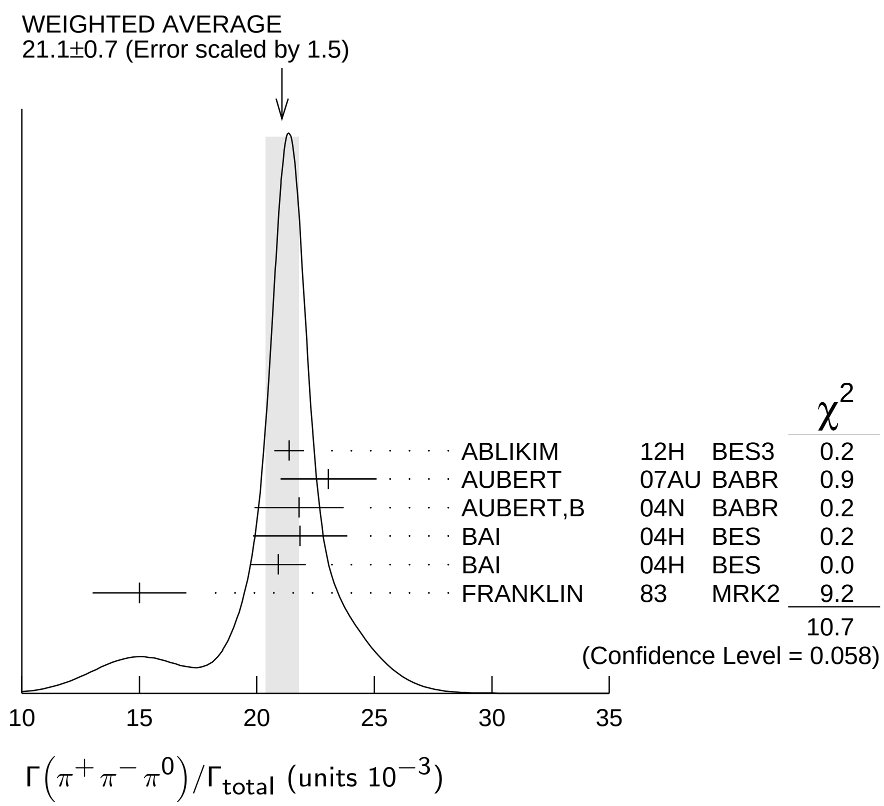
[2] The quoted systematic error includes a contribution of 1.23% (added in quadrature) from the uncertainty on the number of J/ψ events.

[3] AUBERT 07AU reports $[\Gamma(J/\psi(1S) \to \pi^+\pi^-\pi^0)/\Gamma_{\text{total}}] \times [\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) \times \Gamma(\psi(2S) \to e^+e^-)/\Gamma_{\text{total}}] = (18.6 \pm 1.2 \pm 1.1) \times 10^{-3}$ keV which we divide by our best value $\Gamma(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) \times \Gamma(\psi(2S) \to e^+e^-)/\Gamma_{\text{total}} = 0.807 \pm 0.013$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] From the ratio of $\Gamma(e^+e^-)$ B$(\pi^+\pi^-\pi^0)$ and $\Gamma(e^+e^-)$ B$(\mu^+\mu^-)$ (AUBERT 04).

[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$(J/\psi \to \mu^+\mu^-) = 5.88 \pm 0.10\%$.



$\Gamma(\pi^+\pi^-\pi^0 K^+K^-)/\Gamma_{\text{total}}$ $\qquad\qquad$ Γ_{107}/Γ

VALUE (units 10^{-2})	*EVTS*	*DOCUMENT ID*	*TECN*	*COMMENT*
1.79±0.29 OUR AVERAGE Error includes scale factor of 2.2.				
$1.93 \pm 0.14 \pm 0.05$	768	[1] AUBERT 07AU	BABR	10.6 $e^+e^- \to K^+K^-\pi^+\pi^-\pi^0\gamma$
1.2 ± 0.3	309	VANNUCCI 77	MRK1	e^+e^-

[1] AUBERT 07AU reports $[\Gamma(J/\psi(1S) \to \pi^+\pi^-\pi^0 K^+K^-)/\Gamma_{\text{total}}] \times [\Gamma(J/\psi(1S) \to e^+e^-)] = 0.1070 \pm 0.0043 \pm 0.0064$ keV which we divide by our best value $\Gamma(J/\psi(1S) \to e^+e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(4(\pi^+\pi^-)\pi^0)/\Gamma_{total}$ — Γ_{108}/Γ

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

$\Gamma(\pi^+\pi^-K^+K^-)/\Gamma_{total}$ — Γ_{109}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$6.5\pm0.4\pm0.2$	1.6k	[1] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^+\pi^-K^+K^-\gamma$
$6.1\pm0.7\pm0.2$	233	[2] AUBERT	05D	BABR	10.6 $e^+e^- \to K^+K^-\pi^+\pi^-\gamma$
7.2 ± 2.3	205	VANNUCCI	77	MRK1	e^+e^-

[1] Superseded by LEES 12F. AUBERT 07AK reports $[\Gamma(J/\psi(1S) \to \pi^+\pi^-K^+K^-)/\Gamma_{total}] \times [\Gamma(J/\psi(1S) \to e^+e^-)] = (36.3 \pm 1.3 \pm 2.1) \times 10^{-3}$ keV which we divide by our best value $\Gamma(J/\psi(1S) \to e^+e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Superseded by AUBERT 07AK. AUBERT 05D reports $[\Gamma(J/\psi(1S) \to \pi^+\pi^-K^+K^-)/\Gamma_{total}] \times [\Gamma(J/\psi(1S) \to e^+e^-)] = (33.6 \pm 2.7 \pm 2.7) \times 10^{-3}$ keV which we divide by our best value $\Gamma(J/\psi(1S) \to e^+e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

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

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.84±0.28±0.05	73	[1] AUBERT	07AU	BABR	10.6 $e^+e^- \to K^+K^-\pi^+\pi^-\eta\gamma$

[1] AUBERT 07AU reports $[\Gamma(J/\psi(1S) \to \pi^+\pi^-K^+K^-\eta)/\Gamma_{total}] \times [\Gamma(J/\psi(1S) \to e^+e^-)] = (10.2\pm1.3\pm0.8)\times10^{-3}$ keV which we divide by our best value $\Gamma(J/\psi(1S) \to e^+e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\pi^0\pi^0K^+K^-)/\Gamma_{total}$ — Γ_{114}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$2.45\pm0.31\pm0.06$	203 ± 16	[1] AUBERT	07AK	BABR	10.6 $e^+e^- \to \pi^0\pi^0K^+K^-\gamma$

[1] Superseded by LEES 12F. AUBERT 07AK reports $[\Gamma(J/\psi(1S) \to \pi^0\pi^0K^+K^-)/\Gamma_{total}] \times [\Gamma(J/\psi(1S) \to e^+e^-)] = (13.6 \pm 1.1 \pm 1.3) \times 10^{-3}$ keV which we divide by our best value $\Gamma(J/\psi(1S) \to e^+e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(K\overline{K}\pi)/\Gamma_{total}$ — Γ_{115}/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	$e^+e^- \to K^0_S K^\pm\pi^\mp$

$\Gamma(2(\pi^+\pi^-))/\Gamma_{total}$ — Γ_{116}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.57±0.30 OUR AVERAGE					
3.53±0.12±0.29	1107	[1] ABLIKIM	05H	BES2	$e^+e^- \to \psi(2S) \to J/\psi\pi^+\pi^-$, $J/\psi \to 2(\pi^+\pi^-)$
4.0 ±1.0	76	JEAN-MARIE	76	MRK1	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.51±0.34±0.09	270	[2] AUBERT	05D	BABR	$10.6\ e^+e^- \to 2(\pi^+\pi^-)\gamma$

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

[2] AUBERT 05D reports $[\Gamma(J/\psi(1S) \to 2(\pi^+\pi^-))/\Gamma_{total}] \times [\Gamma(J/\psi(1S) \to e^+e^-)] = (19.5 \pm 1.4 \pm 1.3) \times 10^{-3}$ keV which we divide by our best value $\Gamma(J/\psi(1S) \to e^+e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value. Superseded by LEES 12E.

$\Gamma(3(\pi^+\pi^-))/\Gamma_{total}$ — Γ_{117}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
43 ± 4 OUR AVERAGE					
43.0± 2.9±2.8	496	[1] AUBERT	06D	BABR	$10.6\ e^+e^- \to 3(\pi^+\pi^-)\gamma$
40 ±20	32	JEAN-MARIE	76	MRK1	e^+e^-

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

$\Gamma(2(\pi^+\pi^-\pi^0))/\Gamma_{total}$ — Γ_{118}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.62±0.09±0.19	761	[1] AUBERT	06D	BABR	$10.6\ e^+e^- \to 2(\pi^+\pi^-\pi^0)\gamma$

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

$\Gamma(2(\pi^+\pi^-)\eta)/\Gamma_{total}$ — Γ_{119}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.29±0.24 OUR AVERAGE					
2.35±0.39±0.20	85	[1] AUBERT	07AU	BABR	$10.6\ e^+e^- \to 2(\pi^+\pi^-)\eta\gamma$
2.26±0.08±0.27	4839	ABLIKIM	05C	BES2	$e^+e^- \to 2(\pi^+\pi^-)\eta$

[1] AUBERT 07AU quotes $\Gamma_{ee}^{J/\psi} \cdot$ B($J/\psi \to 2(\pi^+\pi^-)\eta$) $\cdot$B($\eta \to \gamma\gamma$) = 5.16 ± 0.85 ± 0.39 eV.

$\Gamma(3(\pi^+\pi^-)\eta)/\Gamma_{total}$ — Γ_{120}/Γ

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

$\Gamma(p\overline{p})/\Gamma_{total}$ — Γ_{121}/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^-
2.15 ±0.16 ±0.06	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 $\pm$0.07 $\pm$0.15	1420	EATON	84	MRK2	e^+e^-
2.5 $\pm$0.4	133	BRANDELIK	79C	DASP	e^+e^-
2.0 $\pm$0.5		BESCH	78	BONA	e^+e^-
2.2 $\pm$0.2	331	[2] PERUZZI	78	MRK1	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.0 $\pm$0.3	48	ANTONELLI	93	SPEC	e^+e^-

[1] WU 06 reports $[\Gamma(J/\psi(1S) \to p\overline{p})/\Gamma_{\text{total}}] \times [B(B^+ \to J/\psi(1S)K^+)] = (2.21 \pm 0.13 \pm 0.10) \times 10^{-6}$ which we divide by our best value $B(B^+ \to J/\psi(1S)K^+) = (1.026 \pm 0.031) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

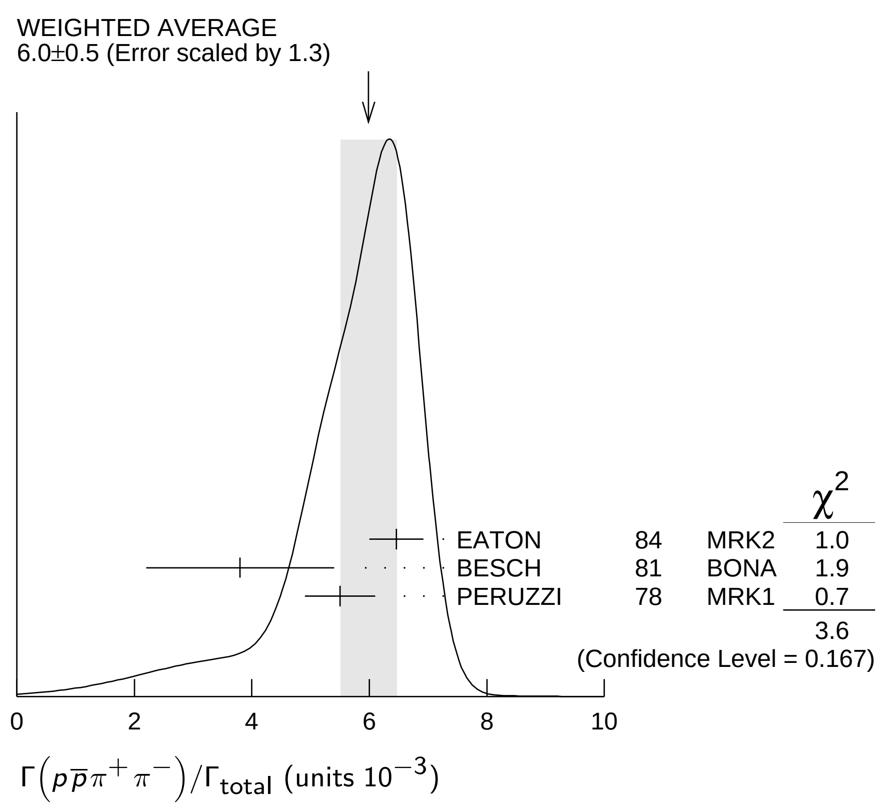
[2] Assuming angular distribution $(1+\cos^2\theta)$.

$\Gamma(p\overline{p}\pi^0)/\Gamma_{\text{total}}$ Γ_{122}/Γ

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

$\Gamma(p\overline{p}\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{123}/Γ

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



$\Gamma(p\overline{p}\pi^+\pi^-\pi^0)/\Gamma_{total}$ — Γ_{124}/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_{125}/Γ

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

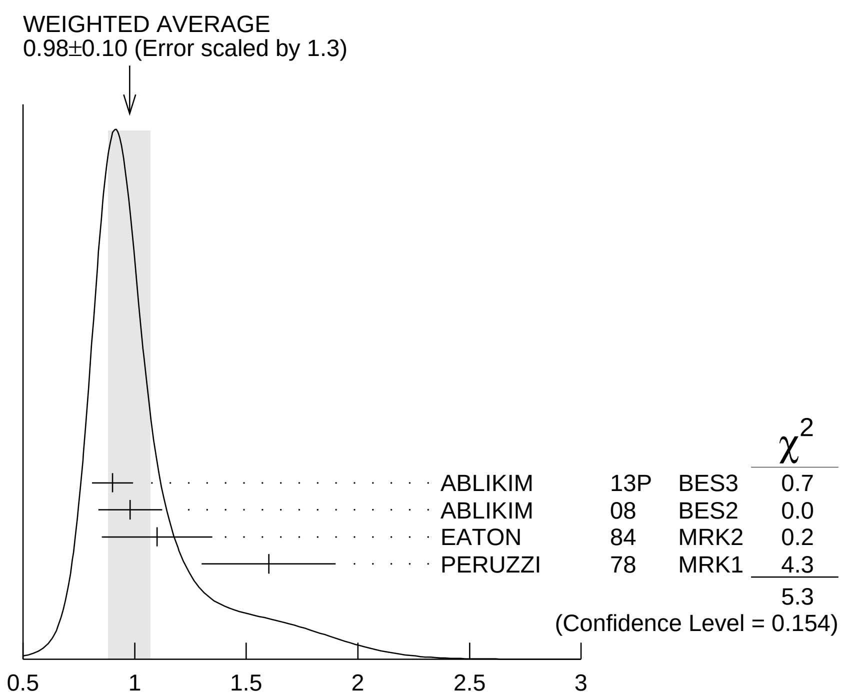
[1] From the combination of $p\overline{p}\eta \to p\overline{p}\gamma\gamma$ and $p\overline{p}\eta \to p\overline{p}\pi^+\pi^-\pi^0$ channels.

$\Gamma(p\overline{p}\rho)/\Gamma_{total}$ — Γ_{126}/Γ

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

$\Gamma(p\overline{p}\omega)/\Gamma_{total}$ — Γ_{127}/Γ

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



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

$\Gamma\big(p\overline{p}\eta'(958)\big)/\Gamma_{total}$ — Γ_{128}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.21 ±0.04 OUR AVERAGE					
0.200±0.023±0.028	265 ± 31	[1] ABLIKIM	09	BES2	e^+e^-
0.68 ±0.23 ±0.17	19	EATON	84	MRK2	e^+e^-
1.8 ±0.6	19	PERUZZI	78	MRK1	e^+e^-

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

$\Gamma\big(p\overline{p}a_0(980) \rightarrow p\overline{p}\pi^0\eta\big)/\Gamma_{total}$ — Γ_{129}/Γ

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

$\Gamma\big(p\overline{p}\phi\big)/\Gamma_{total}$ — Γ_{130}/Γ

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

$\Gamma\big(n\overline{n}\big)/\Gamma_{total}$ — Γ_{131}/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^-

$\Gamma\big(n\overline{n}\pi^+\pi^-\big)/\Gamma_{total}$ — Γ_{132}/Γ

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

$\Gamma\big(\Sigma^+\overline{\Sigma}^-\big)/\Gamma_{total}$ — Γ_{133}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.50±0.10±0.22	399	ABLIKIM	08O	BES2	$e^+e^- \rightarrow J/\psi$

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

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.29±0.09 OUR AVERAGE					
1.15±0.24±0.03		[1] AUBERT	07BD	BABR	10.6 $e^+e^- \rightarrow \Sigma^0\overline{\Sigma}^0\gamma$
1.33±0.04±0.11	1779	ABLIKIM	06	BES2	$J/\psi \rightarrow \Sigma^0\overline{\Sigma}^0$
1.06±0.04±0.23	884 ± 30	PALLIN	87	DM2	$e^+e^- \rightarrow \Sigma^0\overline{\Sigma}^0$
1.58±0.16±0.25	90	EATON	84	MRK2	$e^+e^- \rightarrow \Sigma^0\overline{\Sigma}^0$
1.3 ±0.4	52	PERUZZI	78	MRK1	$e^+e^- \rightarrow \Sigma^0\overline{\Sigma}^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.4 ±2.6	3	BESCH	81	BONA	$e^+e^- \rightarrow \Sigma^+\overline{\Sigma}^-$

[1] AUBERT 07BD reports $[\Gamma(J/\psi(1S) \to \Sigma^0 \overline{\Sigma}^0)/\Gamma_{total}] \times [\Gamma(J/\psi(1S) \to e^+ e^-)] = (6.4 \pm 1.2 \pm 0.6) \times 10^{-3}$ keV which we divide by our best value $\Gamma(J/\psi(1S) \to e^+ e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(2(\pi^+\pi^-)K^+K^-)/\Gamma_{total}$ — Γ_{135}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
47 ± 7 OUR AVERAGE		Error includes scale factor of 1.3.			
49.8 ± 4.2 ± 3.4	205	[1] AUBERT	06D	BABR	10.6 $e^+e^- \to \omega K^+K^- 2(\pi^+\pi^-)\gamma$
31 ± 13	30	VANNUCCI	77	MRK1	e^+e^-

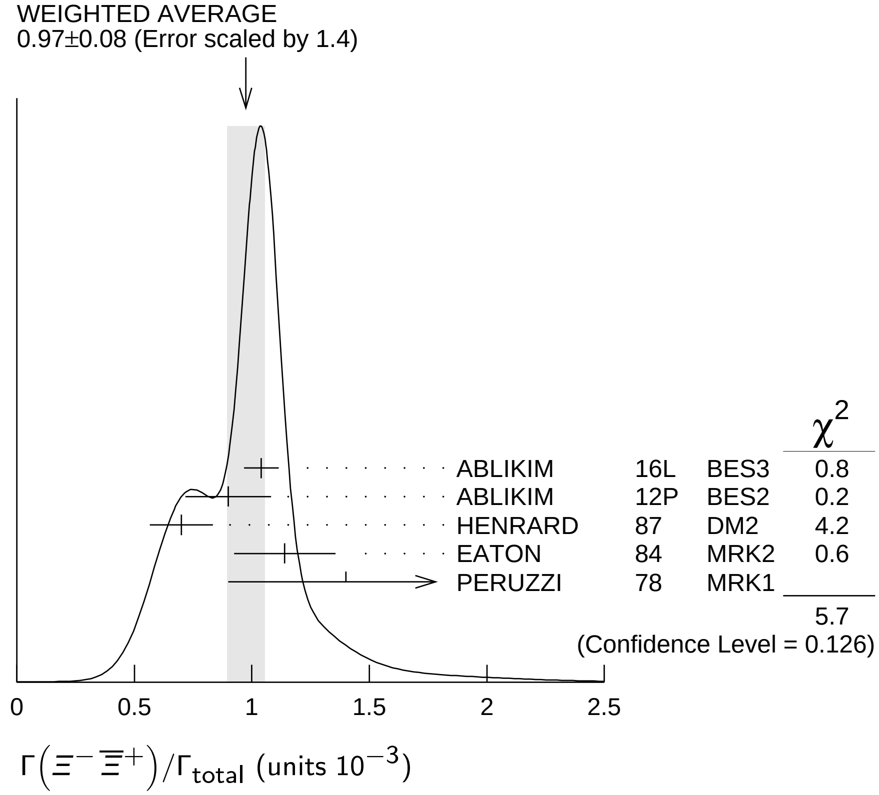
[1] Using $\Gamma(J/\psi \to e^+e^-) = 5.52 \pm 0.14 \pm 0.04$ keV.

$\Gamma(p\overline{n}\pi^-)/\Gamma_{total}$ — Γ_{136}/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	$e^+e^- \to \overline{p}\pi^+$

$\Gamma(\Xi^-\overline{\Xi}^+)/\Gamma_{total}$ — Γ_{140}/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	$e^+e^- \to \Xi^-\overline{\Xi}^+$

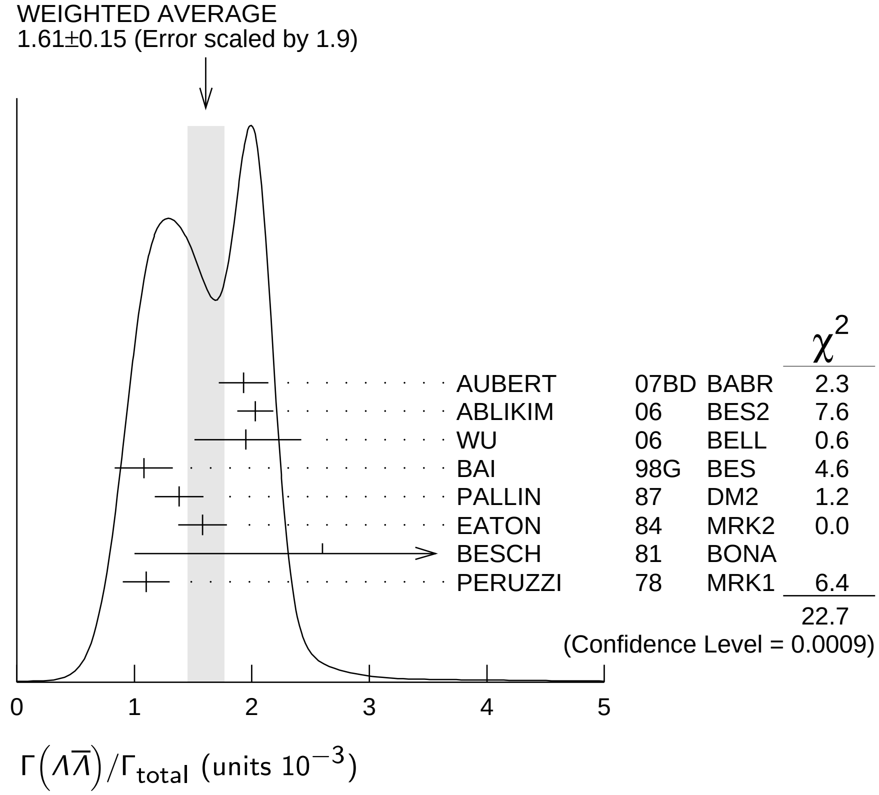


$\Gamma(\Lambda\overline{\Lambda})/\Gamma_{total}$ Γ_{141}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.61±0.15 OUR AVERAGE		Error includes scale factor of 1.9. See the ideogram below.			
1.93±0.21±0.05		[1] AUBERT	07BD	BABR	10.6 $e^+e^- \to \Lambda\overline{\Lambda}\gamma$
2.03±0.03±0.15	8887	ABLIKIM	06	BES2	$J/\psi \to \Lambda\overline{\Lambda}$
$1.9\ ^{+0.5}_{-0.4}\ \pm0.1$	46	[2] 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] AUBERT 07BD reports $[\Gamma(J/\psi(1S) \to \Lambda\overline{\Lambda})/\Gamma_{total}] \times [\Gamma(J/\psi(1S) \to e^+e^-)] = (10.7 \pm 0.9 \pm 0.7) \times 10^{-3}$ keV which we divide by our best value $\Gamma(J/\psi(1S) \to e^+e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] 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 $B(B^+ \to J/\psi(1S)K^+) = (1.026 \pm 0.031) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.



$\Gamma(\Lambda\overline{\Lambda})/\Gamma(p\overline{p})$ — $\Gamma_{141}/\Gamma_{121}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.90^{+0.15}_{-0.14}\pm0.10$	[1] WU	06	BELL	$B^+ \rightarrow p\overline{p}K^+$, $\Lambda\overline{\Lambda}K^+$

[1] Not independent of other $J/\psi \rightarrow \Lambda\overline{\Lambda}$, $p\overline{p}$ branching ratios reported by WU 06.

$\Gamma(\Lambda\overline{\Sigma}^-\pi^+ \text{(or c.c.)})/\Gamma_{total}$ — Γ_{142}/Γ

VALUE (units 10^{-3})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.83 ±0.07 OUR AVERAGE	Error includes scale factor of 1.2.				
$0.770\pm0.051\pm0.083$	335	[1] ABLIKIM	07H	BES2	$e^+e^- \rightarrow \overline{\Lambda}\Sigma^+\pi^-$
$0.747\pm0.056\pm0.076$	254	[1] ABLIKIM	07H	BES2	$e^+e^- \rightarrow \Lambda\overline{\Sigma}^-\pi^+$
$0.90\pm0.06\pm0.16$	225 ± 15	HENRARD	87	DM2	$e^+e^- \rightarrow \overline{\Lambda}\Sigma^+\pi^-$
$1.11\pm0.06\pm0.20$	342 ± 18	HENRARD	87	DM2	$e^+e^- \rightarrow \Lambda\overline{\Sigma}^-\pi^+$
$1.53\pm0.17\pm0.38$	135	EATON	84	MRK2	$e^+e^- \rightarrow \overline{\Lambda}\Sigma^+\pi^-$
$1.38\pm0.21\pm0.35$	118	EATON	84	MRK2	$e^+e^- \rightarrow \Lambda\overline{\Sigma}^-\pi^+$

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

$\Gamma(pK^-\overline{\Lambda})/\Gamma_{total}$ — Γ_{143}/Γ

VALUE (units 10^{-3})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.89\pm0.07\pm0.14$	307	EATON	84	MRK2	e^+e^-

$\Gamma(2(K^+K^-))/\Gamma_{total}$ Γ_{144}/Γ

VALUE (units 10^{-3})	EVTS		DOCUMENT ID		TECN	COMMENT
0.74±0.07 OUR AVERAGE						
0.72±0.06±0.05	287 ± 24		LEES	12F	BABR	10.6 $e^+e^- \rightarrow 2(K^+K^-)\gamma$
1.4 $^{+0.5}_{-0.4}$ ±0.2	$11.0^{+4.3}_{-3.5}$	1	HUANG	03	BELL	$B^+ \rightarrow 2(K^+K^-)K^+$
0.7 ±0.3			VANNUCCI	77	MRK1	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •						
0.74±0.09±0.02	156 ± 15	2	AUBERT	07AK	BABR	10.6 $e^+e^- \rightarrow 2(K^+K^-)\gamma$
0.72±0.17±0.02	38	3	AUBERT	05D	BABR	10.6 $e^+e^- \rightarrow 2(K^+K^-)\gamma$

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

[2] Superseded by LEES 12F. AUBERT 07AK reports $[\Gamma(J/\psi(1S) \rightarrow 2(K^+K^-))/\Gamma_{total}] \times [\Gamma(J/\psi(1S) \rightarrow e^+e^-)] = (4.11 \pm 0.39 \pm 0.30) \times 10^{-3}$ keV which we divide by our best value $\Gamma(J/\psi(1S) \rightarrow e^+e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] Superseded by AUBERT 07AK. AUBERT 05D reports $[\Gamma(J/\psi(1S) \rightarrow 2(K^+K^-))/\Gamma_{total}] \times [\Gamma(J/\psi(1S) \rightarrow e^+e^-)] = (4.0 \pm 0.7 \pm 0.6) \times 10^{-3}$ keV which we divide by our best value $\Gamma(J/\psi(1S) \rightarrow e^+e^-) = 5.55 \pm 0.14 \pm 0.02$ keV. 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_{145}/Γ

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

$\Gamma(K^+K^-)/\Gamma_{total}$ Γ_{146}/Γ

VALUE (units 10^{-4})	EVTS		DOCUMENT ID		TECN	COMMENT
2.86±0.09±0.19	1k	1	METREVELI	12		$\psi(2S) \rightarrow \pi^+\pi^-K^+K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
3.22±0.20±0.12	462	2,3	LEES	15J	BABR	$e^+e^- \rightarrow K^+K^-\gamma$
3.50±0.20±0.12	462	3,4	LEES	15J	BABR	$e^+e^- \rightarrow K^+K^-\gamma$
2.39±0.24±0.22	107	5	BALTRUSAIT...	85D	MRK3	e^+e^-
2.2 ±0.9	6	5	BRANDELIK	79C	DASP	e^+e^-

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

[2] sinϕ > 0.

[3] Using $\Gamma(J/\psi \rightarrow e^+e^-) = (5.55 \pm 0.14)$ keV.

[4] sinϕ < 0.

[5] Interference with non-resonant K^+K^- production not taken into account.

$\Gamma(K^0_S K^0_L)/\Gamma_{total}$ Γ_{147}/Γ

VALUE (units 10^{-4})	EVTS		DOCUMENT ID		TECN	COMMENT
2.1 ±0.4 OUR AVERAGE	Error includes scale factor of 3.2.					
2.62±0.15±0.14	0.3k	1	METREVELI	12		$\psi(2S) \rightarrow \pi^+\pi^-K^0_S K^0_L$
1.82±0.04±0.13	2.1k	2	BAI	04A	BES2	$J/\psi \rightarrow K^0_S K^0_L \rightarrow \pi^+\pi^- X$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
1.18±0.12±0.18			JOUSSET	90	DM2	$J/\psi \rightarrow$ 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($K^0_S \rightarrow \pi^+\pi^-$) = 0.6868 ± 0.0027.

$\Gamma(\Lambda\overline{\Lambda}\pi^+\pi^-)/\Gamma_{total}$ Γ_{148}/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_{149}/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	$J/\psi \rightarrow p\overline{p}\pi^+\pi^-\gamma\gamma$
26.2±6.0 ±4.4	44	[2] ABLIKIM	07H	BES2	$e^+e^- \rightarrow \psi(2S)$

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

$\Gamma(\Lambda\overline{\Lambda}\pi^0)/\Gamma_{total}$ Γ_{150}/Γ

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

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

$\Gamma(\overline{\Lambda}nK^0_S + c.c.)/\Gamma_{total}$ Γ_{151}/Γ

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

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

$\Gamma(\pi^+\pi^-)/\Gamma_{total}$ Γ_{152}/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		$\psi(2S) \rightarrow 2(\pi^+\pi^-)$
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.

$\Gamma(\Lambda\overline{\Sigma} + c.c.)/\Gamma_{total}$ Γ_{153}/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	$J/\psi \rightarrow \Lambda\overline{\Sigma}^0$
2.92±0.22±0.24		308 ± 24	[2] ABLIKIM	12B	BES3	$J/\psi \rightarrow \overline{\Lambda}\Sigma^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<15	90		PERUZZI	78	MRK1	$e^+e^- \rightarrow \Lambda X$

[1] ABLIKIM 12B quotes B($J/\psi \rightarrow \Lambda\overline{\Sigma}^0$) which we multiply by 2.
[2] ABLIKIM 12B quotes B($J/\psi \rightarrow \overline{\Lambda}\Sigma^0$) which we multiply by 2.

$\Gamma(K^0_S K^0_S)/\Gamma_{total}$ — Γ_{154}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<0.01	95	[1] BAI	04D	BES	$e^+ e^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.052	90	[1] BALTRUSAIT...	85C	MRK3	$e^+ e^-$

[1] Forbidden by *CP*.

RADIATIVE DECAYS

$\Gamma(3\gamma)/\Gamma_{total}$ — Γ_{155}/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_{156}/Γ

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

$\Gamma(5\gamma)/\Gamma_{total}$ — Γ_{157}/Γ

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

$\Gamma(\gamma\pi^0\pi^0)/\Gamma_{total}$ — Γ_{158}/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.

$\Gamma(\gamma\eta\pi^0)/\Gamma_{total}$ — Γ_{159}/Γ

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

$\Gamma(\gamma a_0(980)^0 \to \gamma\eta\pi^0)/\Gamma_{total}$ — Γ_{160}/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_{161}/Γ

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

$\Gamma(\gamma\eta_c(1S))/\Gamma_{total}$ Γ_{162}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.7 ±0.4 OUR AVERAGE Error includes scale factor of 1.5.					
2.01±0.32±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. • • •					
seen		ANASHIN	14	KEDR	$J/\psi \to \gamma\eta_c$
0.79±0.20	273 ± 43	[2] AUBERT	06E	BABR	$B^\pm \to K^\pm X_{c\overline{c}}$
seen	16	BALTRUSAIT...84		MRK3	$J/\psi \to 2\phi\gamma$

[1] MITCHELL 09 reports $(1.98 \pm 0.09 \pm 0.30) \times 10^{-2}$ from a measurement of $[\Gamma(J/\psi(1S) \to \gamma\eta_c(1S))/\Gamma_{total}] \times [B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)]$ 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 $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (34.49 \pm 0.30) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

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

$\Gamma(\gamma\eta_c(1S) \to 3\gamma)/\Gamma_{total}$ Γ_{163}/Γ

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
$3.8^{+1.3}_{-1.0}$ OUR AVERAGE Error includes scale factor of 1.1.					
4.5±1.2±0.6	33 ± 9	ABLIKIM	13I	BES3	$\psi(2S) \to \pi^+\pi^- J/\psi$
$1.2^{+2.7}_{-1.1}\pm0.3$	$1.2^{+2.8}_{-1.1}$	ADAMS	08	CLEO	$\psi(2S) \to \pi^+\pi^- J/\psi$

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

$\Gamma(\gamma\eta\pi\pi)/\Gamma_{total}$ Γ_{165}/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.

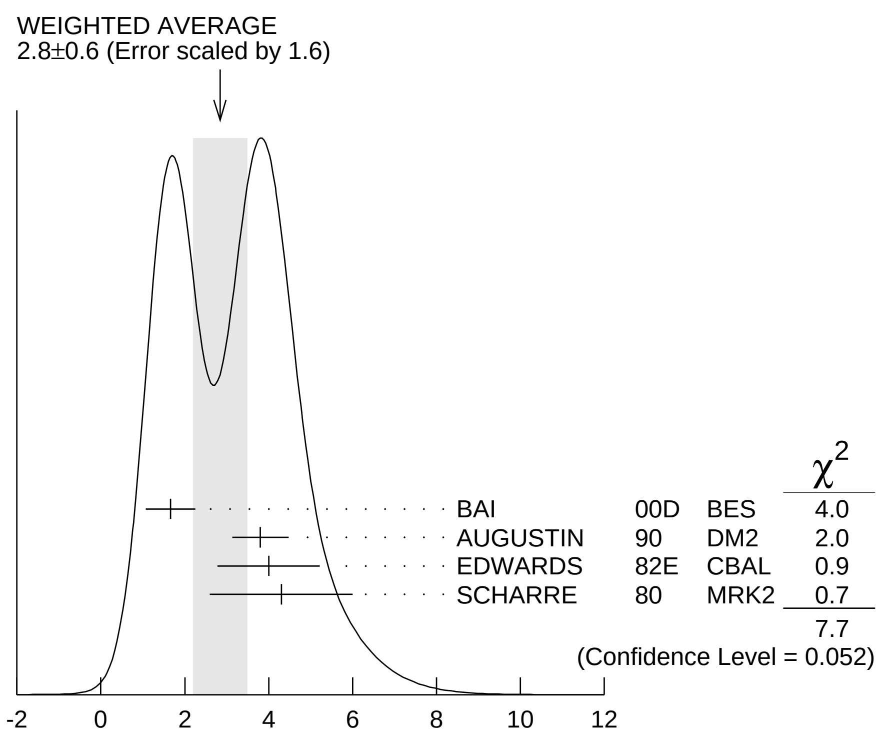
$\Gamma(\gamma\eta_2(1870) \to \gamma\eta\pi^+\pi^-)/\Gamma_{total}$ Γ_{166}/Γ

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

$\Gamma(\gamma\eta(1405/1475) \to \gamma K\overline{K}\pi)/\Gamma_{total}$ Γ_{167}/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.		
$1.66 \pm 0.1 \pm 0.58$	[1,2] BAI 00D	BES	$J/\psi \to \gamma K^{\pm} K^0_S \pi^{\mp}$
$3.8 \pm 0.3 \pm 0.6$	[3] AUGUSTIN 90	DM2	$J/\psi \to \gamma K\overline{K}\pi$
$4.0 \pm 0.7 \pm 1.0$	[3] EDWARDS 82E	CBAL	$J/\psi \to K^+ K^- \pi^0 \gamma$
4.3 ± 1.7	[3,4] SCHARRE 80	MRK2	$e^+ e^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$1.78 \pm 0.21 \pm 0.33$	[3,5,6] AUGUSTIN 92	DM2	$J/\psi \to \gamma K\overline{K}\pi$
$0.83 \pm 0.13 \pm 0.18$	[3,7,8] AUGUSTIN 92	DM2	$J/\psi \to \gamma K\overline{K}\pi$
$0.66^{+0.17}_{-0.16}{}^{+0.24}_{-0.15}$	[3,6,9] BAI 90C	MRK3	$J/\psi \to \gamma K^0_S K^{\pm} \pi^{\mp}$
$1.03^{+0.21}_{-0.18}{}^{+0.26}_{-0.19}$	[3,8,10] BAI 90C	MRK3	$J/\psi \to \gamma K^0_S K^{\pm} \pi^{\mp}$

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



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

$\Gamma(\gamma\eta(1405/1475) \rightarrow \gamma\gamma\rho^0)/\Gamma_{total}$ — Γ_{168}/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	$J/\psi \rightarrow \gamma\gamma\pi^+\pi^-$
0.64±0.12±0.07	[1] COFFMAN	90	MRK3	$J/\psi \rightarrow \gamma\gamma\pi^+\pi^-$

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

$\Gamma(\gamma\eta(1405/1475) \rightarrow \gamma\eta\pi^+\pi^-)/\Gamma_{total}$ — Γ_{169}/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	$J/\psi \rightarrow \gamma\eta\pi^+\pi^-$
3.38±0.33±0.64		[1] BOLTON	92B	MRK3	$J/\psi \rightarrow \gamma\eta\pi^+\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
7.0 ±0.6 ±1.1	261	[2] AUGUSTIN	90	DM2	$J/\psi \rightarrow \gamma\eta\pi^+\pi^-$

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

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

$\Gamma(\gamma\eta(1405/1475) \rightarrow \gamma\gamma\phi)/\Gamma_{total}$ — Γ_{170}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<0.82	95	BAI	04J	BES2	$J/\psi \rightarrow \gamma\gamma K^+K^-$

$\Gamma(\gamma\rho\rho)/\Gamma_{total}$ — Γ_{171}/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_{172}/Γ

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

$\Gamma(\gamma\rho\phi)/\Gamma_{total}$ — Γ_{173}/Γ

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

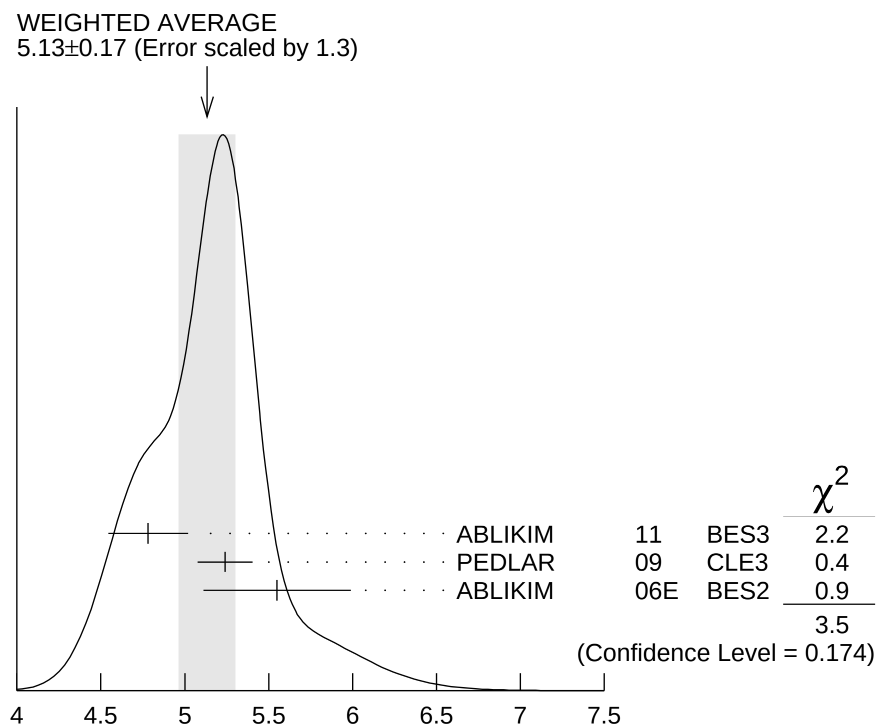
$\Gamma(\gamma\eta'(958))/\Gamma_{total}$ — Γ_{174}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
5.13±0.17 OUR AVERAGE		Error includes scale factor of 1.3. See the ideogram below.			
4.78±0.22±0.08		[1] ABLIKIM	11	BES3	$J/\psi \rightarrow \eta'\gamma$
5.24±0.12±0.11		PEDLAR	09	CLE3	$J/\psi \rightarrow \eta'\gamma$
5.55±0.44	35k	ABLIKIM	06E	BES2	$J/\psi \rightarrow \eta'\gamma$

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

$4.50 \pm 0.14 \pm 0.53$		BOLTON	92B	MRK3	$J/\psi \to \gamma\pi^+\pi^-\eta$, $\eta \to \gamma\gamma$
$4.30 \pm 0.31 \pm 0.71$		BOLTON	92B	MRK3	$J/\psi \to \gamma\pi^+\pi^-\eta$, $\eta \to \pi^+\pi^-\pi^0$
$4.04 \pm 0.16 \pm 0.85$	622	AUGUSTIN	90	DM2	$J/\psi \to \gamma\eta\pi^+\pi^-$
$4.39 \pm 0.09 \pm 0.66$	2420	AUGUSTIN	90	DM2	$J/\psi \to \gamma\gamma\pi^+\pi^-$
$4.1 \pm 0.3 \pm 0.6$		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 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 $B(\eta'(958) \to \pi^+\pi^-\eta) = (42.6 \pm 0.7) \times 10^{-2}$, $B(\eta \to 2\gamma) = (39.41 \pm 0.20) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

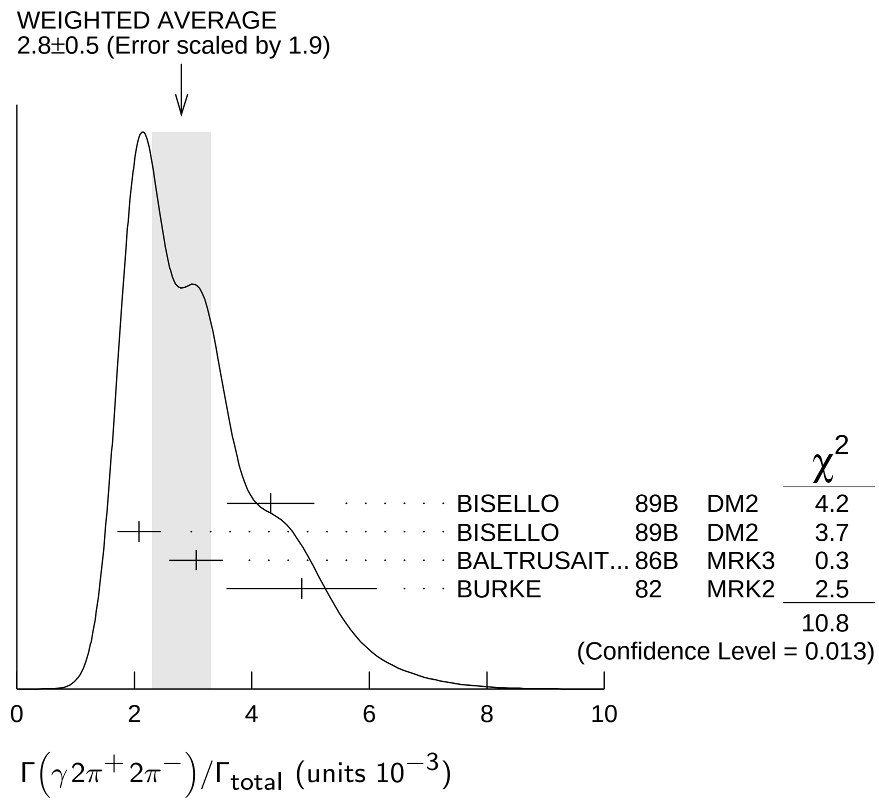


$\Gamma\big(\gamma\eta'(958)\big)/\Gamma_{total}$ (units 10^{-3})

$\Gamma(\gamma 2\pi^+ 2\pi^-)/\Gamma_{total}$ Γ_{175}/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.			
$4.32 \pm 0.14 \pm 0.73$	[1] BISELLO	89B	DM2	$J/\psi \to 4\pi\gamma$
$2.08 \pm 0.13 \pm 0.35$	[2] BISELLO	89B	DM2	$J/\psi \to 4\pi\gamma$
$3.05 \pm 0.08 \pm 0.45$	[2] BALTRUSAIT...	86B	MRK3	$J/\psi \to 4\pi\gamma$
$4.85 \pm 0.45 \pm 1.20$	[3] BURKE	82	MRK2	e^+e^-

[1] 4π mass less than 3.0 GeV.
[2] 4π mass less than 2.0 GeV.
[3] 4π mass less than 2.5 GeV.



$\Gamma(\gamma f_2(1270) f_2(1270))/\Gamma_{\text{total}}$ Γ_{176}/Γ

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

$\Gamma(\gamma f_2(1270) f_2(1270)(\text{non resonant}))/\Gamma_{\text{total}}$ Γ_{177}/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.

$\Gamma(\gamma K^+ K^- \pi^+ \pi^-)/\Gamma_{\text{total}}$ Γ_{178}/Γ

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

$\Gamma(\gamma f_4(2050))/\Gamma_{\text{total}}$ Γ_{179}/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 $= 0.167$.

$\Gamma(\gamma\omega\omega)/\Gamma_{total}$ Γ_{180}/Γ

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

$\Gamma(\gamma\eta(1405/1475) \to \gamma\rho^0\rho^0)/\Gamma_{total}$ Γ_{181}/Γ

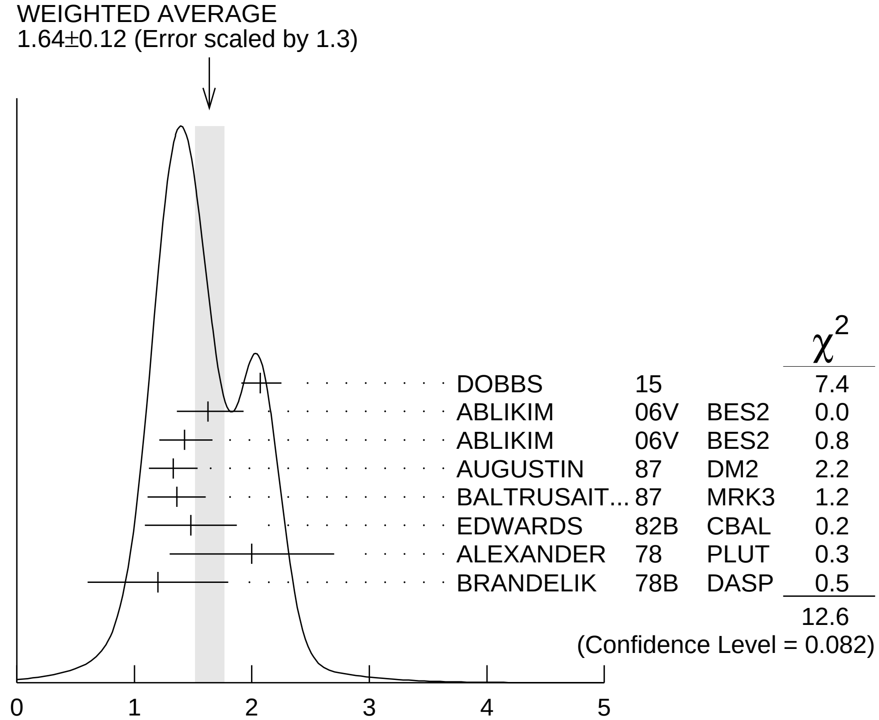
VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
1.7 ±0.4 OUR AVERAGE Error includes scale factor of 1.3.				
2.1 ±0.4	BUGG	95	MRK3	$J/\psi \to \gamma\pi^+\pi^-\pi^+\pi^-$
1.36±0.38	[1,2] BISELLO	89B	DM2	$J/\psi \to 4\pi\gamma$

[1] Estimated by us from various fits.
[2] Includes unknown branching fraction to $\rho^0\rho^0$.

$\Gamma(\gamma f_2(1270))/\Gamma_{total}$ Γ_{182}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.64±0.12 OUR AVERAGE Error includes scale factor of 1.3. See the ideogram below.					
$2.07\pm0.16^{+0.02}_{-0.07}$	2.4k	[1,2] DOBBS	15		$J/\psi \to \gamma\pi\pi$
$1.63\pm0.26^{+0.02}_{-0.06}$		[3] ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^+\pi^-$
$1.42\pm0.21^{+0.01}_{-0.05}$		[4] ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^0\pi^0$
1.33±0.05±0.20		[5] AUGUSTIN	87	DM2	$J/\psi \to \gamma\pi^+\pi^-$
1.36±0.09±0.23		[5] BALTRUSAIT...	87	MRK3	$J/\psi \to \gamma\pi^+\pi^-$
1.48±0.25±0.30	178	EDWARDS	82B	CBAL	$e^+e^- \to 2\pi^0\gamma$
2.0 ±0.7	35	ALEXANDER	78	PLUT	e^+e^-
1.2 ±0.6	30	[6] BRANDELIK	78B	DASP	$e^+e^- \to \pi^+\pi^-\gamma$

[1] Using CLEO-c data but not authored by the CLEO Collaboration.
[2] DOBBS 15 reports $[\Gamma(J/\psi(1S) \to \gamma f_2(1270))/\Gamma_{total}] \times [B(f_2(1270) \to \pi\pi)] = (1.744 \pm 0.052 \pm 0.122) \times 10^{-3}$ which we divide by our best value $B(f_2(1270) \to \pi\pi) = (84.2^{+2.9}_{-0.9}) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.
[3] ABLIKIM 06V reports $[\Gamma(J/\psi(1S) \to \gamma f_2(1270))/\Gamma_{total}] \times [B(f_2(1270) \to \pi\pi)] = (1.371 \pm 0.010 \pm 0.222) \times 10^{-3}$ which we divide by our best value $B(f_2(1270) \to \pi\pi) = (84.2^{+2.9}_{-0.9}) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.
[4] ABLIKIM 06V reports $[\Gamma(J/\psi(1S) \to \gamma f_2(1270))/\Gamma_{total}] \times [B(f_2(1270) \to \pi\pi)] = (1.200 \pm 0.027 \pm 0.174) \times 10^{-3}$ which we divide by our best value $B(f_2(1270) \to \pi\pi) = (84.2^{+2.9}_{-0.9}) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.
[5] Estimated using $B(f_2(1270) \to \pi\pi)=0.843 \pm 0.012$. 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.



$\Gamma\big(\gamma f_2(1270)\big)/\Gamma_{\text{total}}$ (units 10^{-3})

$\Gamma\big(\gamma f_0(1370) \to \gamma K\overline{K}\big)/\Gamma_{\text{total}}$ Γ_{183}/Γ

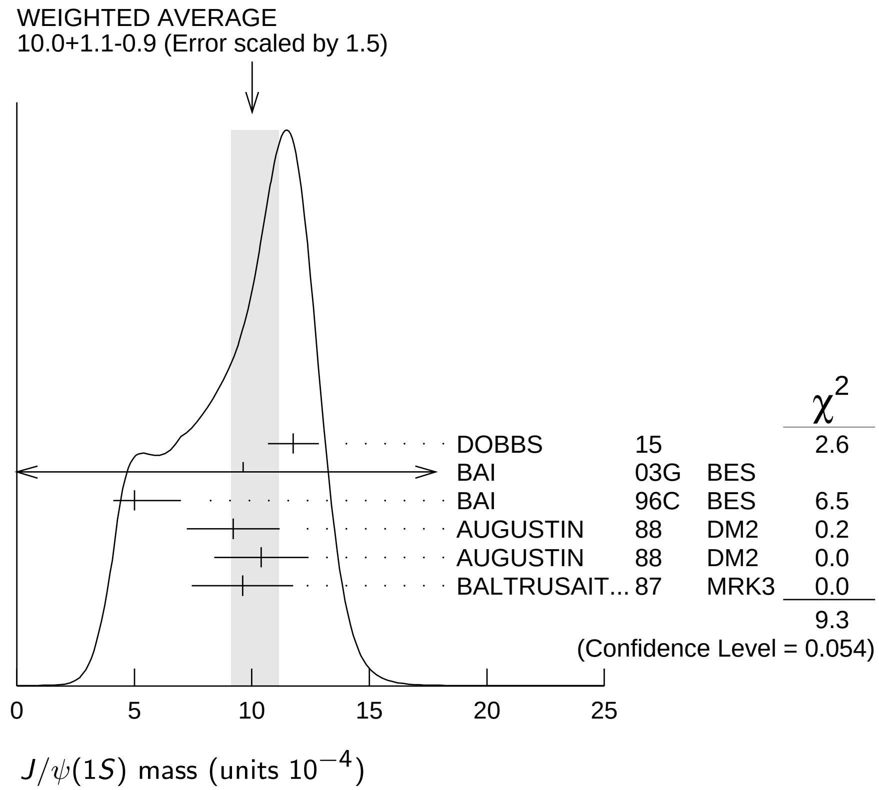
VALUE (units 10^{-4})	EVTS	DOCUMENT ID		COMMENT
4.19±0.73±1.34	478	[1] DOBBS	15	$J/\psi \to \gamma K\overline{K}$

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

$\Gamma\big(\gamma f_0(1710) \to \gamma K\overline{K}\big)/\Gamma_{\text{total}}$ Γ_{184}/Γ

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$10.0^{+1.1}_{-0.9}$ OUR AVERAGE Error includes scale factor of 1.5. See the ideogram below.						
$11.76 \pm 0.54 \pm 0.94$		1.2k	[1] DOBBS	15		$J/\psi \to \gamma K\overline{K}$
$9.62 \pm 029\ ^{+3.51}_{-1.86}$			[2] BAI	03G	BES	$J/\psi \to \gamma K\overline{K}$
$5.0 \pm 0.8\ ^{+1.8}_{-0.4}$			[3,4] BAI	96C	BES	$J/\psi \to \gamma K^+ K^-$
$9.2 \pm 1.4 \pm 1.4$			[4] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^+ K^-$
$10.4 \pm 1.2 \pm 1.6$			[4] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^0_S K^0_S$
$9.6 \pm 1.2 \pm 1.8$			[4] BALTRUSAIT...	87	MRK3	$J/\psi \to \gamma K^+ K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$1.6 \pm 0.2\ ^{+0.6}_{-0.2}$			[4,5] BAI	96C	BES	$J/\psi \to \gamma K^+ K^-$
< 0.8	90		[6] BISELLO	89B		$J/\psi \to 4\pi\gamma$
$1.6 \pm 0.4 \pm 0.3$			[7] BALTRUSAIT...	87	MRK3	$J/\psi \to \gamma\pi^+\pi^-$
3.8 ± 1.6			[8] EDWARDS	82D	CBAL	$e^+e^- \to \eta\eta\gamma$

[1] Using CLEO-c data but not authored by the CLEO Collaboration.
[2] Includes unknown branching ratio to $K^+ K^-$ or $K^0_S K^0_S$.
[3] Assuming $J^P = 2^+$ for $f_0(1710)$.
[4] 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.
[5] Assuming $J^P = 0^+$ for $f_0(1710)$.
[6] Includes unknown branching fraction to $\rho^0 \rho^0$.
[7] Includes unknown branching fraction to $\pi^+ \pi^-$.
[8] Includes unknown branching fraction to $\eta\eta$.



$\Gamma\big(\gamma f_0(1710) \to \gamma\pi\pi\big)/\Gamma_{\text{total}}$ Γ_{185}/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. • • •					
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 $\pi\pi$.

$\Gamma\big(\gamma f_0(1710) \to \gamma\omega\omega\big)/\Gamma_{\text{total}}$ Γ_{186}/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_{187}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$2.35^{+0.13+1.24}_{-0.11-0.74}$	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.

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

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.104±0.034 OUR AVERAGE					
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^-

$\Gamma(\gamma f_1(1420) \to \gamma K\overline{K}\pi)/\Gamma_{total}$ — Γ_{189}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.79±0.13 OUR AVERAGE				
0.68±0.04±0.24	BAI	00D	BES	$J/\psi \to \gamma K^\pm K^0_S \pi^\mp$
0.76±0.15±0.21	[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.

$\Gamma(\gamma f_1(1285))/\Gamma_{total}$ — Γ_{190}/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 $\Gamma(f_1(1285) \to K\overline{K}\pi)/\Gamma_{total} = 0.090 \pm 0.004$.

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

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

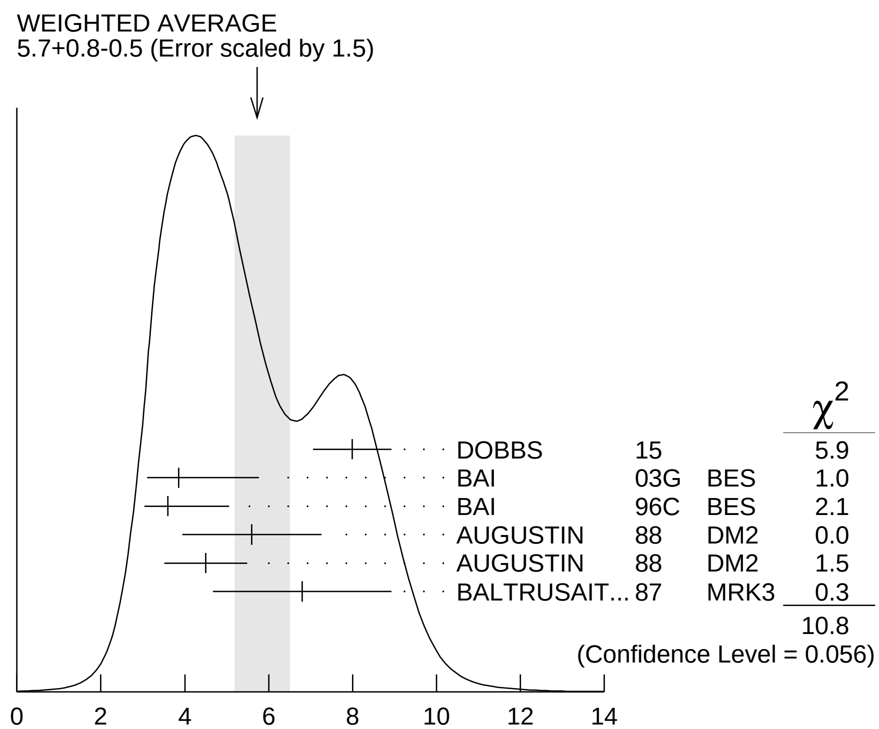
[5] Using $B(f_1(1285) \to a_0(980)\pi) = 0.37$, and including unknown branching ratio for $a_0(980) \to \eta\pi$.

$\Gamma(\gamma f_1(1510) \to \gamma\eta\pi^+\pi^-)/\Gamma_{total}$ $\qquad\Gamma_{191}/\Gamma$

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

$\Gamma(\gamma f'_2(1525))/\Gamma_{total}$ $\qquad\Gamma_{192}/\Gamma$

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 $[\Gamma(J/\psi(1S) \to \gamma f'_2(1525))/\Gamma_{total}] \times [B(f'_2(1525) \to K\overline{K})] = (7.09 \pm 0.46 \pm 0.67) \times 10^{-4}$ which we divide by our best value $B(f'_2(1525) \to K\overline{K}) = (88.7 \pm 2.2) \times 10^{-2}$. 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.

$\Gamma(\gamma f'_2(1525) \to \gamma\eta\eta)/\Gamma_{total}$ — Γ_{193}/Γ

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

$\Gamma(\gamma f_2(1640) \to \gamma\omega\omega)/\Gamma_{total}$ — Γ_{194}/Γ

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

$\Gamma(\gamma f_2(1910) \to \gamma\omega\omega)/\Gamma_{total}$ — Γ_{195}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.20±0.04±0.13	151	ABLIKIM	06H	BES	$J/\psi \to \gamma\omega\omega$

$\Gamma(\gamma f_0(1800) \to \gamma\omega\phi)/\Gamma_{total}$ — Γ_{196}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.5 ±0.6 OUR AVERAGE					
$2.00\pm0.08^{+1.38}_{-1.64}$	1.3k	ABLIKIM	13J	BES3	$J/\psi \to \gamma\omega\phi$
2.61±0.27±0.65	95	ABLIKIM	06J	BES2	$J/\psi \to \gamma\omega\phi$

$\Gamma(\gamma f_2(1810) \to \gamma\eta\eta)/\Gamma_{total}$ — Γ_{197}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		COMMENT
$5.40^{+0.60}_{-0.67}{}^{+3.42}_{-2.35}$	5.5k	[1] ABLIKIM	13N	$J/\psi \to \gamma\eta\eta$

[1] From partial wave analysis including all possible combinations of 0^{++}, 2^{++}, and 4^{++} resonances.

$\Gamma(\gamma f_2(1950) \to \gamma K^*(892)\overline{K}^*(892))/\Gamma_{total}$ — Γ_{198}/Γ

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

$\Gamma(\gamma K^*(892)\overline{K}^*(892))/\Gamma_{total}$ — Γ_{199}/Γ

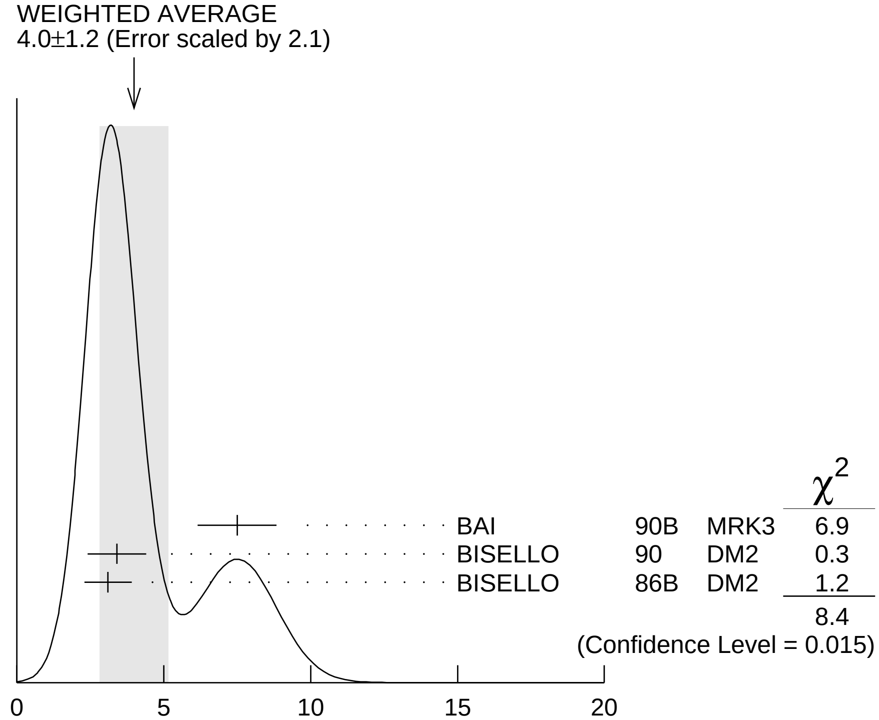
VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
4.0±0.3±1.3	320	[1] BAI	00B	BES	$J/\psi \to \gamma K^+ K^0 \pi^+ \pi^-$

[1] Summed over all charges.

$\Gamma(\gamma\phi\phi)/\Gamma_{total}$ — Γ_{200}/Γ

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

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



$\Gamma\left(\gamma\phi\phi\right)/\Gamma_{total}$ (units 10^{-4})

$\Gamma(\gamma p\overline{p})/\Gamma_{total}$ $\qquad\qquad$ Γ_{201}/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^-

$\Gamma(\gamma\eta(2225))/\Gamma_{total}$ $\qquad\qquad$ Γ_{202}/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 $\rho^0\rho^0$.

$\Gamma(\gamma\eta(1760) \to \gamma\rho^0\rho^0)/\Gamma_{total}$ — Γ_{203}/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_{204}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.98±0.08±0.32	1045	ABLIKIM	06H	BES	$J/\psi \to \gamma\omega\omega$

$\Gamma(\gamma X(1835) \to \gamma\pi^+\pi^-\eta')/\Gamma_{total}$ — Γ_{205}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{2.77^{+0.34}_{-0.40}}$ **OUR AVERAGE** Error includes scale factor of 1.1.					
$3.93\pm0.38^{+0.31}_{-0.84}$		[1] ABLIKIM	16J	BES3	$J/\psi \to \gamma\pi^+\pi^-\eta'$
$2.87\pm0.09^{+0.49}_{-0.52}$	4265	[2] ABLIKIM	11C	BES3	$J/\psi \to \gamma\pi^+\pi^-\eta'$
$2.2\ \pm0.4\ \pm0.4$	264	ABLIKIM	05R	BES2	$J/\psi \to \gamma\pi^+\pi^-\eta'$

[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 ≈ 1919 MeV; Γ ≈ 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 unconfirmed states $\gamma X(2120)$, and $\gamma X(2370)$, for $M(p\overline{p}) < 2.8$ 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_{206}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.77^{+0.15}_{-0.09}}$ **OUR AVERAGE**					
$0.90^{+0.04}_{-0.11}{}^{+0.27}_{-0.55}$		[1] ABLIKIM	12D	BES3	$J/\psi \to \gamma p\overline{p}$
$1.14^{+0.43}_{-0.30}{}^{+0.42}_{-0.26}$	231	[2] ALEXANDER	10	CLEO	$J/\psi \to \gamma p\overline{p}$
$0.70\pm0.04^{+0.19}_{-0.08}$		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_{207}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$\mathbf{3.31^{+0.33}_{-0.30}{}^{+1.96}_{-1.29}}$	ABLIKIM	15T	BES3	$J/\psi \to \gamma K^0_S K^0_S\eta$

$\Gamma(\gamma X(1840) \to \gamma 3(\pi^+\pi^-))/\Gamma_{total}$ — Γ_{208}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{2.44 \pm 0.36^{+0.60}_{-0.74}}$	0.6k	ABLIKIM	13U	BES3	$J/\psi \to \gamma 3(\pi^+\pi^-)$

$\Gamma(\gamma(K\overline{K}\pi)\,[J^{PC}=0^{-+}])/\Gamma_{total}$ — Γ_{209}/Γ

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

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

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{3.49^{+0.33}_{-0.30}}$ **OUR AVERAGE**					
$3.63 \pm 0.36 \pm 0.13$		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. • • •					
$3.6 \pm 1.1 \pm 0.7$		BLOOM	83	CBAL	e^+e^-
7.3 ± 4.7	10	BRANDELIK	79C	DASP	e^+e^-

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

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<0.79	90	EATON	84	MRK2	e^+e^-

$\Gamma(\gamma\Lambda\overline{\Lambda})/\Gamma_{total}$ — Γ_{212}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<0.13	90	HENRARD	87	DM2	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.16	90	BAI	98G	BES	e^+e^-

$\Gamma(\gamma f_0(2100) \to \gamma\eta\eta)/\Gamma_{total}$ — Γ_{213}/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	$J/\psi \to \gamma\eta\eta$

[1] From partial wave analysis including all possible combinations of 0^{++}, 2^{++}, and 4^{++} resonances.

$\Gamma(\gamma f_0(2100) \to \gamma\pi\pi)/\Gamma_{total}$ — Γ_{214}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		COMMENT
$\mathbf{6.24 \pm 0.48 \pm 0.87}$	744	[1] DOBBS	15	$J/\psi \to \gamma\pi\pi$

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

$\Gamma(\gamma f_0(2200))/\Gamma_{\text{total}}$ — Γ_{215}/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 $K^0_S K^0_S$.

$\Gamma(\gamma f_0(2200) \to \gamma K \overline{K})/\Gamma_{\text{total}}$ — Γ_{216}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		COMMENT
5.86±0.49±1.20	490	[1] DOBBS	15	$J/\psi \to \gamma K \overline{K}$

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

$\Gamma(\gamma f_J(2220))/\Gamma_{\text{total}}$ — Γ_{217}/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	$J/\psi \to \gamma K^0_S K^0_S$
$12.4^{+6.4}_{-5.2}\pm2.8$		23	[3] BALTRUSAIT...	86D	MRK3	$J/\psi \to \gamma K^0_S K^0_S$
$8.4^{+3.4}_{-2.8}\pm1.6$		93	[3] BALTRUSAIT...	86D	MRK3	$J/\psi \to \gamma K^+ K^-$

[1] Using BARNES 93.
[2] Using BAI 96B.
[3] Includes unknown branching fraction to $K^+ K^-$ or $K^0_S K^0_S$.

$\Gamma(\gamma f_J(2220) \to \gamma \pi \pi)/\Gamma_{\text{total}}$ — Γ_{218}/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 ±8 ±4		BAI	98H	BES	$J/\psi \to \gamma \pi^0 \pi^0$
8.4±2.6±3.0		BAI	96B	BES	$e^+ e^- \to J/\psi \to \gamma \pi^+ \pi^-$

[1] Using CLEO-c data but not authored by the CLEO Collaboration.
[2] For $\Gamma = 20/50$ MeV, the 90% CL upper limits for $\pi^+ \pi^-$ and $\pi^0 \pi^0$ are $2.6/5.2 \times 10^{-5}$ and $1.3/1.9 \times 10^{-5}$, respectively.

$\Gamma(\gamma f_J(2220) \to \gamma K \overline{K})/\Gamma_{\text{total}}$ — Γ_{219}/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±2.9±2.4		BAI	96B	BES	$e^+ e^- \to J/\psi \to \gamma K^+ K^-$
10.8±4.0±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_{220}/Γ

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

$\Gamma(\gamma f_2(2340) \to \gamma\eta\eta)/\Gamma_{total}$ Γ_{221}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{5.60^{+0.62}_{-0.65}{}^{+2.37}_{-2.07}}$	5.5k	[1] ABLIKIM	13N	BES3	$J/\psi \to \gamma\eta\eta$

[1] From partial wave analysis including all possible combinations of 0^{++}, 2^{++}, and 4^{++} resonances.

$\Gamma(\gamma f_0(1500) \to \gamma\pi\pi)/\Gamma_{total}$ Γ_{222}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.09±0.24 OUR AVERAGE					
1.21±0.29±0.24	174	[1] DOBBS	15		$J/\psi \to \gamma\pi\pi$
1.00±0.03±0.45		[2] ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^+\pi^-$
1.02±0.09±0.45		[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. • • •					
5.7 ±0.8		[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_{223}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{1.65^{+0.26}_{-0.31}{}^{+0.51}_{-1.40}}$	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.

$\Gamma(\gamma A \to \gamma \text{invisible})/\Gamma_{total}$ Γ_{224}/Γ
(narrow state A with m_A < 960 MeV)

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
<6.3	90	[1] INSLER	10	CLEO	$e^+e^- \to \pi^+\pi^- J/\psi$

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

$\Gamma(\gamma A^0 \to \gamma\mu^+\mu^-)/\Gamma_{total}$ Γ_{225}/Γ
(narrow state A^0 with 0.2 GeV $< m_{A^0} <$ 3 GeV)

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
<0.5	90	[1] ABLIKIM	16E	BES3	$J/\psi \to \gamma\mu^+\mu^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<2.1	90	[2] 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 GeV. The measured 90% CL limit as a function of m_{A^0} is in the range (2.8–495.3) $\times 10^{-8}$.
[2] For a narrow scalar or pseudoscalar, A^0, with a mass in the range 0.21–3.00 GeV. The measured 90% CL limit as a function of m_{A^0} ranges from 4×10^{-7} to 2.1×10^{-5}.

DALITZ DECAYS

$\Gamma(\pi^0 e^+ e^-)/\Gamma_{\rm total}$ — Γ_{226}/Γ

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

$\Gamma(\eta e^+ e^-)/\Gamma_{\rm total}$ — Γ_{227}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
1.16±0.07±0.06	320	[1] ABLIKIM	14I	BES3	$J/\psi \rightarrow \eta e^+ e^-$

[1] Using both $\eta \rightarrow \gamma\gamma$ and $\eta \rightarrow \pi^+ \pi^- \pi^0$ decays.

$\Gamma(\eta'(958) e^+ e^-)/\Gamma_{\rm total}$ — Γ_{228}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
5.81±0.16±0.31	1.4k	[1] ABLIKIM	14I	BES3	$J/\psi \rightarrow \eta' e^+ e^-$

[1] Using both $\eta' \rightarrow \gamma\pi^+ \pi^-$ and $\eta' \rightarrow \pi^+ \pi^- \eta$ decays.

WEAK DECAYS

$\Gamma(D^- e^+ \nu_e + \text{c.c.})/\Gamma_{\rm total}$ — Γ_{229}/Γ

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
<1.2	90	ABLIKIM	06M	BES2	$e^+ e^- \rightarrow J/\psi$

$\Gamma(\overline{D}^0 e^+ e^- + \text{c.c.})/\Gamma_{\rm total}$ — Γ_{230}/Γ

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
<1.1	90	ABLIKIM	06M	BES2	$e^+ e^- \rightarrow J/\psi$

$\Gamma(D_s^- e^+ \nu_e + \text{c.c.})/\Gamma_{\rm total}$ — Γ_{231}/Γ

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
< 1.3	90	ABLIKIM	14R	BES3	$e^+ e^- \rightarrow J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<36	90	[1] ABLIKIM	06M	BES2	$e^+ e^- \rightarrow J/\psi$

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

$\Gamma(D_s^{*-} e^+ \nu_e + \text{c.c.})/\Gamma_{\rm total}$ — Γ_{232}/Γ

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

$\Gamma(D^- \pi^+ + \text{c.c.})/\Gamma_{\rm total}$ — Γ_{233}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<7.5 \times 10^{-5}$	90	ABLIKIM	08J	BES2	$e^+ e^- \rightarrow J/\psi$

$\Gamma(\overline{D}^0 \overline{K}^0 + \text{c.c.})/\Gamma_{\rm total}$ — Γ_{234}/Γ

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

$\Gamma(\overline{D}^0 \overline{K}^{*0} + \text{c.c.})/\Gamma_{total}$ — Γ_{235}/Γ

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

$\Gamma(D_s^- \pi^+ + \text{c.c.})/\Gamma_{total}$ — Γ_{236}/Γ

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

$\Gamma(D_s^- \rho^+ + \text{c.c.})/\Gamma_{total}$ — Γ_{237}/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_{238}/Γ

VALUE (units 10^{-7})	CL%	DOCUMENT ID		TECN	COMMENT
< 2.7	90	ABLIKIM	14Q	BES3	$\psi(2S) \rightarrow \pi^+ \pi^- J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$ 50	90	ADAMS	08	CLEO	$\psi(2S) \rightarrow \pi^+ \pi^- J/\psi$
$<$1600	90	[1] WICHT	08	BELL	$B^\pm \rightarrow K^\pm \gamma\gamma$
$<$ 220	90	ABLIKIM	07J	BES2	$\psi(2S) \rightarrow J/\psi \pi^+ \pi^-$
$<$5000	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 $B(B^+ \rightarrow J/\psi(1S) K^+) = 1.026 \times 10^{-3}$.

$\Gamma(\gamma\phi)/\Gamma_{total}$ — Γ_{239}/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_{240}/Γ

VALUE (units 10^{-7})	CL%	DOCUMENT ID		TECN	COMMENT
< 1.6	90	ABLIKIM	13L	BES3	$e^+ e^- \rightarrow J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$11	90	BAI	03D	BES	$e^+ e^- \rightarrow J/\psi$

$\Gamma(e^\pm \tau^\mp)/\Gamma_{total}$ — Γ_{241}/Γ

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
<8.3	90	ABLIKIM	04	BES	$e^+ e^- \rightarrow J/\psi$

$\Gamma(\mu^\pm \tau^\mp)/\Gamma_{total}$ — Γ_{242}/Γ

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

OTHER DECAYS

$\Gamma(\text{invisible})/\Gamma(e^+e^-)$ Γ_{243}/Γ_5

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

$\Gamma(\text{invisible})/\Gamma(\mu^+\mu^-)$ Γ_{243}/Γ_7

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

$J/\psi(1S)$ REFERENCES

ABLIKIM	16E	PR D93 052005	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	16J	PRL 117 042002	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	16K	PR D93 052010	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	16L	PR D93 072003	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	16M	PR D93 072008	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	16N	PR D93 112011	M. Ablikim	(BES III Collab.)
ABLIKIM	16P	PR D94 072005	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	16Q	PL B761 98	M. Ablikim et al.	(BES III Collab.)
AAIJ	15BI	EPJ C75 311	R. Aaij et al.	(LHCb Collab.)
ABLIKIM	15AE	PR D92 052003	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	15H	PR D91 052017	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	15K	PR D91 112001	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	15P	PR D92 012007	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	15T	PRL 115 091803	M. Ablikim et al.	(BES III Collab.)
ANASHIN	15	PL B749 50	V.V. Anashin et al.	(KEDR Collab.)
DOBBS	15	PR D91 052006	S. Dobbs et al.	(NWES)
LEES	15J	PR D92 072008	J.P. Lees et al.	(BABAR Collab.)
ABLIKIM	14I	PR D89 092008	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	14K	PR D89 071101	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	14N	PR D90 052009	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	14Q	PR D90 092002	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	14R	PR D90 112014	M. Ablikim et al.	(BES III Collab.)
ANASHIN	14	PL B738 391	V.V. Anashin et al.	(KEDR Collab.)
AULCHENKO	14	PL B731 227	V.M. Aulchenko et al.	(KEDR Collab.)
LEES	14H	PR D89 092002	J.P. Lees et al.	(BABAR Collab)
ABLIKIM	13F	PR D87 052007	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	13I	PR D87 032003	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	13J	PR D87 032008	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	13L	PR D87 112007	Ablikim M. et al.	(BES III Collab.)
ABLIKIM	13N	PR D87 092009	Ablikim M. et al.	(BES III Collab.)
ABLIKIM	13P	PR D87 112004	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	13R	PR D88 032007	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	13U	PR D88 091502	M. Ablikim et al.	(BES III Collab.)
LEES	13I	PR D87 112005	J.P. Lees et al.	(BABAR Collab.)
LEES	13O	PR D87 092005	J.P. Lees et al.	(BABAR Collab.)
LEES	13Q	PR D88 032013	J.P. Lees et al.	(BABAR Collab.)
LEES	13Y	PR D88 072009	J.P. Lees et al.	(BABAR Collab.)
ABLIKIM	12	PR D85 092012	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	12B	PR D86 032008	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	12C	PR D86 032014	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	12D	PRL 108 112003	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	12H	PL B710 594	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	12P	CP C36 1031	M. Ablikim et al.	(BES II Collab.)
LEES	12E	PR D85 112009	J.P. Lees et al.	(BABAR Collab.)
LEES	12F	PR D86 012008	J.P. Lees et al.	(BABAR Collab.)
METREVELI	12	PR D85 092007	Z. Metreveli et al.	(NWES, FLOR, WAYN+)
ABLIKIM	11	PR D83 012003	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	11C	PRL 106 072002	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	11D	PR D83 032003	M. Ablikim et al.	(BES III Collab.)
ABLIKIM	10C	PL B685 27	M. Ablikim et al.	(BES II Collab.)
ABLIKIM	10E	PL B693 88	M. Ablikim et al.	(BES II Collab.)
ALEXANDER	10	PR D82 092002	J.P. Alexander et al.	(CLEO Collab.)
ANASHIN	10	PL B685 134	V.V. Anashin et al.	(KEDR Collab.)
DEL-AMO-SA...	10O	PRL 105 172001	P. del Amo Sanchez et al.	(BABAR Collab.)

INSLER	10	PR D81 091101	J. Insler *et al.*	(CLEO Collab.)
ABLIKIM	09	PL B676 25	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	09B	PR D80 052004	M. Ablikim *et al.*	(BES II Collab.)
MITCHELL	09	PRL 102 011801	R.E. Mitchell *et al.*	(CLEO Collab.)
PEDLAR	09	PR D79 111101	T.K. Pedlar *et al.*	(CLEO Collab.)
SHEN	09	PR D80 031101	C.P. Shen *et al.*	(BELLE Collab.)
ABLIKIM	08	EPJ C53 15	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08A	PR D77 012001	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08C	PL B659 789	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08E	PR D77 032005	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08F	PRL 100 102003	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08G	PRL 100 192001	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08I	PL B662 330	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08J	PL B663 297	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	08O	PR D78 092005	M. Ablikim *et al.*	(BES Collab.)
ADAMS	08	PRL 101 101801	G.S. Adams *et al.*	(CLEO Collab.)
AUBERT	08S	PR D77 092002	B. Aubert *et al.*	(BABAR Collab.)
BESSON	08	PR D78 032012	D. Besson *et al.*	(CLEO Collab.)
PDG	08	PL B667 1	C. Amsler *et al.*	(PDG Collab.)
WICHT	08	PL B662 323	J. Wicht *et al.*	(BELLE Collab.)
ABLIKIM	07H	PR D76 092003	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	07J	PR D76 117101	M. Ablikim *et al.*	(BES Collab.)
ANDREOTTI	07	PL B654 74	M. Andreotti *et al.*	(Femilab E835 Collab.)
AUBERT	07AK	PR D76 012008	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AU	PR D76 092005	B. Aubert *et al.*	(BABAR Collab.)
Also		PR D77 119902E (errat.)	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07BD	PR D76 092006	B. Aubert *et al.*	(BABAR Collab.)
ABLIKIM	06	PL B632 181	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06C	PL B633 681	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06E	PR D73 052008	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06F	PR D73 052007	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06H	PR D73 112007	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06J	PRL 96 162002	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06K	PRL 97 062001	M. Ablikim *et al.*	(BES II Collab.)
ABLIKIM	06M	PL B639 418	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06V	PL B642 441	M. Ablikim *et al.*	(BES Collab.)
ADAMS	06A	PR D73 051103	G.S. Adams *et al.*	(CLEO Collab.)
AUBERT	06B	PR D73 012005	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06D	PR D73 052003	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06E	PRL 96 052002	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	06D	PR D74 091103	B. Aubert *et al.*	(BABAR Collab.)
WU	06	PRL 97 162003	C.-H. Wu *et al.*	(BELLE Collab.)
ABLIKIM	05	PL B607 243	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05B	PR D71 032003	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05C	PL B610 192	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05H	PR D72 012002	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05R	PRL 95 262001	M. Ablikim *et al.*	(BES Collab.)
AUBERT	05D	PR D71 052001	B. Aubert *et al.*	(BABAR Collab.)
LI	05C	PR D71 111103	Z. Li *et al.*	(CLEO Collab.)
SIBIRTSEV	05A	PR D71 054010	A. Sibirtsev, J. Haidenbauer	
ABLIKIM	04	PL B598 172	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	04M	PR D70 112008	M. Ablikim *et al.*	(BES Collab.)
AUBERT	04	PR D69 011103	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04N	PR D70 072004	B. Aubert *et al.*	(BABAR Collab.)
BAI	04	PL B578 16	J.Z. Bai *et al.*	(BES Collab.)
BAI	04A	PR D69 012003	J.Z. Bai *et al.*	(BES Collab.)
BAI	04D	PL B589 7	J.Z. Bai *et al.*	(BES Collab.)
BAI	04E	PL B591 42	J.Z. Bai *et al.*	(BES Collab.)
BAI	04G	PR D70 012004	J.Z. Bai *et al.*	(BES Collab.)
BAI	04H	PR D70 012005	J.Z. Bai *et al.*	(BES Collab.)
BAI	04J	PL B594 47	J.Z. Bai *et al.*	(BES Collab.)
SETH	04	PR D69 097503	K.K. Seth	
AULCHENKO	03	PL B573 63	V.M. Aulchenko *et al.*	(KEDR Collab.)
BAI	03D	PL B561 49	J.Z. Bai *et al.*	(BES Collab.)
BAI	03F	PRL 91 022001	J.Z. Bai *et al.*	(BES II Collab.)
BAI	03G	PR D68 052003	J.Z. Bai *et al.*	(BES Collab.)
HUANG	03	PRL 91 241802	H.-C. Huang *et al.*	(BELLE Collab.)
BAI	02C	PRL 88 101802	J.Z. Bai *et al.*	(BES Collab.)
ARTAMONOV	00	PL B474 427	A.S. Artamonov *et al.*	
BAI	00	PRL 84 594	J.Z. Bai *et al.*	(BES Collab.)
BAI	00B	PL B472 200	J.Z. Bai *et al.*	(BES Collab.)

BAI	00D	PL B476 25	J.Z. Bai *et al.*	(BES Collab.)
BAI	99	PL B446 356	J.Z. Bai *et al.*	(BES Collab.)
BAI	99C	PRL 83 1918	J.Z. Bai *et al.*	(BES Collab.)
BAI	98D	PR D58 092006	J.Z. Bai *et al.*	(BES Collab.)
BAI	98G	PL B424 213	J.Z. Bai *et al.*	(BES Collab.)
BAI	98H	PRL 81 1179	J.Z. Bai *et al.*	(BES Collab.)
BALDINI	98	PL B444 111	R. Baldini *et al.*	(FENICE Collab.)
ARMSTRONG	96	PR D54 7067	T.A. Armstrong *et al.*	(E760 Collab.)
BAI	96B	PRL 76 3502	J.Z. Bai *et al.*	(BES Collab.)
BAI	96C	PRL 77 3959	J.Z. Bai *et al.*	(BES Collab.)
BAI	96D	PR D54 1221	J.Z. Bai *et al.*	(BES Collab.)
GRIBUSHIN	96	PR D53 4723	A. Gribushin *et al.*	(E672 Collab., 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 R2181	S. Hsueh, S. Palestini	(FNAL, TORI)
BISELLO	91	NP B350 1	D. Bisello *et al.*	(DM2 Collab.)
AUGUSTIN	90	PR D42 10	J.E. Augustin *et al.*	(DM2 Collab.)
BAI	90B	PRL 65 1309	Z. Bai *et al.*	(Mark III Collab.)
BAI	90C	PRL 65 2507	Z. Bai *et al.*	(Mark III Collab.)
BISELLO	90	PL B241 617	D. Bisello *et al.*	(DM2 Collab.)
COFFMAN	90	PR D41 1410	D.M. Coffman *et al.*	(Mark III Collab.)
JOUSSET	90	PR D41 1389	J. Jousset *et al.*	(DM2 Collab.)
ALEXANDER	89	NP B320 45	J.P. Alexander *et al.*	(LBL, MICH, SLAC)
AUGUSTIN	89	NP B320 1	J.E. Augustin, G. Cosme	(DM2 Collab.)
BISELLO	89B	PR D39 701	G. Busetto *et al.*	(DM2 Collab.)
AUGUSTIN	88	PRL 60 2238	J.E. Augustin *et al.*	(DM2 Collab.)
COFFMAN	88	PR D38 2695	D.M. Coffman *et al.*	(Mark III Collab.)
FALVARD	88	PR D38 2706	A. Falvard *et al.*	(CLER, FRAS, LALO+)
AUGUSTIN	87	ZPHY C36 369	J.E. Augustin *et al.*	(LALO, CLER, FRAS+)
BAGLIN	87	NP B286 592	C. Baglin *et al.*	(LAPP, CERN, GENO, LYON+)
BALTRUSAIT...	87	PR D35 2077	R.M. Baltrusaitis *et al.*	(Mark III Collab.)
BECKER	87	PRL 59 186	J.J. Becker *et al.*	(Mark III Collab.)
BISELLO	87	PL B192 239	D. Bisello *et al.*	(PADO, CLER, FRAS+)
COHEN	87	RMP 59 1121	E.R. Cohen, B.N. Taylor	(RISC, NBS)
HENRARD	87	NP B292 670	P. Henrard *et al.*	(CLER, FRAS, LALO+)
PALLIN	87	NP B292 653	D. Pallin *et al.*	(CLER, FRAS, LALO, PADO)
BALTRUSAIT...	86	PR D33 629	R.M. Baltrusaitis *et al.*	(Mark III Collab.)
BALTRUSAIT...	86B	PR D33 1222	R.M. Baltrusaitis *et al.*	(Mark III Collab.)
BALTRUSAIT...	86D	PRL 56 107	R.M. Baltrusaitis	(CIT, UCSC, ILL, SLAC+)
BISELLO	86B	PL B179 294	D. Bisello *et al.*	(DM2 Collab.)
GAISER	86	PR D34 711	J. Gaiser *et al.*	(Crystal Ball Collab.)
BALTRUSAIT...	85C	PRL 55 1723	R.M. Baltrusaitis *et al.*	(CIT, UCSC+)
BALTRUSAIT...	85D	PR D32 566	R.M. Baltrusaitis *et al.*	(CIT, UCSC+)
KURAEV	85	SJNP 41 466	E.A. Kuraev, V.S. Fadin	(NOVO)
		Translated from YAF 41 733.		
BALTRUSAIT...	84	PRL 52 2126	R.M. Baltrusaitis *et al.*	(CIT, UCSC+)
EATON	84	PR D29 804	M.W. Eaton *et al.*	(LBL, SLAC)
BLOOM	83	ARNS 33 143	E.D. Bloom, C. Peck	(SLAC, CIT)
EDWARDS	83B	PRL 51 859	C. Edwards *et al.*	(CIT, HARV, PRIN+)
FRANKLIN	83	PRL 51 963	M.E.B. Franklin *et al.*	(LBL, SLAC)
BURKE	82	PRL 49 632	D.L. Burke *et al.*	(LBL, SLAC)
EDWARDS	82B	PR D25 3065	C. Edwards *et al.*	(CIT, HARV, PRIN+)
EDWARDS	82D	PRL 48 458	C. Edwards *et al.*	(CIT, HARV, PRIN+)
Also		ARNS 33 143	E.D. Bloom, C. Peck	(SLAC, CIT)
EDWARDS	82E	PRL 49 259	C. Edwards *et al.*	(CIT, HARV, PRIN+)
LEMOIGNE	82	PL 113B 509	Y. Lemoigne *et al.*	(SACL, LOIC, SHMP+)
BESCH	81	ZPHY C8 1	H.J. Besch *et al.*	(BONN, DESY, MANZ)
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. Zholentz *et al.*	(NOVO)
Also		SJNP 34 814	A.A. Zholentz *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, MANZ)
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)