



$$I(J^P) = \frac{1}{2}(0^-)$$

D^0 MASS

The fit includes D^\pm , D^0 , D_s^\pm , $D^{*\pm}$, D^{*0} , and $D_s^{*\pm}$ mass and mass difference measurements.

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
1864.84 ± 0.17 OUR FIT	Error includes scale factor of 1.1.			
1864.84 ± 0.18 OUR AVERAGE				
1864.847 ± 0.150 ± 0.095	319 ± 18	CAWLFIELD	07 CLEO	$D^0 \rightarrow K_S^0 \phi$
1864.6 ± 0.3 ± 1.0	641	BARLAG	90C ACCM	π^- Cu 230 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1852 ± 7	16	ADAMOVICH	87 EMUL	Photoproduction
1856 ± 36	22	ADAMOVICH	84B EMUL	Photoproduction
1861 ± 4		DERRICK	84 HRS	e^+e^- 29 GeV
1847 ± 7	1	FIORINO	81 EMUL	$\gamma N \rightarrow \bar{D}^0 +$
1863.8 ± 0.5		¹ SCHINDLER	81 MRK2	e^+e^- 3.77 GeV
1864.7 ± 0.6		¹ TRILLING	81 RVUE	e^+e^- 3.77 GeV
1863.0 ± 2.5	238	ASTON	80E OMEG	$\gamma p \rightarrow \bar{D}^0$
1860 ± 2	143	² AVERY	80 SPEC	$\gamma N \rightarrow D^{*+}$
1869 ± 4	35	² AVERY	80 SPEC	$\gamma N \rightarrow D^{*+}$
1854 ± 6	94	² ATIYA	79 SPEC	$\gamma N \rightarrow D^0 \bar{D}^0$
1850 ± 15	64	BALTAY	78C HBC	$\nu N \rightarrow K^0 \pi \pi$
1863 ± 3		GOLDHABER	77 MRK1	D^0, D^+ recoil spectra
1863.3 ± 0.9		¹ PERUZZI	77 MRK1	e^+e^- 3.77 GeV
1868 ± 11		PICCOLO	77 MRK1	e^+e^- 4.03, 4.41 GeV
1865 ± 15	234	GOLDHABER	76 MRK1	$K\pi$ and $K3\pi$

¹PERUZZI 77 and SCHINDLER 81 errors do not include the 0.13% uncertainty in the absolute SPEAR energy calibration. TRILLING 81 uses the high precision $J/\psi(1S)$ and $\psi(2S)$ measurements of ZHOLENTZ 80 to determine this uncertainty and combines the PERUZZI 77 and SCHINDLER 81 results to obtain the value quoted. TRILLING 81 enters the fit in the D^\pm mass, and PERUZZI 77 and SCHINDLER 81 enter in the $m_{D^\pm} - m_{D^0}$, below.

²Error does not include possible systematic mass scale shift, estimated to be less than 5 MeV.

$m_{D^\pm} - m_{D^0}$

The fit includes D^\pm , D^0 , D_s^\pm , $D^{*\pm}$, D^{*0} , and $D_s^{*\pm}$ mass and mass difference measurements.

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
4.78 ± 0.10 OUR FIT	Error includes scale factor of 1.1.		
4.74 ± 0.28 OUR AVERAGE			
4.7 ± 0.3	³ SCHINDLER	81 MRK2	e^+e^- 3.77 GeV
5.0 ± 0.8	³ PERUZZI	77 MRK1	e^+e^- 3.77 GeV

³ See the footnote on TRILLING 81 in the D^0 and D^\pm sections on the mass.

D^0 MEAN LIFE

Measurements with an error $> 10 \times 10^{-15}$ s have been omitted from the average.

<u>VALUE (10^{-15} s)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
410.1 ± 1.5 OUR AVERAGE				
409.6 ± 1.1 ± 1.5	210k	LINK	02F FOCS	γ nucleus, ≈ 180 GeV
407.9 ± 6.0 ± 4.3	10k	KUSHNIR...	01 SELX	$K^- \pi^+$, $K^- \pi^+ \pi^+ \pi^-$
413 ± 3 ± 4	35k	AITALA	99E E791	$K^- \pi^+$
408.5 ± 4.1 ⁺ _{-3.4}	25k	BONVICINI	99 CLE2	$e^+ e^- \approx \Upsilon(4S)$
413 ± 4 ± 3	16k	FRABETTI	94D E687	$K^- \pi^+$, $K^- \pi^+ \pi^+ \pi^-$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
424 ± 11 ± 7	5118	FRABETTI	91 E687	$K^- \pi^+$, $K^- \pi^+ \pi^+ \pi^-$
417 ± 18 ± 15	890	ALVAREZ	90 NA14	$K^- \pi^+$, $K^- \pi^+ \pi^+ \pi^-$
388 ⁺²³ ₋₂₁	641	⁴ BARLAG	90C ACCM	π^- Cu 230 GeV
480 ± 40 ± 30	776	ALBRECHT	88I ARG	$e^+ e^-$ 10 GeV
422 ± 8 ± 10	4212	RAAB	88 E691	Photoproduction
420 ± 50	90	BARLAG	87B ACCM	K^- and π^- 200 GeV

⁴ BARLAG 90C estimate systematic error to be negligible.

A REVIEW GOES HERE – Check our WWW List of Reviews

$$|m_{D_1^0} - m_{D_2^0}|$$

The D_1^0 and D_2^0 are the mass eigenstates of the D^0 meson, as described in the note on " D^0 - \bar{D}^0 Mixing," above.

<u>VALUE ($10^{10} \hbar s^{-1}$)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
< 7	95	⁵ ZHANG	06 BELL	$e^+ e^-$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
-11 to +22		⁶ ASNER	05 CLEO	$e^+ e^- \approx 10$ GeV
< 11	90	BITENC	05 BELL	
< 30	90	CAWLFIELD	05 CLEO	
< 7	95	⁵ LI	05A BELL	See ZHANG 06
< 22	95	⁷ LINK	05H FOCS	γ nucleus
< 23	95	AUBERT	04Q BABR	
< 11	95	⁵ AUBERT	03Z BABR	$e^+ e^-$, 10.6 GeV
< 7	95	⁸ GODANG	00 CLE2	$e^+ e^-$
< 32	90	^{9,10} AITALA	98 E791	π^- nucleus, 500 GeV
< 24	90	¹¹ AITALA	96C E791	π^- nucleus, 500 GeV
< 21	90	^{10,12} ANJOS	88C E691	Photoproduction

- ⁵ The AUBERT 03Z, LI 05A, and ZHANG 06 limits are inferred from the $D^0\text{-}\bar{D}^0$ mixing ratio $\Gamma(K^+\pi^- \text{ (via } \bar{D}^0))/\Gamma(K^-\pi^+)$ given near the end of this D^0 Listings. Decay-time information is used to distinguish DCS decays from $D^0\text{-}\bar{D}^0$ mixing. The limit allows interference between the DCS and mixing ratios, and also allows CP violation. AUBERT 03Z assumes the strong phase between $D^0 \rightarrow K^+\pi^-$ and $\bar{D}^0 \rightarrow K^+\pi^-$ amplitudes is small; if an arbitrary phase is allowed, the limit degrades by 20%. The LI 05A and ZHANG 06 limits are valid for an arbitrary strong phase.
- ⁶ This ASNER 05 limit is from the time-dependent Dalitz-plot analysis of $D^0 \rightarrow K_S^0\pi^+\pi^-$. Decay-time information and interference on the Dalitz plot are used to distinguish doubly Cabibbo-suppressed decays from mixing and to measure the relative phase between $D^0 \rightarrow K^{*+}\pi^-$ and $\bar{D}^0 \rightarrow K^{*+}\pi^-$. This limit allows CP violation and is sensitive to the sign of Δm .
- ⁷ This LINK 05H limit is inferred from the $D^0\text{-}\bar{D}^0$ mixing ratio $\Gamma(K^+\pi^- \text{ (via } \bar{D}^0))/\Gamma(K^-\pi^+)$ given near the end of this D^0 Listings. Decay-time information is used to distinguish DCS decays from $D^0\text{-}\bar{D}^0$ mixing. The limit allows interference between the DCS and mixing ratios, and also allows CP violation. The strong phase between $D^0 \rightarrow K^+\pi^-$ and $\bar{D}^0 \rightarrow K^+\pi^-$ is assumed to be small. If an arbitrary relative strong phase is allowed, the limit degrades by 25%.
- ⁸ This GODANG 00 limit is inferred from the $D^0\text{-}\bar{D}^0$ mixing ratio $\Gamma(K^+\pi^- \text{ (via } \bar{D}^0))/\Gamma(K^-\pi^+)$ given near the end of this D^0 Listings. Decay-time information is used to distinguish DCS decays from $D^0\text{-}\bar{D}^0$ mixing. The limit allows interference between the DCS and mixing ratios, and also allows CP violation. The strong phase between $D^0 \rightarrow K^+\pi^-$ and $\bar{D}^0 \rightarrow K^+\pi^-$ is assumed to be small. If an arbitrary relative strong phase is allowed, the limit degrades by a factor of two.
- ⁹ AITALA 98 allows interference between the doubly Cabibbo-suppressed and mixing amplitudes, and also allows CP violation in this term, but assumes that $A_D=A_R=0$. See the note on " $D^0\text{-}\bar{D}^0$ Mixing," above.
- ¹⁰ This limit is inferred from R_M for $f = K^+\pi^-$ and $f = K^+\pi^-\pi^+\pi^-$. See the note on " $D^0\text{-}\bar{D}^0$ Mixing," above. Decay-time information is used to distinguish doubly Cabibbo-suppressed decays from $D^0\text{-}\bar{D}^0$ mixing.
- ¹¹ This limit is inferred from R_M for $f = K^+\ell^-\bar{\nu}_\ell$. See the note on " $D^0\text{-}\bar{D}^0$ Mixing," above.
- ¹² ANJOS 88C assumes that $y = 0$. See the note on " $D^0\text{-}\bar{D}^0$ Mixing," above. Without this assumption, the limit degrades by about a factor of two.

$$(\Gamma_{D_1^0} - \Gamma_{D_2^0})/\Gamma = 2y$$

The D_1^0 and D_2^0 are the mass eigenstates of the D^0 meson, as described in the note on " $D^0\text{-}\bar{D}^0$ Mixing," above.

VALUE (units 10^{-2})	CL% EVTS	DOCUMENT ID	TECN	COMMENT
1.4 ± 1.0	OUR AVERAGE			
-3.0 + 5.0 +1.6 - 4.8 -0.8		13 ASNER	05 CLEO	$e^+e^- \approx 10 \text{ GeV}$
1.6 ± 0.8 +1.0 -0.8	450k	14 AUBERT	03P BABR	$e^+e^- \approx \Upsilon(4S)$
-1.0 ± 2.0 +1.4 -1.6	18k	15 ABE	02I BELL	$e^+e^- \approx \Upsilon(4S)$
-2.4 ± 5.0 ±2.8	3393	16 CSORNA	02 CLE2	$e^+e^- \approx \Upsilon(4S)$
6.84 ± 2.78 ±1.48	10k	15 LINK	00 FOCS	γ nucleus
+1.6 ± 5.8 ±2.1		15 AITALA	99E E791	$K^-\pi^+, K^+K^-$

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

-0.7 ± 4.9		$4k \pm 88$	17,18 ZHANG	06 BELL	$e^+ e^-$
-0.3 ± 5.7			17,18 LI	05A BELL	See ZHANG 06
-5.2	$+18.4$ -16.8		17,18 LINK	05H FOCS	γ nucleus
1.6	$+6.2$ -12.8		17,18 AUBERT	03Z BABR	$e^+ e^-$, 10.6 GeV
-5.0	$+2.8$ -3.2	± 0.6	18 GODANG	00 CLE2	$e^+ e^-$
$ \Delta\Gamma /\Gamma < 26$	90	19,20	AITALA	98 E791	π^- nucleus, 500 GeV
$ \Delta\Gamma /\Gamma < 20$	90	21	AITALA	96C E791	π^- nucleus, 500 GeV
$ \Delta\Gamma /\Gamma < 17$	90	20,22	ANJOS	88C E691	Photoproduction

¹³ This ASNER 05 limit is from the time-dependent Dalitz-plot analysis of $D^0 \rightarrow K_S^0 \pi^+ \pi^-$. Decay-time information and interference on the Dalitz plot are used to distinguish doubly Cabibbo-suppressed decays from mixing and to measure the relative phase between $D^0 \rightarrow K^{*+} \pi^-$ and $\bar{D}^0 \rightarrow K^{*+} \pi^-$. This limit allows CP violation.

¹⁴ AUBERT 03P measures $Y \equiv 2 \tau^0 / (\tau^+ + \tau^-) - 1$, where τ^0 is the $D^0 \rightarrow K^- \pi^+$ (and $\bar{D}^0 \rightarrow K^+ \pi^-$) lifetime, and τ^+ and τ^- are the D^0 and \bar{D}^0 lifetimes to CP -even states (here $K^- K^+$ and $\pi^- \pi^+$). In the limit of CP conservation, $Y = y \equiv \Delta\Gamma / 2\Gamma$ (we list $2y = \Delta\Gamma/\Gamma$). AUBERT 03P also uses $\tau^+ - \tau^-$ to get $\Delta Y = -0.008 \pm 0.006 \pm 0.002$.

¹⁵ LINK 00, AITALA 99E, and ABE 02I measure the lifetime difference between $D^0 \rightarrow K^- K^+$ (CP even) decays and $D^0 \rightarrow K^- \pi^+$ (CP mixed) decays, or $y_{CP} = [\Gamma(CP^+) - \Gamma(CP^-)] / [\Gamma(CP^+) + \Gamma(CP^-)]$. We list $2y_{CP} = \Delta\Gamma/\Gamma$.

¹⁶ CSORNA 02 measures the lifetime difference between $D^0 \rightarrow K^- K^+$ and $\pi^- \pi^+$ (CP even) decays and $D^0 \rightarrow K^- \pi^+$ (CP mixed) decays, or $y_{CP} = [\Gamma(CP^+) - \Gamma(CP^-)] / [\Gamma(CP^+) + \Gamma(CP^-)]$. We list $2y_{CP} = \Delta\Gamma/\Gamma$.

¹⁷ The ranges of AUBERT 03Z, LINK 05H, LI 05A, and ZHANG 06 measurements are for 95% confidence level.

¹⁸ The GODANG 00, AUBERT 03Z, LINK 05H, LI 05A, and ZHANG 06 limits are inferred from the D^0 - \bar{D}^0 mixing ratio $\Gamma(K^+ \pi^- \text{ (via } \bar{D}^0)) / \Gamma(K^- \pi^+)$ given near the end of this D^0 Listings. Decay-time information is used to distinguish DCS decays from D^0 - \bar{D}^0 mixing. The limit allows interference between the DCS and mixing ratios, and also allows CP violation. The phase between $D^0 \rightarrow K^+ \pi^-$ and $\bar{D}^0 \rightarrow K^+ \pi^-$ is assumed to be small. This is a measurement of y' and is not the same as the y_{CP} of our note above on " D^0 - \bar{D}^0 Mixing."

¹⁹ AITALA 98 allows interference between the doubly Cabibbo-suppressed and mixing amplitudes, and also allows CP violation in this term, but assumes that $A_D = A_R = 0$. See the note on " D^0 - \bar{D}^0 Mixing," above.

²⁰ This limit is inferred from R_M for $f = K^+ \pi^-$ and $f = K^+ \pi^- \pi^+ \pi^-$. See the note on " D^0 - \bar{D}^0 Mixing," above. Decay-time information is used to distinguish doubly Cabibbo-suppressed decays from D^0 - \bar{D}^0 mixing.

²¹ This limit is inferred from R_M for $f = K^+ \ell^- \bar{\nu}_\ell$. See the note on " D^0 - \bar{D}^0 Mixing," above.

²² ANJOS 88C assumes that $y = 0$. See the note on " D^0 - \bar{D}^0 Mixing," above. Without this assumption, the limit degrades by about a factor of two.

D^0 DECAY MODES

Most decay modes (other than the semileptonic modes) that involve a neutral K meson are now given as K_S^0 modes, not as \bar{K}^0 modes. Nearly always it is a K_S^0 that is measured, and interference between Cabibbo-allowed and doubly Cabibbo-suppressed modes can invalidate the assumption that $2\Gamma(K_S^0) = \Gamma(\bar{K}^0)$.

Mode	Fraction (Γ_i/Γ)	Scale factor/ Confidence level
Topological modes		
Γ_1 0-prongs	[a] (19 ± 6) %	
Γ_2 2-prongs	(67 ± 6) %	
Γ_3 4-prongs	[b] (13.8 ± 0.5) %	
Γ_4 6-prongs	(1.2 \pm $\frac{1.3}{0.7}$) $\times 10^{-3}$	
Inclusive modes		
Γ_5 e^+ anything	[c] (6.55 ± 0.17) %	
Γ_6 μ^+ anything	(6.6 ± 0.6) %	
Γ_7 K^- anything	(53 ± 4) %	S=1.3
Γ_8 \bar{K}^0 anything + K^0 anything	(47 ± 4) %	
Γ_9 K^+ anything	(3.4 \pm $\frac{0.6}{0.4}$) %	
Γ_{10} $K^*(892)^-$ anything	(15 ± 9) %	
Γ_{11} $\bar{K}^*(892)^0$ anything	(9 ± 4) %	
Γ_{12} $K^*(892)^+$ anything	< 3.6 %	CL=90%
Γ_{13} $K^*(892)^0$ anything	(2.8 ± 1.3) %	
Γ_{14} η anything	(9.5 ± 0.9) %	
Γ_{15} η' anything	(2.48 ± 0.27) %	
Γ_{16} ϕ anything	(1.05 ± 0.11) %	
Semileptonic modes		
Γ_{17} $K^- \ell^+ \nu_\ell$		
Γ_{18} $K^- e^+ \nu_e$	(3.50 ± 0.09) %	
Γ_{19} $K^- \mu^+ \nu_\mu$	(3.27 ± 0.13) %	
Γ_{20} $K^*(892)^- e^+ \nu_e$	(2.16 ± 0.16) %	
Γ_{21} $K^*(892)^- \mu^+ \nu_\mu$	(1.94 ± 0.25) %	
Γ_{22} $K^- \pi^0 e^+ \nu_e$		
Γ_{23} $\bar{K}^0 \pi^- e^+ \nu_e$	(2.7 \pm $\frac{0.9}{0.7}$) %	
Γ_{24} $\bar{K}^0 \pi^- \mu^+ \nu_\mu$		
Γ_{25} $K^*(892)^- \ell^+ \nu_\ell$		
Γ_{26} $\bar{K}^*(892)^0 \pi^- e^+ \nu_e$		
Γ_{27} $K^- \pi^+ \pi^- \mu^+ \nu_\mu$	< 1.2 $\times 10^{-3}$	CL=90%

Γ_{28}	$(\bar{K}^*(892)\pi)^-\mu^+\nu_\mu$	< 1.4	$\times 10^{-3}$	CL=90%
Γ_{29}	$\pi^-e^+\nu_e$	(2.80 ± 0.17)	$\times 10^{-3}$	
Γ_{30}	$\pi^-\mu^+\nu_\mu$	(2.36 ± 0.24)	$\times 10^{-3}$	
Γ_{31}	$\rho^-e^+\nu_e$	(1.9 ± 0.4)	$\times 10^{-3}$	

Hadronic modes with one \bar{K}

Γ_{32}	$K^-\pi^+$	(3.82 ± 0.07)	%	S=1.1
Γ_{33}	$K_S^0\pi^0$	(1.13 ± 0.12)	%	
Γ_{34}	$K_S^0\pi^+\pi^-$	[d] (2.88 ± 0.19)	%	
Γ_{35}	$K_S^0\rho^0$	$(7.5 \pm_{-0.8}^{0.6})$	$\times 10^{-3}$	
Γ_{36}	$K_S^0\omega, \omega \rightarrow \pi^+\pi^-$	(2.1 ± 0.6)	$\times 10^{-4}$	
Γ_{37}	$K_S^0f_0(980),$ $f_0(980) \rightarrow \pi^+\pi^-$	$(1.35 \pm_{-0.22}^{0.30})$	$\times 10^{-3}$	
Γ_{38}	$K_S^0f_2(1270),$ $f_2(1270) \rightarrow \pi^+\pi^-$	$(1.3 \pm_{-0.7}^{1.1})$	$\times 10^{-4}$	
Γ_{39}	$K_S^0f_0(1370),$ $f_0(1370) \rightarrow \pi^+\pi^-$	(2.5 ± 0.6)	$\times 10^{-3}$	
Γ_{40}	$K^*(892)^-\pi^+,$ $K^*(892)^- \rightarrow K_S^0\pi^-$	(1.90 ± 0.14)	%	
Γ_{41}	$K^*(892)^+\pi^-,$ $K^*(892)^+ \rightarrow K_S^0\pi^+$	[e] $(10 \pm_{-4}^{12})$	$\times 10^{-5}$	
Γ_{42}	$K_0^*(1430)^-\pi^+,$ $K_0^*(1430)^- \rightarrow K_S^0\pi^-$	$(2.8 \pm_{-0.4}^{0.6})$	$\times 10^{-3}$	
Γ_{43}	$K_2^*(1430)^-\pi^+,$ $K_2^*(1430)^- \rightarrow K_S^0\pi^-$	$(3.2 \pm_{-1.1}^{2.1})$	$\times 10^{-4}$	
Γ_{44}	$K^*(1680)^-\pi^+,$ $K^*(1680)^- \rightarrow K_S^0\pi^-$	$(6 \pm_{-4}^5)$	$\times 10^{-4}$	
Γ_{45}	$K_S^0\pi^+\pi^-$ nonresonant	$(2.6 \pm_{-1.6}^{5.9})$	$\times 10^{-4}$	
Γ_{46}	$K^-\pi^+\pi^0$	[d] (13.5 ± 0.6)	%	S=1.6
Γ_{47}	$K^-\rho^+$	(10.5 ± 0.7)	%	
Γ_{48}	$K^-\rho(1700)^+,$ $\rho(1700)^+ \rightarrow \pi^+\pi^0$	(7.7 ± 1.7)	$\times 10^{-3}$	
Γ_{49}	$K^*(892)^-\pi^+,$ $K^*(892)^- \rightarrow K^-\pi^0$	$(2.16 \pm_{-0.20}^{0.35})$	%	
Γ_{50}	$\bar{K}^*(892)^0\pi^0,$ $\bar{K}^*(892)^0 \rightarrow K^-\pi^+$	(1.83 ± 0.23)	%	
Γ_{51}	$K_0^*(1430)^-\pi^+,$ $K_0^*(1430)^- \rightarrow K^-\pi^0$	(4.5 ± 2.1)	$\times 10^{-3}$	

Γ ₅₂	$\bar{K}_0^*(1430)^0 \pi^0,$ $\bar{K}_0^*(1430)^0 \rightarrow K^- \pi^+$	(5.5 \pm 4.4 \pm 1.5) $\times 10^{-3}$	
Γ ₅₃	$K^*(1680)^- \pi^+,$ $K^*(1680)^- \rightarrow K^- \pi^0$	(1.8 \pm 0.7) $\times 10^{-3}$	
Γ ₅₄	$K^- \pi^+ \pi^0$ nonresonant	(1.08 \pm 0.52 \pm 0.19) %	
Γ ₅₅	$K_S^0 \pi^0 \pi^0$	—	
Γ ₅₆	$\bar{K}^*(892)^0 \pi^0,$ $\bar{K}^*(892)^0 \rightarrow K_S^0 \pi^0$	(6.2 \pm 1.8 \pm 1.5) $\times 10^{-3}$	
Γ ₅₇	$K_S^0 \pi^0 \pi^0$ nonresonant	(4.2 \pm 1.1) $\times 10^{-3}$	
Γ ₅₈	$K^- \pi^+ \pi^+ \pi^-$	[d] (7.70 \pm 0.25) %	S=1.2
Γ ₅₉	$K^- \pi^+ \rho^0$ total	(6.43 \pm 0.34) %	
Γ ₆₀	$K^- \pi^+ \rho^0$ 3-body	(4.9 \pm 2.2) $\times 10^{-3}$	
Γ ₆₁	$\bar{K}^*(892)^0 \rho^0,$ $\bar{K}^*(892)^0 \rightarrow K^- \pi^+$	(1.00 \pm 0.22) %	
Γ ₆₂	$K^- a_1(1260)^+,$ $a_1(1260)^+ \rightarrow \pi^+ \pi^+ \pi^-$	(3.6 \pm 0.6) %	
Γ ₆₃	$\bar{K}^*(892)^0 \pi^+ \pi^-$ total, $\bar{K}^*(892)^0 \rightarrow K^- \pi^+$	(1.5 \pm 0.4) %	
Γ ₆₄	$\bar{K}^*(892)^0 \pi^+ \pi^-$ 3-body, $\bar{K}^*(892)^0 \rightarrow K^- \pi^+$	(9.7 \pm 2.1) $\times 10^{-3}$	
Γ ₆₅	$K_1(1270)^- \pi^+,$ $K_1(1270)^- \rightarrow K^- \pi^+ \pi^-$	[f] (2.9 \pm 0.3) $\times 10^{-3}$	
Γ ₆₆	$K^- \pi^+ \pi^+ \pi^-$ nonresonant	(1.79 \pm 0.25) %	
Γ ₆₇	$K_S^0 \pi^+ \pi^- \pi^0$	[d] (5.3 \pm 0.6) %	
Γ ₆₈	$K_S^0 \eta, \eta \rightarrow \pi^+ \pi^- \pi^0$	(8.6 \pm 1.4) $\times 10^{-4}$	
Γ ₆₉	$K_S^0 \omega, \omega \rightarrow \pi^+ \pi^- \pi^0$	(9.8 \pm 1.8) $\times 10^{-3}$	
Γ ₇₀	$K^*(892)^- \rho^+,$ $K^*(892)^- \rightarrow K_S^0 \pi^-$	(2.1 \pm 0.8) %	
Γ ₇₁	$K_1(1270)^- \pi^+,$ $K_1(1270)^- \rightarrow K_S^0 \pi^- \pi^0$	[f] (2.2 \pm 0.6) $\times 10^{-3}$	
Γ ₇₂	$\bar{K}^*(892)^0 \pi^+ \pi^-$ 3-body, $\bar{K}^*(892)^0 \rightarrow K_S^0 \pi^0$	(2.4 \pm 0.5) $\times 10^{-3}$	
Γ ₇₃	$K_S^0 \pi^+ \pi^- \pi^0$ nonresonant	(1.1 \pm 1.1) %	
Γ ₇₄	$K^- \pi^+ \pi^0 \pi^0$		
Γ ₇₅	$K^- \pi^+ \pi^+ \pi^- \pi^0$	(4.1 \pm 0.4) %	
Γ ₇₆	$\bar{K}^*(892)^0 \pi^+ \pi^- \pi^0,$ $\bar{K}^*(892)^0 \rightarrow K^- \pi^+$	(1.2 \pm 0.6) %	
Γ ₇₇	$K^- \pi^+ \omega, \omega \rightarrow \pi^+ \pi^- \pi^0$	(2.7 \pm 0.5) %	
Γ ₇₈	$\bar{K}^*(892)^0 \omega,$ $\bar{K}^*(892)^0 \rightarrow K^- \pi^+,$ $\omega \rightarrow \pi^+ \pi^- \pi^0$	(6.5 \pm 2.4) $\times 10^{-3}$	
Γ ₇₉	$K_S^0 \eta \pi^0$	(5.2 \pm 1.2) $\times 10^{-3}$	

Γ_{80}	$K_S^0 a_0(980), a_0(980) \rightarrow \eta \pi^0$	$(6.2 \pm 2.0) \times 10^{-3}$	
Γ_{81}	$\overline{K}^*(892)^0 \eta, \overline{K}^*(892)^0 \rightarrow K_S^0 \pi^0$	$(1.5 \pm 0.5) \times 10^{-3}$	
Γ_{82}	$K_S^0 2\pi^+ 2\pi^-$	$(2.74 \pm 0.31) \times 10^{-3}$	
Γ_{83}	$K_S^0 \rho^0 \pi^+ \pi^-, \text{ no } K^*(892)^-$	$(1.1 \pm 0.7) \times 10^{-3}$	
Γ_{84}	$K^*(892)^- \pi^+ \pi^+ \pi^-, K^*(892)^- \rightarrow K_S^0 \pi^-, \text{ no } \rho^0$	$(5 \pm 8) \times 10^{-4}$	
Γ_{85}	$K^*(892)^- \rho^0 \pi^+, K^*(892)^- \rightarrow K_S^0 \pi^-$	$(1.6 \pm 0.7) \times 10^{-3}$	
Γ_{86}	$K_S^0 2\pi^+ 2\pi^- \text{ nonresonant}$	$< 1.3 \times 10^{-3}$	CL=90%
Γ_{87}	$\overline{K}^0 \pi^+ \pi^- \pi^0 \pi^0 (\pi^0)$		
Γ_{88}	$K^- 3\pi^+ 2\pi^-$	$(2.1 \pm 0.5) \times 10^{-4}$	

Fractions of many of the following modes with resonances have already appeared above as submodes of particular charged-particle modes. (Modes for which there are only upper limits and $\overline{K}^*(892)\rho$ submodes only appear below.)

Γ_{89}	$K_S^0 \eta$	$(3.8 \pm 0.6) \times 10^{-3}$	
Γ_{90}	$K_S^0 \omega$	$(1.09 \pm 0.19) \%$	
Γ_{91}	$K_S^0 \eta'(958)$	$(9.1 \pm 1.4) \times 10^{-3}$	
Γ_{92}	$K^- a_1(1260)^+$	$(7.5 \pm 1.1) \%$	
Γ_{93}	$\overline{K}^0 a_1(1260)^0$	$< 1.9 \%$	CL=90%
Γ_{94}	$K^- a_2(1320)^+$	$< 2 \times 10^{-3}$	CL=90%
Γ_{95}	$\overline{K}^*(892)^0 \pi^+ \pi^- \text{ total}$	$(2.3 \pm 0.5) \%$	
Γ_{96}	$\overline{K}^*(892)^0 \pi^+ \pi^- \text{ 3-body}$	$(1.46 \pm 0.33) \%$	
Γ_{97}	$\overline{K}^*(892)^0 \rho^0$	$(1.50 \pm 0.33) \%$	
Γ_{98}	$\overline{K}^*(892)^0 \rho^0 \text{ transverse}$	$(1.6 \pm 0.5) \%$	
Γ_{99}	$\overline{K}^*(892)^0 \rho^0 \text{ S-wave}$	$(2.9 \pm 0.6) \%$	
Γ_{100}	$\overline{K}^*(892)^0 \rho^0 \text{ S-wave long.}$	$< 3 \times 10^{-3}$	CL=90%
Γ_{101}	$\overline{K}^*(892)^0 \rho^0 \text{ P-wave}$	$< 3 \times 10^{-3}$	CL=90%
Γ_{102}	$\overline{K}^*(892)^0 \rho^0 \text{ D-wave}$	$(2.0 \pm 0.6) \%$	
Γ_{103}	$K^*(892)^- \rho^+$	$(6.4 \pm 2.5) \%$	
Γ_{104}	$K^*(892)^- \rho^+ \text{ longitudinal}$	$(3.1 \pm 1.2) \%$	
Γ_{105}	$K^*(892)^- \rho^+ \text{ transverse}$	$(3.3 \pm 1.9) \%$	
Γ_{106}	$K^*(892)^- \rho^+ \text{ P-wave}$	$< 1.5 \%$	CL=90%
Γ_{107}	$K^- \pi^+ f_0(980)$		
Γ_{108}	$\overline{K}^*(892)^0 f_0(980)$		
Γ_{109}	$K_1(1270)^- \pi^+$	[f] $(1.11 \pm 0.31) \%$	
Γ_{110}	$K_1(1400)^- \pi^+$	$< 1.2 \%$	CL=90%
Γ_{111}	$\overline{K}_1(1400)^0 \pi^0$	$< 3.7 \%$	CL=90%
Γ_{112}	$K^*(1410)^- \pi^+$		
Γ_{113}	$\overline{K}^*(892)^0 \pi^+ \pi^- \pi^0$	$(1.8 \pm 0.9) \%$	

Γ_{114}	$\bar{K}^*(892)^0 \eta$		
Γ_{115}	$K^- \pi^+ \omega$	(3.0 ± 0.6) %	
Γ_{116}	$\bar{K}^*(892)^0 \omega$	(1.1 ± 0.4) %	
Γ_{117}	$K^- \pi^+ \eta'(958)$	(7.2 ± 1.8) × 10 ⁻³	
Γ_{118}	$\bar{K}^*(892)^0 \eta'(958)$	< 1.1	× 10 ⁻³ CL=90%

Hadronic modes with three K's

Γ_{119}	$K_S^0 K^+ K^-$	(4.55 ± 0.34) × 10 ⁻³	
Γ_{120}	$K_S^0 a_0(980)^0, a_0^0 \rightarrow K^+ K^-$	(3.0 ± 0.4) × 10 ⁻³	
Γ_{121}	$K^- a_0(980)^+, a_0^+ \rightarrow K^+ K_S^0$	(6.1 ± 1.8) × 10 ⁻⁴	
Γ_{122}	$K^+ a_0(980)^-, a_0^- \rightarrow K^- K_S^0$	< 1.1	× 10 ⁻⁴ CL=95%
Γ_{123}	$K_S^0 f_0(980), f_0 \rightarrow K^+ K^-$	< 1.0	× 10 ⁻⁴ CL=95%
Γ_{124}	$K_S^0 \phi, \phi \rightarrow K^+ K^-$	(2.09 ± 0.16) × 10 ⁻³	
Γ_{125}	$K_S^0 f_0(1400), f_0 \rightarrow K^+ K^-$	(1.7 ± 1.1) × 10 ⁻⁴	
Γ_{126}	$3K_S^0$	(9.3 ± 1.3) × 10 ⁻⁴	
Γ_{127}	$K^+ K^- K^- \pi^+$	(2.11 ± 0.30) × 10 ⁻⁴	
Γ_{128}	$K^+ K^- \bar{K}^*(892)^0,$ $\bar{K}^*(892)^0 \rightarrow K^- \pi^+$	(4.2 ± 1.7) × 10 ⁻⁵	
Γ_{129}	$K^- \pi^+ \phi, \phi \rightarrow K^+ K^-$	(3.8 ± 1.6) × 10 ⁻⁵	
Γ_{130}	$\phi \bar{K}^*(892)^0,$ $\phi \rightarrow K^+ K^-,$ $\bar{K}^*(892)^0 \rightarrow K^- \pi^+$	(1.01 ± 0.19) × 10 ⁻⁴	
Γ_{131}	$K^+ K^- K^- \pi^+$ nonresonant	(3.2 ± 1.4) × 10 ⁻⁵	
Γ_{132}	$K_S^0 K_S^0 K^\pm \pi^\mp$	(6.1 ± 1.3) × 10 ⁻⁴	

Pionic modes

Γ_{133}	$\pi^+ \pi^-$	(1.371 ± 0.032) × 10 ⁻³	
Γ_{134}	$\pi^0 \pi^0$	(7.9 ± 0.8) × 10 ⁻⁴	
Γ_{135}	$\pi^+ \pi^- \pi^0$	(1.41 ± 0.08) %	S=1.9
Γ_{136}	$\rho^+ \pi^-$	(1.08 ± 0.07) %	
Γ_{137}	$\rho^0 \pi^0$	(3.4 ± 0.5) × 10 ⁻³	
Γ_{138}	$\rho^- \pi^+$	(4.9 ± 0.5) × 10 ⁻³	
Γ_{139}	$f_0(980) \pi^0, f_0(980) \rightarrow \pi^+ \pi^-$	< 4	× 10 ⁻⁶ CL=95%
Γ_{140}	$f_0(600) \pi^0, f_0(600) \rightarrow \pi^+ \pi^-$	< 3.0	× 10 ⁻⁵ CL=95%
Γ_{141}	$(\pi^+ \pi^-)_{S\text{-wave}} \pi^0$	< 2.7	× 10 ⁻⁴ CL=95%
Γ_{142}	$3\pi^0$	< 3.5	× 10 ⁻⁴ CL=90%
Γ_{143}	$2\pi^+ 2\pi^-$	(7.33 ± 0.27) × 10 ⁻³	
Γ_{144}	$\pi^+ \pi^- 2\pi^0$	(9.8 ± 0.9) × 10 ⁻³	
Γ_{145}	$\eta \pi^0$	[g] (5.6 ± 1.4) × 10 ⁻⁴	
Γ_{146}	$\omega \pi^0$	[g] < 2.6	× 10 ⁻⁴ CL=90%
Γ_{147}	$2\pi^+ 2\pi^- \pi^0$	(4.1 ± 0.5) × 10 ⁻³	
Γ_{148}	$\eta \pi^+ \pi^-$	[g] < 1.9	× 10 ⁻³ CL=90%
Γ_{149}	$\omega \pi^+ \pi^-$	[g] (1.6 ± 0.5) × 10 ⁻³	
Γ_{150}	$3\pi^+ 3\pi^-$	(4.0 ± 1.1) × 10 ⁻⁴	

Hadronic modes with a $K\bar{K}$ pair

Γ_{151}	$K^+ K^-$	$(3.85 \pm 0.09) \times 10^{-3}$	
Γ_{152}	$2K_S^0$	$(3.6 \pm 0.7) \times 10^{-4}$	
Γ_{153}	$K_S^0 K^- \pi^+$	$(3.4 \pm 0.5) \times 10^{-3}$	S=1.1
Γ_{154}	$\bar{K}^*(892)^0 K_S^0,$ $\bar{K}^*(892)^0 \rightarrow K^- \pi^+$	< 6	$\times 10^{-4}$ CL=90%
Γ_{155}	$K_S^0 K^+ \pi^-$	$(2.6 \pm 0.5) \times 10^{-3}$	
Γ_{156}	$K^*(892)^0 K_S^0, K^*(892)^0 \rightarrow$ $K^+ \pi^-$	< 3	$\times 10^{-4}$ CL=90%
Γ_{157}	$K^+ K^- \pi^0$	$(3.20 \pm 0.16) \times 10^{-3}$	
Γ_{158}	$K^*(892)^+ K^-, K^*(892)^+ \rightarrow$ $K^+ \pi^0$	$(1.47 \pm 0.12) \times 10^{-3}$	
Γ_{159}	$K^*(892)^- K^+, K^*(892)^- \rightarrow$ $K^- \pi^0$	$(3.9 \pm 0.7) \times 10^{-4}$	
Γ_{160}	$\phi \pi^0, \phi \rightarrow K^+ K^-$	$(4.8 \pm 0.6) \times 10^{-4}$	
Γ_{161}	$K^+ K^- \pi^0$ nonresonant	$(1.15 \pm 0.13) \times 10^{-3}$	
Γ_{162}	$K_S^0 K_S^0 \pi^0$	< 5.9	$\times 10^{-4}$
Γ_{163}	$K^+ K^- \pi^+ \pi^-$	[h] $(2.31 \pm 0.12) \times 10^{-3}$	
Γ_{164}	$\phi \pi^+ \pi^-$ 3-body, $\phi \rightarrow K^+ K^-$	$(2.3 \pm 2.3) \times 10^{-5}$	
Γ_{165}	$\phi \rho^0, \phi \rightarrow K^+ K^-$	$(6.7 \pm 0.6) \times 10^{-4}$	
Γ_{166}	$K^+ K^- \rho^0$ 3-body	$(5 \pm 7) \times 10^{-5}$	
Γ_{167}	$f_0(980) \pi^+ \pi^-, f_0 \rightarrow K^+ K^-$	$(3.5 \pm 0.9) \times 10^{-4}$	
Γ_{168}	$K^*(892)^0 K^\mp \pi^\pm$ 3-body, $K^{*0} \rightarrow K^\pm \pi^\mp$	[i] $(2.5 \pm 0.5) \times 10^{-4}$	
Γ_{169}	$K^*(892)^0 \bar{K}^*(892)^0, K^{*0} \rightarrow$ $K^\pm \pi^\mp$	$(7 \pm 5) \times 10^{-5}$	
Γ_{170}	$K_1(1270)^\pm K^\mp,$ $K_1(1270)^\pm \rightarrow K^\pm \pi^+ \pi^-$	$(7.6 \pm 1.7) \times 10^{-4}$	
Γ_{171}	$K_1(1400)^\pm K^\mp,$ $K_1(1400)^\pm \rightarrow K^\pm \pi^+ \pi^-$	$(5.1 \pm 1.2) \times 10^{-4}$	
Γ_{172}	$K^+ K^- \pi^+ \pi^-$ non- ϕ		
Γ_{173}	$K^+ K^- \pi^+ \pi^-$ nonresonant		
Γ_{174}	$K_S^0 K_S^0 \pi^+ \pi^-$	$(1.25 \pm 0.24) \times 10^{-3}$	
Γ_{175}	$K_S^0 K^- \pi^+ \pi^+ \pi^-$	< 1.5	$\times 10^{-4}$ CL=90%
Γ_{176}	$K^+ K^- \pi^+ \pi^- \pi^0$	$(3.1 \pm 2.0) \times 10^{-3}$	

Fractions of most of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.

Γ_{177}	$\bar{K}^*(892)^0 K_S^0$	< 8	$\times 10^{-4}$ CL=90%
Γ_{178}	$K^*(892)^0 K_S^0$	< 4	$\times 10^{-4}$ CL=90%
Γ_{179}	$\phi \pi^0$	$(7.5 \pm 0.5) \times 10^{-4}$	
Γ_{180}	$\phi \eta$	$(1.4 \pm 0.4) \times 10^{-4}$	
Γ_{181}	$\phi \omega$	< 2.1	$\times 10^{-3}$ CL=90%

Radiative modes

Γ_{182}	$\rho^0 \gamma$		< 2.4	$\times 10^{-4}$	CL=90%
Γ_{183}	$\omega \gamma$		< 2.4	$\times 10^{-4}$	CL=90%
Γ_{184}	$\phi \gamma$		$(2.4 \begin{smallmatrix} + 0.7 \\ - 0.6 \end{smallmatrix})$	$\times 10^{-5}$	
Γ_{185}	$\bar{K}^*(892)^0 \gamma$		< 7.6	$\times 10^{-4}$	CL=90%

Doubly Cabibbo suppressed (DC) modes or $\Delta C = 2$ forbidden via mixing (C2M) modes

Γ_{186}	$K^+ \ell^- \bar{\nu}_\ell$ (via \bar{D}^0)	C2M	< 1.8	$\times 10^{-4}$	CL=90%
Γ_{187}	K^+ or $K^*(892)^+$ $e^- \bar{\nu}_e$ (via \bar{D}^0)	C2M	< 6	$\times 10^{-5}$	CL=90%
Γ_{188}	$K^+ \pi^-$	DC	(1.45 ± 0.04)	$\times 10^{-4}$	
Γ_{189}	$K^+ \pi^-$ (via \bar{D}^0)	C2M	< 1.5	$\times 10^{-5}$	CL=95%
Γ_{190}	$K_S^0 \pi^+ \pi^-$ (in $D^0 \rightarrow \bar{D}^0$)	C2M	< 1.8	$\times 10^{-4}$	CL=95%
Γ_{191}	$K^*(892)^+ \pi^-$, $K^*(892)^+ \rightarrow K_S^0 \pi^+$	DC	$(10 \begin{smallmatrix} + 12 \\ - 4 \end{smallmatrix})$	$\times 10^{-5}$	
Γ_{192}	$K^+ \pi^- \pi^0$	DC	(2.96 ± 0.19)	$\times 10^{-4}$	
Γ_{193}	$K^+ \pi^- \pi^0$ (via \bar{D}^0)	C2M	< 7	$\times 10^{-5}$	CL=95%
Γ_{194}	$K^+ \pi^- \pi^+ \pi^-$	DC	$(2.49 \begin{smallmatrix} + 0.21 \\ - 0.19 \end{smallmatrix})$	$\times 10^{-4}$	
Γ_{195}	$K^+ \pi^- \pi^+ \pi^-$ (via \bar{D}^0)	C2M	< 4	$\times 10^{-4}$	CL=90%
Γ_{196}	$K^+ \pi^-$ or $K^+ \pi^- \pi^+ \pi^-$ (via \bar{D}^0)				
Γ_{197}	μ^- anything (via \bar{D}^0)	C2M	< 4	$\times 10^{-4}$	CL=90%

**$\Delta C = 1$ weak neutral current (C1) modes,
Lepton Family number (LF) violating modes, or
Lepton number (L) violating modes**

Γ_{198}	$\gamma \gamma$	C1	< 2.6	$\times 10^{-5}$	CL=90%
Γ_{199}	$e^+ e^-$	C1	< 1.2	$\times 10^{-6}$	CL=90%
Γ_{200}	$\mu^+ \mu^-$	C1	< 1.3	$\times 10^{-6}$	CL=90%
Γ_{201}	$\pi^0 e^+ e^-$	C1	< 4.5	$\times 10^{-5}$	CL=90%
Γ_{202}	$\pi^0 \mu^+ \mu^-$	C1	< 1.8	$\times 10^{-4}$	CL=90%
Γ_{203}	$\eta e^+ e^-$	C1	< 1.1	$\times 10^{-4}$	CL=90%
Γ_{204}	$\eta \mu^+ \mu^-$	C1	< 5.3	$\times 10^{-4}$	CL=90%
Γ_{205}	$\pi^+ \pi^- e^+ e^-$	C1	< 3.73	$\times 10^{-4}$	CL=90%
Γ_{206}	$\rho^0 e^+ e^-$	C1	< 1.0	$\times 10^{-4}$	CL=90%
Γ_{207}	$\pi^+ \pi^- \mu^+ \mu^-$	C1	< 3.0	$\times 10^{-5}$	CL=90%
Γ_{208}	$\rho^0 \mu^+ \mu^-$	C1	< 2.2	$\times 10^{-5}$	CL=90%
Γ_{209}	$\omega e^+ e^-$	C1	< 1.8	$\times 10^{-4}$	CL=90%
Γ_{210}	$\omega \mu^+ \mu^-$	C1	< 8.3	$\times 10^{-4}$	CL=90%
Γ_{211}	$K^- K^+ e^+ e^-$	C1	< 3.15	$\times 10^{-4}$	CL=90%
Γ_{212}	$\phi e^+ e^-$	C1	< 5.2	$\times 10^{-5}$	CL=90%
Γ_{213}	$K^- K^+ \mu^+ \mu^-$	C1	< 3.3	$\times 10^{-5}$	CL=90%

Γ_{214}	$\phi\mu^+\mu^-$	<i>C1</i>	< 3.1	$\times 10^{-5}$	CL=90%
Γ_{215}	$\overline{K}^0 e^+ e^-$		$[j] < 1.1$	$\times 10^{-4}$	CL=90%
Γ_{216}	$\overline{K}^0 \mu^+ \mu^-$		$[j] < 2.6$	$\times 10^{-4}$	CL=90%
Γ_{217}	$K^- \pi^+ e^+ e^-$	<i>C1</i>	< 3.85	$\times 10^{-4}$	CL=90%
Γ_{218}	$\overline{K}^*(892)^0 e^+ e^-$		$[j] < 4.7$	$\times 10^{-5}$	CL=90%
Γ_{219}	$K^- \pi^+ \mu^+ \mu^-$	<i>C1</i>	< 3.59	$\times 10^{-4}$	CL=90%
Γ_{220}	$\overline{K}^*(892)^0 \mu^+ \mu^-$		$[j] < 2.4$	$\times 10^{-5}$	CL=90%
Γ_{221}	$\pi^+ \pi^- \pi^0 \mu^+ \mu^-$	<i>C1</i>	< 8.1	$\times 10^{-4}$	CL=90%
Γ_{222}	$\mu^\pm e^\mp$	<i>LF</i>	$[k] < 8.1$	$\times 10^{-7}$	CL=90%
Γ_{223}	$\pi^0 e^\pm \mu^\mp$	<i>LF</i>	$[k] < 8.6$	$\times 10^{-5}$	CL=90%
Γ_{224}	$\eta e^\pm \mu^\mp$	<i>LF</i>	$[k] < 1.0$	$\times 10^{-4}$	CL=90%
Γ_{225}	$\pi^+ \pi^- e^\pm \mu^\mp$	<i>LF</i>	$[k] < 1.5$	$\times 10^{-5}$	CL=90%
Γ_{226}	$\rho^0 e^\pm \mu^\mp$	<i>LF</i>	$[k] < 4.9$	$\times 10^{-5}$	CL=90%
Γ_{227}	$\omega e^\pm \mu^\mp$	<i>LF</i>	$[k] < 1.2$	$\times 10^{-4}$	CL=90%
Γ_{228}	$K^- K^+ e^\pm \mu^\mp$	<i>LF</i>	$[k] < 1.8$	$\times 10^{-4}$	CL=90%
Γ_{229}	$\phi e^\pm \mu^\mp$	<i>LF</i>	$[k] < 3.4$	$\times 10^{-5}$	CL=90%
Γ_{230}	$\overline{K}^0 e^\pm \mu^\mp$	<i>LF</i>	$[k] < 1.0$	$\times 10^{-4}$	CL=90%
Γ_{231}	$K^- \pi^+ e^\pm \mu^\mp$	<i>LF</i>	$[k] < 5.53$	$\times 10^{-4}$	CL=90%
Γ_{232}	$\overline{K}^*(892)^0 e^\pm \mu^\mp$	<i>LF</i>	$[k] < 8.3$	$\times 10^{-5}$	CL=90%
Γ_{233}	$\pi^- \pi^- e^+ e^+ + \text{c.c.}$	<i>L</i>	< 1.12	$\times 10^{-4}$	CL=90%
Γ_{234}	$\pi^- \pi^- \mu^+ \mu^+ + \text{c.c.}$	<i>L</i>	< 2.9	$\times 10^{-5}$	CL=90%
Γ_{235}	$K^- \pi^- e^+ e^+ + \text{c.c.}$	<i>L</i>	< 2.06	$\times 10^{-4}$	CL=90%
Γ_{236}	$K^- \pi^- \mu^+ \mu^+ + \text{c.c.}$	<i>L</i>	< 3.9	$\times 10^{-4}$	CL=90%
Γ_{237}	$K^- K^- e^+ e^+ + \text{c.c.}$	<i>L</i>	< 1.52	$\times 10^{-4}$	CL=90%
Γ_{238}	$K^- K^- \mu^+ \mu^+ + \text{c.c.}$	<i>L</i>	< 9.4	$\times 10^{-5}$	CL=90%
Γ_{239}	$\pi^- \pi^- e^+ \mu^+ + \text{c.c.}$	<i>L</i>	< 7.9	$\times 10^{-5}$	CL=90%
Γ_{240}	$K^- \pi^- e^+ \mu^+ + \text{c.c.}$	<i>L</i>	< 2.18	$\times 10^{-4}$	CL=90%
Γ_{241}	$K^- K^- e^+ \mu^+ + \text{c.c.}$	<i>L</i>	< 5.7	$\times 10^{-5}$	CL=90%

Γ_{242} A dummy mode used by the fit. $(37.2 \pm 1.9) \%$ $S=1.1$

- [a] This value is obtained by subtracting the branching fractions for 2-, 4- and 6-prongs from unity.
- [b] This is the sum of our $K^- \pi^+ \pi^+ \pi^-$, $K^- \pi^+ \pi^+ \pi^- \pi^0$, $\overline{K}^0 2\pi^+ 2\pi^-$, $2\pi^+ 2\pi^-$, $2\pi^+ 2\pi^- \pi^0$, $K^+ K^- \pi^+ \pi^-$, and $K^+ K^- \pi^+ \pi^- \pi^0$, branching fractions.
- [c] The branching fractions for the $K^- e^+ \nu_e$, $K^*(892)^- e^+ \nu_e$, $\pi^- e^+ \nu_e$, and $\rho^- e^+ \nu_e$ modes add up to $6.14 \pm 0.20 \%$.
- [d] The branching fraction for this mode may differ from the sum of the submodes that contribute to it, due to interference effects. See the relevant papers.
- [e] This is a doubly Cabibbo-suppressed mode.

- [f] The two experiments measuring this fraction are in serious disagreement. See the Particle Listings.
- [g] This branching fraction includes all the decay modes of the resonance in the final state.
- [h] The experiments on the division of this charge mode amongst its sub-modes disagree, and the submode branching fractions here add up to considerably more than the charged-mode fraction.
- [i] However, these upper limits are in serious disagreement with values obtained in another experiment.
- [j] This mode is not a useful test for a $\Delta C=1$ weak neutral current because both quarks must change flavor in this decay.
- [k] The value is for the sum of the charge states or particle/antiparticle states indicated.

CONSTRAINED FIT INFORMATION

An overall fit to 44 branching ratios uses 82 measurements and one constraint to determine 23 parameters. The overall fit has a $\chi^2 = 49.7$ for 60 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\langle \delta x_i \delta x_j \rangle / (\delta x_i \delta x_j)$, in percent, from the fit to the branching fractions, $x_i \equiv \Gamma_i / \Gamma_{\text{total}}$. The fit constrains the x_i whose labels appear in this array to sum to one.

x_{18}	1										
x_{19}	22	6									
x_{20}	0	0	0								
x_{29}	0	16	1	0							
x_{30}	4	1	18	0	0						
x_{32}	6	22	29	1	3	5					
x_{33}	0	1	2	10	0	0	6				
x_{34}	1	2	3	16	0	0	9	63			
x_{46}	1	4	5	0	1	1	18	1	2		
x_{58}	3	10	13	1	2	2	45	3	5	52	
x_{67}	0	1	1	7	0	0	5	29	46	1	
x_{75}	1	4	5	0	1	1	16	1	2	11	
x_{89}	0	1	1	7	0	0	4	58	45	1	
x_{90}	0	1	1	5	0	0	3	21	34	1	
x_{96}	0	1	2	0	0	0	6	0	1	7	
x_{98}	0	1	1	1	0	0	4	3	4	4	
x_{109}	0	1	1	3	0	0	2	11	18	1	
x_{135}	1	4	5	0	1	1	17	1	2	72	
x_{143}	3	10	13	1	2	2	46	3	4	19	
x_{153}	0	1	2	6	0	0	5	23	37	1	
x_{155}	0	1	1	4	0	0	5	16	26	1	
x_{242}	-38	-12	-23	-15	-3	-5	-32	-33	-44	-50	
	x_6	x_{18}	x_{19}	x_{20}	x_{29}	x_{30}	x_{32}	x_{33}	x_{34}	x_{46}	

x ₆₇	3									
x ₇₅	23	1								
x ₈₉	2	21	1							
x ₉₀	2	41	1	15						
x ₉₆	14	0	3	0	0					
x ₉₈	8	8	2	2	3	1				
x ₁₀₉	3	38	1	8	16	0	3			
x ₁₃₅	39	1	9	1	1	5	3	1		
x ₁₄₃	40	2	11	2	2	6	3	1	16	
x ₁₅₃	3	17	1	17	12	0	2	7	1	3
x ₁₅₅	2	12	1	12	9	0	1	5	1	2
x ₂₄₂	-48	-57	-32	-24	-35	-24	-36	-36	-39	-24
	x ₅₈	x ₆₇	x ₇₅	x ₈₉	x ₉₀	x ₉₆	x ₉₈	x ₁₀₉	x ₁₃₅	x ₁₄₃
x ₁₅₅	10									
x ₂₄₂	-19	-15								
	x ₁₅₃	x ₁₅₅								

CONSTRAINED FIT INFORMATION

An overall fit to 3 branching ratios uses 3 measurements and one constraint to determine 4 parameters. The overall fit has a $\chi^2 = 0.0$ for 0 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\langle \delta x_i \delta x_j \rangle / (\delta x_i \cdot \delta x_j)$, in percent, from the fit to the branching fractions, $x_i \equiv \Gamma_i / \Gamma_{\text{total}}$. The fit constrains the x_i whose labels appear in this array to sum to one.

x ₂	-100		
x ₃	-48	41	
x ₄	-2	0	0
	x ₁	x ₂	x ₃

D⁰ BRANCHING RATIOS

Some older now obsolete results have been omitted from these Listings.

———— Topological modes ————

$\Gamma(0\text{-prongs}) / \Gamma_{\text{total}}$

Γ_1 / Γ

This value is obtained by subtracting the branching fractions for 2-, 4-, and 6-prongs from unity.

VALUE

DOCUMENT ID

0.19 ± 0.06 OUR FIT

$\Gamma(4\text{-prongs})/\Gamma_{\text{total}}$

Γ_3/Γ

This is the sum of our $K^-\pi^+\pi^+\pi^-$, $K^-\pi^+\pi^+\pi^-\pi^0$, $\bar{K}^0 2\pi^+2\pi^-$, $2\pi^+2\pi^-$, $2\pi^+2\pi^-\pi^0$, $K^+K^-\pi^+\pi^-$, and $K^+K^-\pi^+\pi^-\pi^0$ branching fractions.

<u>VALUE</u>	<u>DOCUMENT ID</u>	
0.138±0.005 OUR FIT		
0.138±0.005	PDG	06

$\Gamma(4\text{-prongs})/\Gamma(2\text{-prongs})$

Γ_3/Γ_2

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.207±0.016 OUR FIT				
0.207±0.016±0.004	226	ONENGUT 05	CHRS	ν_μ emulsion, $\bar{E}_\nu \approx 27$ GeV

$\Gamma(6\text{-prongs})/\Gamma_{\text{total}}$

Γ_4/Γ

<u>VALUE (units 10⁻³)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1.2^{+1.3}_{-0.7} OUR FIT				
1.2^{+1.3}_{-0.9}±0.2	3	ONENGUT 05	CHRS	ν_μ emulsion, $\bar{E}_\nu \approx 27$ GeV

———— Inclusive modes ————

$\Gamma(e^+\text{ anything})/\Gamma_{\text{total}}$

Γ_5/Γ

The branching fractions for the $K^- e^+ \nu_e$, $K^*(892)^- e^+ \nu_e$, $\pi^- e^+ \nu_e$, and $\rho^- e^+ \nu_e$ modes add up to 6.14 ± 0.20 %.

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.0655±0.0017 OUR AVERAGE				
0.0646±0.0017±0.0013	2246 ± 57	²³ ADAM	06A CLEO	e^+e^- at $\psi(3770)$
0.069 ±0.003 ±0.005	1670	ALBRECHT	96C ARG	$e^+e^- \approx 10$ GeV
0.0664±0.0018±0.0029	4609	²⁴ KUBOTA	96B CLE2	$e^+e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.15 ±0.05		AGUILAR-...	87E HYBR	$\pi p, pp$ 360,400 GeV
0.075 ±0.011 ±0.004	137	BALTRUSAIT..	85B MRK3	e^+e^- 3.77 GeV
0.055 ±0.037	12	SCHINDLER	81 MRK2	e^+e^- 3.771 GeV

²³ Using the D^+ and D^0 lifetimes, ADAM 06A finds that the ratio of the D^+ and D^0 inclusive e^+ widths is $0.985 \pm 0.028 \pm 0.015$, consistent with the isospin-invariance prediction of 1.

²⁴ KUBOTA 96B uses $D^{*+} \rightarrow D^0 \pi^+$ (and charge conjugate) events in which the D^0 subsequently decays to $X e^+ \nu_e$.

$\Gamma(\mu^+\text{ anything})/\Gamma_{\text{total}}$

Γ_6/Γ

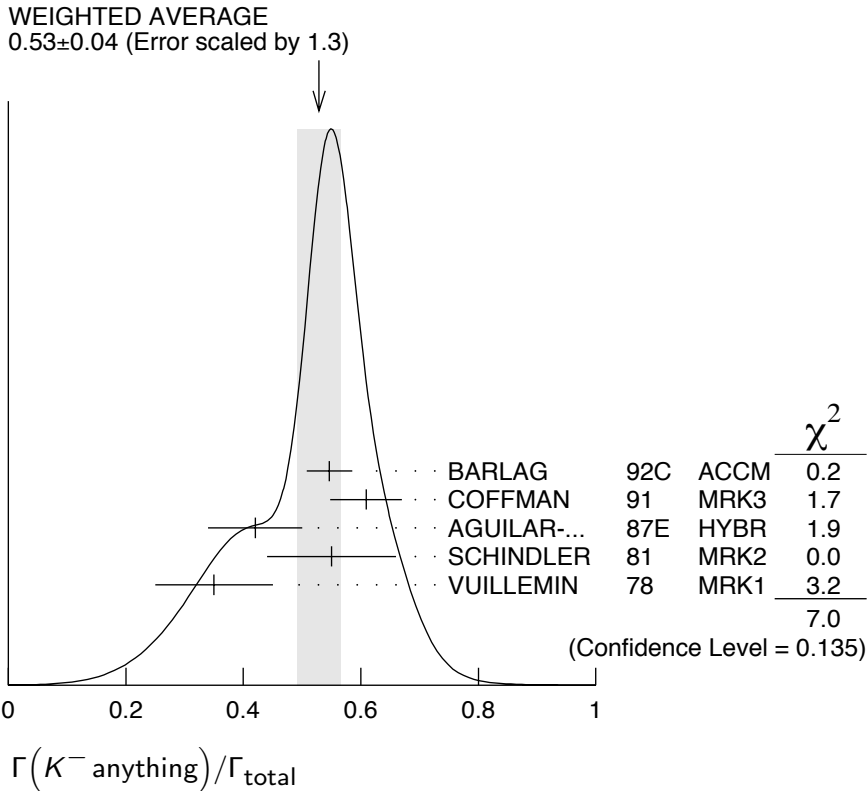
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.066±0.006 OUR FIT				
0.063±0.009 OUR AVERAGE				
0.065±0.012±0.003	36	KAYIS-TOPAK.05	CHRS	ν_μ emulsion
0.060±0.007±0.012	310	ALBRECHT 96C	ARG	$e^+e^- \approx 10$ GeV

$\Gamma(K^- \text{ anything})/\Gamma_{\text{total}}$

Γ_7/Γ

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.53 ± 0.04	OUR AVERAGE	Error includes scale factor of 1.3. See the ideogram below.		
0.546 ^{+0.039} _{-0.038}		²⁵ BARLAG	92C	ACCM π^- Cu 230 GeV
0.609 ± 0.032 ± 0.052		COFFMAN	91	MRK3 e^+e^- 3.77 GeV
0.42 ± 0.08		AGUILAR-...	87E	HYBR $\pi p, pp$ 360, 400 GeV
0.55 ± 0.11	121	SCHINDLER	81	MRK2 e^+e^- 3.771 GeV
0.35 ± 0.10	19	VUILLEMIN	78	MRK1 e^+e^- 3.772 GeV

²⁵ BARLAG 92C computes the branching fraction using topological normalization.



$[\Gamma(\bar{K}^0 \text{ anything}) + \Gamma(K^0 \text{ anything})]/\Gamma_{\text{total}}$

Γ_8/Γ

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.47 ± 0.04	OUR AVERAGE			
0.476 ± 0.048 ± 0.030	250 ± 25	ABLIKIM	06U	BES2 e^+e^- at 3773 MeV
0.455 ± 0.050 ± 0.032		COFFMAN	91	MRK3 e^+e^- 3.77 GeV

$\Gamma(K^+ \text{ anything})/\Gamma_{\text{total}}$

Γ_9/Γ

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.034^{+0.006}_{-0.004}	OUR AVERAGE			
0.034 ^{+0.007} _{-0.005}		²⁶ BARLAG	92C	ACCM π^- Cu 230 GeV
0.028 ± 0.009 ± 0.004		COFFMAN	91	MRK3 e^+e^- 3.77 GeV
0.03 ^{+0.05} _{-0.02}		AGUILAR-...	87E	HYBR $\pi p, pp$ 360, 400 GeV
0.08 ± 0.03	25	SCHINDLER	81	MRK2 e^+e^- 3.771 GeV

²⁶ BARLAG 92C computes the branching fraction using topological normalization.

$\Gamma(K^*(892)^- \text{ anything})/\Gamma_{\text{total}}$					Γ_{10}/Γ
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
0.153±0.083±0.019	28 ± 15	ABLIKIM	06U BES2	e^+e^- at 3773 MeV	

$\Gamma(\bar{K}^*(892)^0 \text{ anything})/\Gamma_{\text{total}}$					Γ_{11}/Γ
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
0.087±0.040±0.012	96 ± 44	ABLIKIM	05P BES	$e^+e^- \approx$ 3773 MeV	

$\Gamma(K^*(892)^+ \text{ anything})/\Gamma_{\text{total}}$					Γ_{12}/Γ
VALUE	CL%	DOCUMENT ID	TECN	COMMENT	
<0.036	90	ABLIKIM	06U BES2	e^+e^- at 3773 MeV	

$\Gamma(K^*(892)^0 \text{ anything})/\Gamma_{\text{total}}$					Γ_{13}/Γ
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
0.028±0.012±0.004	31 ± 12	ABLIKIM	05P BES	$e^+e^- \approx$ 3773 MeV	

$\Gamma(\eta \text{ anything})/\Gamma_{\text{total}}$					Γ_{14}/Γ
This ratio includes η particles from η' decays.					
VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT	
9.5±0.4±0.8	4463 ± 197	HUANG	06B CLEO	e^+e^- at $\psi(3770)$	

$\Gamma(\eta' \text{ anything})/\Gamma_{\text{total}}$					Γ_{15}/Γ
VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT	
2.48±0.17±0.21	299 ± 21	HUANG	06B CLEO	e^+e^- at $\psi(3770)$	

$\Gamma(\phi \text{ anything})/\Gamma_{\text{total}}$					Γ_{16}/Γ
VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT	
1.05±0.08±0.07	368 ± 24	HUANG	06B CLEO	e^+e^- at $\psi(3770)$	

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

$1.71^{+0.76}_{-0.71} \pm 0.17$	9	BAI	00C BES	$e^+e^- \rightarrow D\bar{D}^*, D^*\bar{D}^*$	
---------------------------------	---	-----	---------	---	--

———— Semileptonic modes ————

$\Gamma(K^- e^+ \nu_e)/\Gamma_{\text{total}}$					Γ_{18}/Γ
VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT	
3.50±0.09 OUR FIT					
3.46±0.11 OUR AVERAGE					
3.45±0.10±0.19	1318 ± 38	WIDHALM	06 BELL	$e^+e^- \approx \Upsilon(4S)$	
3.44±0.10±0.10	1311 ± 37	COAN	05 CLEO	e^+e^- at $\psi(3770)$	
3.82±0.40±0.27	104 ± 11	ABLIKIM	04C BES	e^+e^- , 3.773 GeV	
3.4 ± 0.5 ± 0.4	55	ADLER	89 MRK3	e^+e^- 3.77 GeV	

$\Gamma(K^- e^+ \nu_e)/\Gamma(K^- \pi^+)$ Γ_{18}/Γ_{32}

VALUE EVTS DOCUMENT ID TECN COMMENT

0.918±0.026 OUR FIT

0.95 ±0.04 OUR AVERAGE

0.978±0.027±0.044	2510	27 BEAN	93C	CLE2	$e^+e^- \approx \Upsilon(4S)$
0.90 ±0.06 ±0.06	584	28 CRAWFORD	91B	CLEO	$e^+e^- \approx 10.5 \text{ GeV}$
0.91 ±0.07 ±0.11	250	29 ANJOS	89F	E691	Photoproduction

²⁷ BEAN 93C uses $K^- \mu^+ \nu_\mu$ as well as $K^- e^+ \nu_e$ events and makes a small phase-space adjustment to the number of the μ^+ events to use them as e^+ events. A pole mass of $2.00 \pm 0.12 \pm 0.18 \text{ GeV}/c^2$ is obtained from the q^2 dependence of the decay rate.

²⁸ CRAWFORD 91B uses $K^- e^+ \nu_e$ and $K^- \mu^+ \nu_\mu$ candidates to measure a pole mass of $2.1^{+0.4+0.3}_{-0.2-0.2} \text{ GeV}/c^2$ from the q^2 dependence of the decay rate.

²⁹ ANJOS 89F measures a pole mass of $2.1^{+0.4}_{-0.2} \pm 0.2 \text{ GeV}/c^2$ from the q^2 dependence of the decay rate.

$\Gamma(K^- \mu^+ \nu_\mu)/\Gamma_{\text{total}}$ Γ_{19}/Γ

VALUE (units 10^{-2}) EVTS DOCUMENT ID TECN COMMENT

3.27±0.13 OUR FIT

3.45±0.10±0.21 1249 ± 43 WIDHALM 06 BELL $e^+e^- \approx \Upsilon(4S)$

$\Gamma(K^- \mu^+ \nu_\mu)/\Gamma(K^- \pi^+)$ Γ_{19}/Γ_{32}

VALUE EVTS DOCUMENT ID TECN COMMENT

0.857±0.033 OUR FIT

0.84 ±0.04 OUR AVERAGE

0.852±0.034±0.028	1897	30 FRABETTI	95G	E687	$\gamma \text{Be } \bar{E}_\gamma = 220 \text{ GeV}$
0.82 ±0.13 ±0.13	338	31 FRABETTI	93i	E687	$\gamma \text{Be } \bar{E}_\gamma = 221 \text{ GeV}$
0.79 ±0.08 ±0.09	231	32 CRAWFORD	91B	CLEO	$e^+e^- \approx 10.5 \text{ GeV}$

³⁰ FRABETTI 95G extracts the ratio of form factors $f_-(0)/f_+(0) = -1.3^{+3.6}_{-3.4} \pm 0.6$, and measures a pole mass of $1.87^{+0.11+0.07}_{-0.08-0.06} \text{ GeV}/c^2$ from the q^2 dependence of the decay rate.

³¹ FRABETTI 93i measures a pole mass of $2.1^{+0.7+0.7}_{-0.3-0.3} \text{ GeV}/c^2$ from the q^2 dependence of the decay rate.

³² CRAWFORD 91B measures a pole mass of $2.00 \pm 0.12 \pm 0.18 \text{ GeV}/c^2$ from the q^2 dependence of the decay rate.

$\Gamma(K^- \mu^+ \nu_\mu)/\Gamma(\mu^+ \text{ anything})$ Γ_{19}/Γ_6

VALUE EVTS DOCUMENT ID TECN COMMENT

0.49 ±0.05 OUR FIT

0.472±0.051±0.040 232 KODAMA 94 E653 π^- emulsion 600 GeV

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

0.32 ±0.05 ±0.05 124 KODAMA 91 EMUL pA 800 GeV

$\Gamma(K^- \pi^0 e^+ \nu_e)/\Gamma_{\text{total}}$ Γ_{22}/Γ

VALUE EVTS DOCUMENT ID TECN COMMENT

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

0.016^{+0.013}_{-0.005} ±0.002 4 33 BAI 91 MRK3 $e^+e^- \approx 3.77 \text{ GeV}$

³³ BAI 91 finds that a fraction $0.79^{+0.15+0.09}_{-0.17-0.03}$ of combined D^+ and D^0 decays to $\bar{K}\pi e^+\nu_e$ (24 events) are $\bar{K}^*(892)e^+\nu_e$. BAI 91 uses 56 $K^-e^+\nu_e$ events to measure a pole mass of $1.8 \pm 0.3 \pm 0.2$ GeV/ c^2 from the q^2 dependence of the decay rate.

$\Gamma(\bar{K}^0\pi^-e^+\nu_e)/\Gamma_{\text{total}}$ Γ_{23}/Γ

VALUE (units 10^{-2}) EVTS DOCUMENT ID TECN COMMENT

2.7 $^{+0.9}_{-0.7}$ OUR AVERAGE

2.61±1.04±0.28	9 ± 3	ABLIKIM	060	BES2	e^+e^- at 3773 MeV
2.8 $^{+1.7}_{-0.8}$ ±0.3	6	³⁴ BAI	91	MRK3	$e^+e^- \approx 3.77$ GeV

³⁴ BAI 91 finds that a fraction $0.79^{+0.15+0.09}_{-0.17-0.03}$ of combined D^+ and D^0 decays to $\bar{K}\pi e^+\nu_e$ (24 events) are $\bar{K}^*(892)e^+\nu_e$.

$\Gamma(K^*(892)^-e^+\nu_e)/\Gamma_{\text{total}}$ Γ_{20}/Γ

Both decay modes of the $K^*(892)^-$ are included.

VALUE (units 10^{-2}) EVTS DOCUMENT ID TECN COMMENT

2.16±0.16 OUR FIT

2.16±0.15±0.08	219 ± 16	³⁵ COAN	05	CLEO	e^+e^- at $\psi(3770)$
-----------------------	----------	--------------------	----	------	--------------------------

³⁵ COAN 05 uses both $K^-\pi^0$ and $K_S^0\pi^-$ events.

$\Gamma(K^*(892)^-e^+\nu_e)/\Gamma(K_S^0\pi^+\pi^-)$ Γ_{20}/Γ_{34}

Unseen decay modes of the $K^*(892)^-$ are included.

VALUE EVTS DOCUMENT ID TECN COMMENT

0.75±0.07 OUR FIT

0.76±0.12±0.06	152	³⁶ BEAN	93C	CLE2	$e^+e^- \approx \Upsilon(4S)$
-----------------------	-----	--------------------	-----	------	-------------------------------

³⁶ BEAN 93C uses $K^{*-}\mu^+\nu_\mu$ as well as $K^{*-}e^+\nu_e$ events and makes a small phase-space adjustment to the number of the μ^+ events to use them as e^+ events.

$\Gamma(K^*(892)^-e^+\nu_e)/\Gamma(K^-e^+\nu_e)$ Γ_{20}/Γ_{18}

Unseen decay modes of the $K^*(892)^-$ are included.

VALUE DOCUMENT ID TECN COMMENT

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

0.51±0.18±0.06	CRAWFORD	91B	CLEO	$e^+e^- \approx 10.5$ GeV
----------------	----------	-----	------	---------------------------

$\Gamma(K^*(892)^-\mu^+\nu_\mu)/\Gamma(K_S^0\pi^+\pi^-)$ Γ_{21}/Γ_{34}

Unseen decay modes of the $K^*(892)^-$ are included.

VALUE EVTS DOCUMENT ID TECN COMMENT

0.674±0.068±0.026	175 ± 17	³⁷ LINK	05B	FOCS	$\gamma A, \bar{E}_\gamma \approx 180$ GeV
--------------------------	----------	--------------------	-----	------	--

³⁷ LINK 05B finds that in $D^0 \rightarrow \bar{K}^0\pi^-\mu^+\nu_\mu$ the $\bar{K}^0\pi^-$ system is 6% in S -wave.

$\Gamma(K^*(892)^-\ell^+\nu_\ell)/\Gamma(K_S^0\pi^+\pi^-)$ Γ_{25}/Γ_{34}

This an average of the $K^*(892)^-e^+\nu_e$ and $K^*(892)^-\mu^+\nu_\mu$ ratios. Unseen decay modes of the $K^*(892)^-$ are included.

VALUE EVTS DOCUMENT ID TECN COMMENT

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

0.48±0.14±0.12	137	³⁸ ALEXANDER	90B	CLEO	e^+e^- 10.5–11 GeV
----------------	-----	-------------------------	-----	------	----------------------

³⁸ ALEXANDER 90B cannot exclude extra π^0 's in the final state.

$\Gamma(K^- \pi^+ \pi^- \mu^+ \nu_\mu) / \Gamma(K^- \mu^+ \nu_\mu)$ $\Gamma_{27} / \Gamma_{19}$

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.037	90	KODAMA	93B E653	π^- emulsion 600 GeV

$\Gamma((\bar{K}^*(892)\pi)^- \mu^+ \nu_\mu) / \Gamma(K^- \mu^+ \nu_\mu)$ $\Gamma_{28} / \Gamma_{19}$

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.043	90	³⁹ KODAMA	93B E653	π^- emulsion 600 GeV

³⁹KODAMA 93B searched in $K^- \pi^+ \pi^- \mu^+ \nu_\mu$, but the limit includes other $(\bar{K}^*(892)\pi)^-$ charge states.

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

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
--------------------------	------	-------------	------	---------

0.280 ± 0.017 OUR FIT

0.269 ± 0.020 OUR AVERAGE

0.279 ± 0.027 ± 0.016	126 ± 12	⁴⁰ WIDHALM	06 BELL	$e^+ e^- \approx \Upsilon(4S)$
0.262 ± 0.025 ± 0.008	117 ± 11	COAN	05 CLEO	$e^+ e^-$ at $\psi(3770)$

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

0.33 ± 0.13 ± 0.03	9 ± 4	⁴¹ ABLIKIM	04C BES	$e^+ e^-$, 3.773 GeV
0.39 $^{+0.23}_{-0.11}$ ± 0.04	7	⁴² ADLER	89 MRK3	$e^+ e^-$ 3.77 GeV

⁴⁰This result of WIDHALM 06 gives $|\frac{V_{cd}}{V_{cs}} \cdot \frac{f_+^\pi(0)}{f_+^K(0)}|^2 = 0.042 \pm 0.003 \pm 0.003$.

⁴¹ABLIKIM 04C measures $|\frac{f_+^\pi(0)}{f_+^K(0)}|$ to be $0.93 \pm 0.19 \pm 0.07$.

⁴²This result of ADLER 89 gives $|\frac{V_{cd}}{V_{cs}} \cdot \frac{f_+^\pi(0)}{f_+^K(0)}|^2 = 0.057^{+0.038}_{-0.015} \pm 0.005$.

$\Gamma(\pi^- e^+ \nu_e) / \Gamma(K^- e^+ \nu_e)$ $\Gamma_{29} / \Gamma_{18}$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
-------	------	-------------	------	---------

0.080 ± 0.005 OUR FIT

0.085 ± 0.007 OUR AVERAGE

0.082 ± 0.006 ± 0.005		⁴³ HUANG	05 CLEO	$e^+ e^- \approx \Upsilon(4S)$
0.101 ± 0.020 ± 0.003	91	⁴⁴ FRABETTI	96B E687	γ Be, $\bar{E}_\gamma \approx 200$ GeV
0.103 ± 0.039 ± 0.013	87	⁴⁵ BUTLER	95 CLE2	< 0.156 (90% CL)

⁴³HUANG 05 uses both e and μ events, and makes a small correction to the μ events to make them effectively e events. This result gives $|\frac{V_{cd}}{V_{cs}} \cdot \frac{f_+^\pi(0)}{f_+^K(0)}|^2 = 0.038^{+0.006+0.005}_{-0.007-0.003}$.

⁴⁴FRABETTI 96B uses both e and μ events, and makes a small correction to the μ events to make them effectively e events. This result gives $|\frac{V_{cd}}{V_{cs}} \cdot \frac{f_+^\pi(0)}{f_+^K(0)}|^2 = 0.050 \pm 0.011 \pm 0.002$.

⁴⁵BUTLER 95 has $87 \pm 33 \pi^- e^+ \nu_e$ events. The result gives $|\frac{V_{cd}}{V_{cs}} \cdot \frac{f_+^\pi(0)}{f_+^K(0)}|^2 = 0.052 \pm 0.020 \pm 0.007$.

$\Gamma(\pi^- \mu^+ \nu_\mu)/\Gamma_{\text{total}}$					Γ_{30}/Γ
VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT	
0.236 ± 0.024 OUR FIT					
0.231 ± 0.026 ± 0.019	106 ± 13	WIDHALM	06 BELL	$e^+ e^- \approx \Upsilon(4S)$	

$\Gamma(\pi^- \mu^+ \nu_\mu)/\Gamma(K^- \mu^+ \nu_\mu)$					Γ_{30}/Γ_{19}
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
0.072 ± 0.007 OUR FIT					
0.074 ± 0.008 ± 0.007	288 ± 29	⁴⁶ LINK	05 FOCS	$\gamma A, \bar{E}_\gamma \approx 180 \text{ GeV}$	

⁴⁶ LINK 05 finds the form-factor ratio $|f_0^\pi(0)/f_0^K(0)|$ to be $0.85 \pm 0.04 \pm 0.04 \pm 0.01$.

$\Gamma(\rho^- e^+ \nu_e)/\Gamma_{\text{total}}$					Γ_{31}/Γ
VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT	
0.194 ± 0.039 ± 0.013	31 ± 6	COAN	05 CLEO	$e^+ e^-$ at $\psi(3770)$	

————— Hadronic modes with a single \bar{K} —————

$\Gamma(K^- \pi^+)/\Gamma_{\text{total}}$					Γ_{32}/Γ
VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT	
3.82 ± 0.07 OUR FIT	Error includes scale factor of 1.1.				
3.85 ± 0.07 OUR AVERAGE					

3.91 ± 0.08 ± 0.09	10.3k ± 100	⁴⁷ HE	05 CLEO	$e^+ e^-$ at $\psi(3770)$	
3.82 ± 0.07 ± 0.12		⁴⁸ ARTUSO	98 CLE2	CLEO average	
3.90 ± 0.09 ± 0.12	5392	⁴⁹ BARATE	97C ALEP	From Z decays	
3.41 ± 0.12 ± 0.28	1173 ± 37	⁴⁹ ALBRECHT	94F ARG	$e^+ e^- \approx \Upsilon(4S)$	
3.62 ± 0.34 ± 0.44		⁴⁹ DECAMP	91J ALEP	From Z decays	
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
3.81 ± 0.15 ± 0.16	1165	⁵⁰ ARTUSO	98 CLE2	$e^+ e^-$ at $\Upsilon(4S)$	
3.69 ± 0.11 ± 0.16		⁵¹ COAN	98 CLE2	See ARTUSO 98	
4.5 ± 0.6 ± 0.4		⁵² ALBRECHT	94 ARG	$e^+ e^- \approx \Upsilon(4S)$	
3.95 ± 0.08 ± 0.17	4208	^{49,53} AKERIB	93 CLE2	See ARTUSO 98	
4.5 ± 0.8 ± 0.5	56	⁴⁹ ABACHI	88 HRS	$e^+ e^-$ 29 GeV	
4.2 ± 0.4 ± 0.4	930	ADLER	88C MRK3	$e^+ e^-$ 3.77 GeV	
4.1 ± 0.6	263 ± 17	⁵⁴ SCHINDLER	81 MRK2	$e^+ e^-$ 3.771 GeV	
4.3 ± 1.0	130	⁵⁵ PERUZZI	77 MRK1	$e^+ e^-$ 3.77 GeV	

⁴⁷ HE 05 uses single- and double-tagged events in an overall fit. The fraction here includes (unobserved) final-state photons.

⁴⁸ This combines the CLEO results of ARTUSO 98, COAN 98, and AKERIB 93.

⁴⁹ ABACHI 88, DECAMP 91J, AKERIB 93, ALBRECHT 94F, and BARATE 97C use $D^*(2010)^+ \rightarrow D^0 \pi^+$ decays. The π^+ is both slow and of low p_T with respect to the event thrust axis or nearest jet ($\approx D^{*+}$ direction). The excess number of such π^+ 's over background gives the number of $D^*(2010)^+ \rightarrow D^0 \pi^+$ events, and the fraction with $D^0 \rightarrow K^- \pi^+$ gives the $D^0 \rightarrow K^- \pi^+$ branching fraction.

⁵⁰ ARTUSO 98, following ALBRECHT 94, uses D^0 mesons from $\bar{B}^0 \rightarrow D^*(2010)^+ X \ell^- \bar{\nu}_\ell$ decays. Our average uses the CLEO average of this value with the values of COAN 98 and AKERIB 93.

⁵¹ COAN 98 assumes that $\Gamma(B \rightarrow \bar{D} X \ell^+ \nu)/\Gamma(B \rightarrow X \ell^+ \nu) = 1.0 - 3|V_{ub}/V_{cb}|^2 - 0.010 \pm 0.005$, the last term accounting for $\bar{B} \rightarrow D_s^+ K X \ell^- \bar{\nu}$. COAN 98 is included in the CLEO average in ARTUSO 98.

⁵² ALBRECHT 94 uses D^0 mesons from $\bar{B}^0 \rightarrow D^{*+} \ell^- \bar{\nu}_\ell$ decays. This is a different set of events than used by ALBRECHT 94F.

⁵³ This AKERIB 93 value includes radiative corrections; without them, the value is $0.0391 \pm 0.0008 \pm 0.0017$. AKERIB 93 is included in the CLEO average in ARTUSO 98.

⁵⁴ SCHINDLER 81 (MARK-2) measures $\sigma(e^+e^- \rightarrow \psi(3770)) \times$ branching fraction to be 0.24 ± 0.02 nb. We use the MARK-3 (ADLER 88C) value of $\sigma = 5.8 \pm 0.5 \pm 0.6$ nb.

⁵⁵ PERUZZI 77 (MARK-1) measures $\sigma(e^+e^- \rightarrow \psi(3770)) \times$ branching fraction to be 0.25 ± 0.05 nb. We use the MARK-3 (ADLER 88C) value of $\sigma = 5.8 \pm 0.5 \pm 0.6$ nb.

$\Gamma(K_S^0 \pi^0)/\Gamma(K^- \pi^+)$					Γ_{33}/Γ_{32}
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
0.297 ± 0.031 OUR FIT					
0.68 ± 0.12 ± 0.11	119	ANJOS	92B E691	γ Be 80–240 GeV	

$\Gamma(K_S^0 \pi^0)/\Gamma(K_S^0 \pi^+ \pi^-)$					Γ_{33}/Γ_{34}
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
0.393 ± 0.033 OUR FIT Error includes scale factor of 1.1.					
0.378 ± 0.033 OUR AVERAGE					

0.44 ± 0.02 ± 0.05	1942 ± 64	PROCARIO	93B CLE2	e^+e^- 10.36–10.7 GeV
0.34 ± 0.04 ± 0.02	92	⁵⁶ ALBRECHT	92P ARG	$e^+e^- \approx 10$ GeV
0.36 ± 0.04 ± 0.08	104	KINOSHITA	91 CLEO	$e^+e^- \sim 10.7$ GeV

⁵⁶ This value is calculated from numbers in Table 1 of ALBRECHT 92P.

$\Gamma(K_S^0 \pi^+ \pi^-)/\Gamma_{\text{total}}$					Γ_{34}/Γ
VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT	
2.88 ± 0.19 OUR FIT					
2.68 ± 0.29 OUR AVERAGE					

2.52 ± 0.20 ± 0.25	284 ± 22	⁵⁷ ALBRECHT	94F ARG	$e^+e^- \approx \Upsilon(4S)$
3.2 ± 0.3 ± 0.5		ADLER	87 MRK3	e^+e^- 3.77 GeV

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

2.6 ± 0.8	32 ± 8	⁵⁸ SCHINDLER	81 MRK2	e^+e^- 3.771 GeV
4.0 ± 1.2	28	⁵⁹ PERUZZI	77 MRK1	e^+e^- 3.77 GeV

⁵⁷ See the footnote on the ALBRECHT 94F measurement of $\Gamma(K^- \pi^+)/\Gamma_{\text{total}}$ for the method used.

⁵⁸ SCHINDLER 81 (MARK-2) measures $\sigma(e^+e^- \rightarrow \psi(3770)) \times$ branching fraction to be 0.30 ± 0.08 nb. We use the MARK-3 (ADLER 88C) value of $\sigma = 5.8 \pm 0.5 \pm 0.6$ nb.

⁵⁹ PERUZZI 77 (MARK-1) measures $\sigma(e^+e^- \rightarrow \psi(3770)) \times$ branching fraction to be 0.46 ± 0.12 nb. We use the MARK-3 (ADLER 88C) value of $\sigma = 5.8 \pm 0.5 \pm 0.6$ nb.

$\Gamma(K_S^0 \pi^+ \pi^-)/\Gamma(K^- \pi^+)$					Γ_{34}/Γ_{32}
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
0.76 ± 0.05 OUR FIT					
0.81 ± 0.05 ± 0.08	856 ± 35	FRABETTI	94J E687	γ Be $\bar{E}_\gamma=220$ GeV	

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

0.85 ± 0.40	35	AVERY	80 SPEC	$\gamma N \rightarrow D^{*+}$
1.4 ± 0.5	116	PICCOLO	77 MRK1	e^+e^- 4.03, 4.41 GeV

$\Gamma(K_S^0 \rho^0) / \Gamma(K_S^0 \pi^+ \pi^-)$ $\Gamma_{35} / \Gamma_{34}$

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
-------	-------------	------	---------

0.259^{+0.014}_{-0.023} OUR AVERAGE Error includes scale factor of 1.1.

0.264 ± 0.009 ^{+0.010} _{-0.026}	MURAMATSU 02	CLE2	Dalitz fit, 5299 evts
---	--------------	------	-----------------------

0.350 ± 0.028 ± 0.067	FRABETTI 94G	E687	γ Be, $\bar{E}_\gamma \approx 220$ GeV
-----------------------	--------------	------	---

0.227 ± 0.032 ± 0.009	ALBRECHT 93D	ARG	$e^+ e^- \approx 10$ GeV
-----------------------	--------------	-----	--------------------------

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

0.267 ± 0.011 ^{+0.009} _{-0.028}	ASNER 04A	CLEO	See MURAMATSU 02
---	-----------	------	------------------

0.215 ± 0.051 ± 0.037	ANJOS 93	E691	γ Be 90–260 GeV
-----------------------	----------	------	------------------------

0.20 ± 0.06 ± 0.03	FRABETTI 92B	E687	γ Be, $\bar{E}_\gamma = 221$ GeV
--------------------	--------------	------	---

0.12 ± 0.01 ± 0.07	ADLER 87	MRK3	$e^+ e^- 3.77$ GeV
--------------------	----------	------	--------------------

$\Gamma(K_S^0 \omega, \omega \rightarrow \pi^+ \pi^-) / \Gamma(K_S^0 \pi^+ \pi^-)$ $\Gamma_{36} / \Gamma_{34}$

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
-------	-------------	------	---------

0.0072 ± 0.0018^{+0.0010}_{-0.0009} OUR AVERAGE

MURAMATSU 02	CLE2	Dalitz fit, 5299 evts
--------------	------	-----------------------

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

0.0081 ± 0.0019 ^{+0.0018} _{-0.0010}	ASNER 04A	CLEO	See MURAMATSU 02
---	-----------	------	------------------

$\Gamma(K_S^0 f_0(980), f_0(980) \rightarrow \pi^+ \pi^-) / \Gamma(K_S^0 \pi^+ \pi^-)$ $\Gamma_{37} / \Gamma_{34}$

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
-------	-------------	------	---------

0.047^{+0.010}_{-0.007} OUR AVERAGE

0.043 ± 0.005 ^{+0.012} _{-0.006}	MURAMATSU 02	CLE2	Dalitz fit, 5299 evts
---	--------------	------	-----------------------

0.068 ± 0.016 ± 0.018	FRABETTI 94G	E687	γ Be, $\bar{E}_\gamma \approx 220$ GeV
-----------------------	--------------	------	---

0.046 ± 0.018 ± 0.006	ALBRECHT 93D	ARG	$e^+ e^- \approx 10$ GeV
-----------------------	--------------	-----	--------------------------

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

0.042 ± 0.005 ^{+0.011} _{-0.005}	ASNER 04A	CLEO	See MURAMATSU 02
---	-----------	------	------------------

$\Gamma(K_S^0 f_2(1270), f_2(1270) \rightarrow \pi^+ \pi^-) / \Gamma(K_S^0 \pi^+ \pi^-)$ $\Gamma_{38} / \Gamma_{34}$

This is the "fit fraction" from the Dalitz-plot analysis. Note the large difference between the CLEO results and earlier measurements.

VALUE	DOCUMENT ID	TECN	COMMENT
-------	-------------	------	---------

0.0045^{+0.0039}_{-0.0022} OUR AVERAGE

0.0027 ± 0.0015 ^{+0.0037} _{-0.0017}	MURAMATSU 02	CLE2	Dalitz fit, 5299 evts
---	--------------	------	-----------------------

0.037 ± 0.014 ± 0.017	FRABETTI 94G	E687	γ Be, $\bar{E}_\gamma \approx 220$ GeV
-----------------------	--------------	------	---

0.050 ± 0.021 ± 0.008	ALBRECHT 93D	ARG	$e^+ e^- \approx 10$ GeV
-----------------------	--------------	-----	--------------------------

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

0.0036 ± 0.0022 ^{+0.0032} _{-0.0019}	ASNER 04A	CLEO	See MURAMATSU 02
---	-----------	------	------------------

$\Gamma(K_S^0 f_0(1370), f_0(1370) \rightarrow \pi^+ \pi^-) / \Gamma(K_S^0 \pi^+ \pi^-)$ $\Gamma_{39} / \Gamma_{34}$

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
--------------	--------------------	-------------	----------------

0.085^{+0.019}_{-0.021} OUR AVERAGE

0.099 ± 0.011 ^{+0.028} _{-0.044}	MURAMATSU 02	CLE2	Dalitz fit, 5299 evts
0.077 ± 0.022 ± 0.031	FRABETTI 94G	E687	γ Be, $\bar{E}_\gamma \approx 220$ GeV
0.082 ± 0.028 ± 0.013	ALBRECHT 93D	ARG	$e^+ e^- \approx 10$ GeV
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
0.098 ± 0.014 ^{+0.026} _{-0.036}	ASNER	04A CLEO	See MURAMATSU 02

$\Gamma(K^*(892)^- \pi^+, K^*(892)^- \rightarrow K_S^0 \pi^-) / \Gamma(K_S^0 \pi^+ \pi^-)$ $\Gamma_{40} / \Gamma_{34}$

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
--------------	--------------------	-------------	----------------

0.660^{+0.019}_{-0.026} OUR AVERAGE

0.657 ± 0.013 ^{+0.018} _{-0.040}	MURAMATSU 02	CLE2	Dalitz fit, 5299 evts
0.625 ± 0.036 ± 0.026	FRABETTI 94G	E687	γ Be, $\bar{E}_\gamma \approx 220$ GeV
0.718 ± 0.042 ± 0.030	ALBRECHT 93D	ARG	$e^+ e^- \approx 10$ GeV
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
0.663 ± 0.013 ^{+0.024} _{-0.043}	ASNER	04A CLEO	See MURAMATSU 02
0.480 ± 0.097	ANJOS	93 E691	γ Be 90–260 GeV
0.56 ± 0.04 ± 0.05	ADLER	87 MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(K^*(892)^+ \pi^-, K^*(892)^+ \rightarrow K_S^0 \pi^+) / \Gamma(K_S^0 \pi^+ \pi^-)$ $\Gamma_{191} / \Gamma_{34}$

This is the "fit fraction" from the Dalitz-plot analysis. This is a doubly Cabibbo-suppressed mode.

<u>VALUE (units 10⁻³)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
--------------------------------------	--------------------	-------------	----------------

3.4 ± 1.3^{+4.1}_{-0.4}

3.4 ± 1.3 ^{+4.1} _{-0.4}	MURAMATSU 02	CLE2	Dalitz fit, 5299 evts
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
3.4 ± 1.3 ^{+3.6} _{-0.5}	ASNER	04A CLEO	See MURAMATSU 02

$\Gamma(K_0^*(1430)^- \pi^+, K_0^*(1430)^- \rightarrow K_S^0 \pi^-) / \Gamma(K_S^0 \pi^+ \pi^-)$ $\Gamma_{42} / \Gamma_{34}$

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
--------------	--------------------	-------------	----------------

0.096^{+0.021}_{-0.012} OUR AVERAGE

0.073 ± 0.007 ^{+0.031} _{-0.011}	MURAMATSU 02	CLE2	Dalitz fit, 5299 evts
0.109 ± 0.027 ± 0.029	FRABETTI 94G	E687	γ Be, $\bar{E}_\gamma \approx 220$ GeV
0.129 ± 0.034 ± 0.021	ALBRECHT 93D	ARG	$e^+ e^- \approx 10$ GeV
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
0.072 ± 0.007 ^{+0.014} _{-0.013}	ASNER	04A CLEO	See MURAMATSU 02

$$\Gamma(K_2^*(1430)^- \pi^+, K_2^*(1430)^- \rightarrow K_S^0 \pi^-) / \Gamma(K_S^0 \pi^+ \pi^-) \quad \Gamma_{43}/\Gamma_{34}$$

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
$0.011 \pm 0.002^{+0.007}_{-0.003}$	MURAMATSU 02	CLE2	Dalitz fit, 5299 evts

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

$0.011 \pm 0.002^{+0.005}_{-0.003}$	ASNER	04A	CLEO See MURAMATSU 02
-------------------------------------	-------	-----	-----------------------

$$\Gamma(K^*(1680)^- \pi^+, K^*(1680)^- \rightarrow K_S^0 \pi^-) / \Gamma(K_S^0 \pi^+ \pi^-) \quad \Gamma_{44}/\Gamma_{34}$$

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
$0.022 \pm 0.004^{+0.018}_{-0.015}$	MURAMATSU 02	CLE2	Dalitz fit, 5299 evts

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

$0.023 \pm 0.005^{+0.007}_{-0.014}$	ASNER	04A	CLEO See MURAMATSU 02
-------------------------------------	-------	-----	-----------------------

$$\Gamma(K_S^0 \pi^+ \pi^- \text{ nonresonant}) / \Gamma(K_S^0 \pi^+ \pi^-) \quad \Gamma_{45}/\Gamma_{34}$$

This is the "fit fraction" from the Dalitz-plot analysis. Neither FRABETTI 94G nor ALBRECHT 93D (quoted in many of the earlier submodes of $K_S^0 \pi^+ \pi^-$) sees evidence for a nonresonant component.

VALUE	DOCUMENT ID	TECN	COMMENT
$0.009 \pm 0.004^{+0.020}_{-0.004}$	MURAMATSU 02	CLE2	Dalitz fit, 5299 evts

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

$0.007 \pm 0.007^{+0.021}_{-0.006}$	ASNER	04A	CLEO See MURAMATSU 02
$0.263 \pm 0.024 \pm 0.041$	ANJOS	93	E691 γ Be 90–260 GeV
$0.26 \pm 0.08 \pm 0.05$	FRABETTI	92B	E687 γ Be, $\bar{E}_\gamma = 221$ GeV
$0.33 \pm 0.05 \pm 0.10$	ADLER	87	MRK3 $e^+ e^-$ 3.77 GeV

$$\Gamma(K^- \pi^+ \pi^0) / \Gamma_{\text{total}} \quad \Gamma_{46}/\Gamma$$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.135 ± 0.006 OUR FIT				Error includes scale factor of 1.6.
$0.149 \pm 0.003 \pm 0.005$	19k \pm 150	⁶⁰ HE	05	CLEO $e^+ e^-$ at $\psi(3770)$

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

$0.133 \pm 0.012 \pm 0.013$	931	ADLER	88C	MRK3 $e^+ e^-$ 3.77 GeV
0.117 ± 0.043	37	⁶¹ SCHINDLER	81	MRK2 $e^+ e^-$ 3.771 GeV

⁶⁰ HE 05 uses single- and double-tagged events in an overall fit. The fraction here includes (unobserved) final-state photons.

⁶¹ SCHINDLER 81 (MARK-2) measures $\sigma(e^+ e^- \rightarrow \psi(3770)) \times$ branching fraction to be 0.68 ± 0.23 nb. We use the MARK-3 (ADLER 88C) value of $\sigma = 5.8 \pm 0.5 \pm 0.6$ nb.

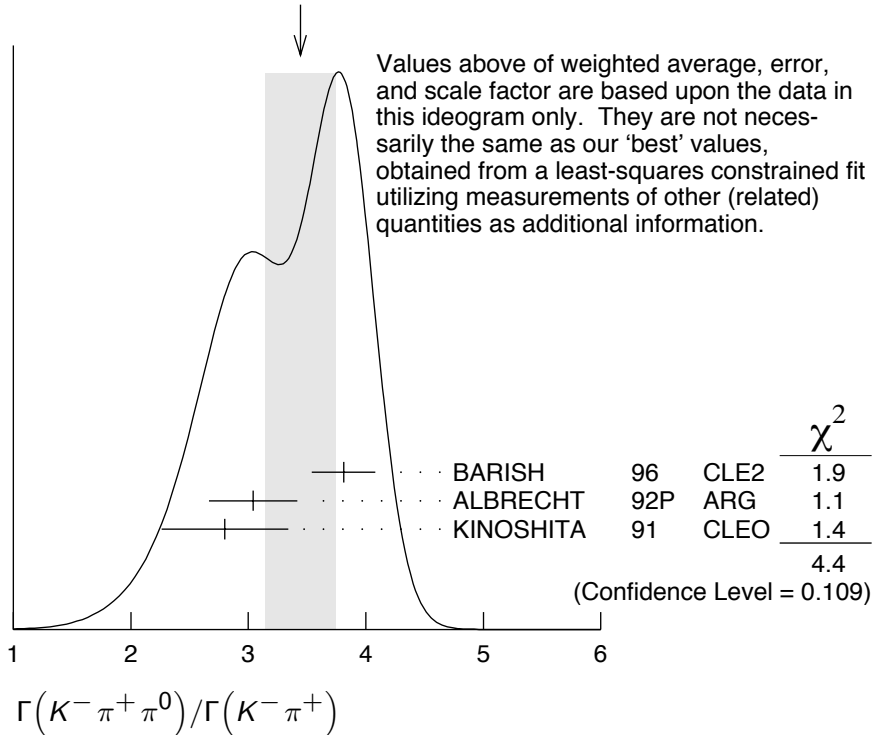
$\Gamma(K^- \pi^+ \pi^0)/\Gamma(K^- \pi^+)$

Γ_{46}/Γ_{32}

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
3.54 ± 0.16 OUR FIT				Error includes scale factor of 2.0.
3.44 ± 0.30 OUR AVERAGE				Error includes scale factor of 1.5. See the ideogram below.
3.81 ± 0.07 ± 0.26	10k	BARISH	96 CLE2	$e^+ e^- \approx \mathcal{T}(4S)$
3.04 ± 0.16 ± 0.34	931	⁶² ALBRECHT	92P ARG	$e^+ e^- \approx 10 \text{ GeV}$
2.8 ± 0.14 ± 0.52	1050	KINOSHITA	91 CLEO	$e^+ e^- \sim 10.7 \text{ GeV}$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
4.0 ± 0.9 ± 1.0	69	ALVAREZ	91B NA14	Photoproduction
4.2 ± 1.4	41	SUMMERS	84 E691	Photoproduction

⁶²This value is calculated from numbers in Table 1 of ALBRECHT 92P.

WEIGHTED AVERAGE
3.44 ± 0.30 (Error scaled by 1.5)



$\Gamma(K^- \rho^+)/\Gamma(K^- \pi^+ \pi^0)$

Γ_{47}/Γ_{46}

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.78 ± 0.04 OUR AVERAGE			
0.788 ± 0.019 ± 0.048	KOPP	01 CLE2	$e^+ e^- \approx 10.6 \text{ GeV}$
0.765 ± 0.041 ± 0.054	FRABETTI	94G E687	$\gamma \text{ Be}, \bar{E}_\gamma \approx 220 \text{ GeV}$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
0.647 ± 0.039 ± 0.150	ANJOS	93 E691	$\gamma \text{ Be } 90\text{--}260 \text{ GeV}$
0.81 ± 0.03 ± 0.06	ADLER	87 MRK3	$e^+ e^- 3.77 \text{ GeV}$

$\Gamma(K^- \rho(1700)^+, \rho(1700)^+ \rightarrow \pi^+ \pi^0)/\Gamma(K^- \pi^+ \pi^0)$

Γ_{48}/Γ_{46}

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.057 ± 0.008 ± 0.009	KOPP	01 CLE2	$e^+ e^- \approx 10.6 \text{ GeV}$

$\Gamma(K^*(892)^-\pi^+, K^*(892)^-\pi^0)/\Gamma(K^-\pi^+\pi^0)$ Γ_{49}/Γ_{46}

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.160^{+0.025}_{-0.013} OUR AVERAGE			

0.161 ± 0.007 ^{+0.027} _{-0.011}	KOPP	01	CLE2	$e^+e^- \approx 10.6$ GeV
---	------	----	------	---------------------------

0.148 ± 0.028 ± 0.049	FRABETTI	94G	E687	γ Be, $\bar{E}_\gamma \approx 220$ GeV
-----------------------	----------	-----	------	---

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

0.084 ± 0.011 ± 0.012	ANJOS	93	E691	γ Be 90–260 GeV
-----------------------	-------	----	------	------------------------

0.12 ± 0.02 ± 0.03	ADLER	87	MRK3	$e^+e^- 3.77$ GeV
--------------------	-------	----	------	-------------------

$\Gamma(\bar{K}^*(892)^0\pi^0, \bar{K}^*(892)^0\pi^+) / \Gamma(K^-\pi^+\pi^0)$ Γ_{50}/Γ_{46}

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.135 ± 0.016 OUR AVERAGE			

0.127 ± 0.009 ± 0.016	KOPP	01	CLE2	$e^+e^- \approx 10.6$ GeV
-----------------------	------	----	------	---------------------------

0.165 ± 0.031 ± 0.015	FRABETTI	94G	E687	γ Be, $\bar{E}_\gamma \approx 220$ GeV
-----------------------	----------	-----	------	---

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

0.142 ± 0.018 ± 0.024	ANJOS	93	E691	γ Be 90–260 GeV
-----------------------	-------	----	------	------------------------

0.13 ± 0.02 ± 0.03	ADLER	87	MRK3	$e^+e^- 3.77$ GeV
--------------------	-------	----	------	-------------------

$\Gamma(K_0^*(1430)^-\pi^+, K_0^*(1430)^-\pi^0)/\Gamma(K^-\pi^+\pi^0)$ Γ_{51}/Γ_{46}

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
0.033 ± 0.006 ± 0.014	KOPP	01	CLE2	$e^+e^- \approx 10.6$ GeV

$\Gamma(\bar{K}_0^*(1430)^0\pi^0, \bar{K}_0^*(1430)^0\pi^+) / \Gamma(K^-\pi^+\pi^0)$ Γ_{52}/Γ_{46}

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
0.041 ± 0.006^{+0.032}_{-0.009}	KOPP	01	CLE2	$e^+e^- \approx 10.6$ GeV

$\Gamma(K^*(1680)^-\pi^+, K^*(1680)^-\pi^0)/\Gamma(K^-\pi^+\pi^0)$ Γ_{53}/Γ_{46}

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
0.013 ± 0.003 ± 0.004	KOPP	01	CLE2	$e^+e^- \approx 10.6$ GeV

$\Gamma(K^-\pi^+\pi^0 \text{ nonresonant}) / \Gamma(K^-\pi^+\pi^0)$ Γ_{54}/Γ_{46}

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.080^{+0.038}_{-0.014} OUR AVERAGE				

0.075 ± 0.009 ^{+0.056} _{-0.011}	KOPP	01	CLE2	$e^+e^- \approx 10.6$ GeV
---	------	----	------	---------------------------

0.101 ± 0.033 ± 0.040	FRABETTI	94G	E687	γ Be, $\bar{E}_\gamma \approx 220$ GeV
-----------------------	----------	-----	------	---

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

0.036 ± 0.004 ± 0.018	ANJOS	93	E691	γ Be 90–260 GeV
-----------------------	-------	----	------	------------------------

0.09 ± 0.02 ± 0.04	ADLER	87	MRK3	$e^+e^- 3.77$ GeV
--------------------	-------	----	------	-------------------

0.51 ± 0.22	21	SUMMERS	84	E691	Photoproduction
-------------	----	---------	----	------	-----------------

$$\Gamma(\bar{K}^*(892)^0 \pi^0, \bar{K}^*(892)^0 \rightarrow K_S^0 \pi^0) / \Gamma(K_S^0 \pi^0) \quad \Gamma_{56} / \Gamma_{33}$$

VALUE	DOCUMENT ID	TECN	COMMENT
$0.55^{+0.13}_{-0.10} \pm 0.07$	PROCARIO 93B	CLE2	Dalitz plot fit, 122 evts

$$\Gamma(K_S^0 \pi^0 \pi^0 \text{ nonresonant}) / \Gamma(K_S^0 \pi^0) \quad \Gamma_{57} / \Gamma_{33}$$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
$0.37 \pm 0.08 \pm 0.04$	76	PROCARIO 93B	CLE2	Dalitz plot fit, 122 evts

$$\Gamma(K^- \pi^+ \pi^+ \pi^-) / \Gamma_{\text{total}} \quad \Gamma_{58} / \Gamma$$

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
--------------------------	------	-------------	------	---------

7.70 ± 0.25 OUR FIT Error includes scale factor of 1.2.

8.0 ± 0.4 OUR AVERAGE Error includes scale factor of 1.3. See the ideogram below.

8.3 ± 0.2 ± 0.3 15k ± 130 ⁶³ HE 05 CLEO $e^+ e^-$ at $\psi(3770)$

7.9 ± 1.5 ± 0.9 ⁶⁴ ALBRECHT 94 ARG $e^+ e^- \approx \Upsilon(4S)$

6.80 ± 0.27 ± 0.57 1430 ± 52 ⁶⁵ ALBRECHT 94F ARG $e^+ e^- \approx \Upsilon(4S)$

9.1 ± 0.8 ± 0.8 992 ADLER 88C MRK3 $e^+ e^-$ 3.77 GeV

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

11.7 ± 2.5 185 ⁶⁶ SCHINDLER 81 MRK2 $e^+ e^-$ 3.771 GeV

6.2 ± 1.9 44 ⁶⁷ PERUZZI 77 MRK1 $e^+ e^-$ 3.77 GeV

⁶³ HE 05 uses single- and double-tagged events in an overall fit. The fraction here includes (unobserved) final-state photons.

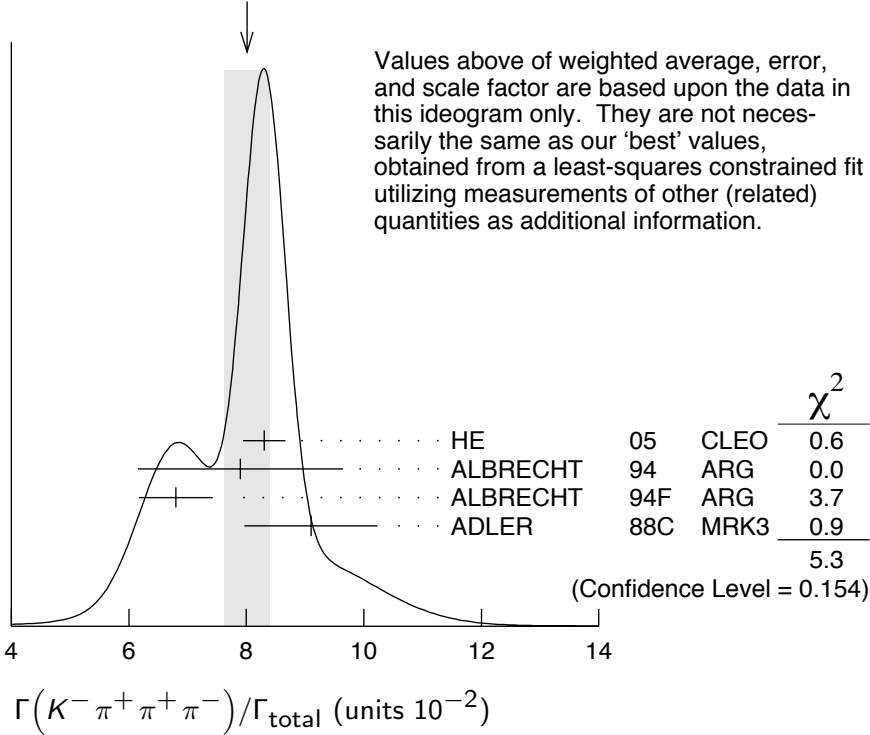
⁶⁴ ALBRECHT 94 uses D^0 mesons from $\bar{B}^0 \rightarrow D^{*+} \ell^- \bar{\nu}_\ell$ decays. This is a different set of events than used by ALBRECHT 94F.

⁶⁵ See the footnote on the ALBRECHT 94F measurement of $\Gamma(K^- \pi^+) / \Gamma_{\text{total}}$ for the method used.

⁶⁶ SCHINDLER 81 (MARK-2) measures $\sigma(e^+ e^- \rightarrow \psi(3770)) \times$ branching fraction to be 0.68 ± 0.11 nb. We use the MARK-3 (ADLER 88C) value of $\sigma = 5.8 \pm 0.5 \pm 0.6$ nb.

⁶⁷ PERUZZI 77 (MARK-1) measures $\sigma(e^+ e^- \rightarrow \psi(3770)) \times$ branching fraction to be 0.36 ± 0.10 nb. We use the MARK-3 (ADLER 88C) value of $\sigma = 5.8 \pm 0.5 \pm 0.6$ nb.

WEIGHTED AVERAGE
 8.0 ± 0.4 (Error scaled by 1.3)



Values above of weighted average, error, and scale factor are based upon the data in this ideogram only. They are not necessarily the same as our 'best' values, obtained from a least-squares constrained fit utilizing measurements of other (related) quantities as additional information.

$\Gamma(K^- \pi^+ \pi^+ \pi^-) / \Gamma(K^- \pi^+)$

$\Gamma_{58} / \Gamma_{32}$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
2.02 ± 0.06 OUR FIT				Error includes scale factor of 1.3.
1.97 ± 0.09 OUR AVERAGE				
$1.94 \pm 0.07^{+0.09}_{-0.11}$		JUN 00	SELX	Σ^- nucleus, 600 GeV
$1.7 \pm 0.2 \pm 0.2$	1745	ANJOS 92C	E691	γ Be 90–260 GeV
$1.90 \pm 0.25 \pm 0.20$	337	ALVAREZ 91B	NA14	Photoproduction
$2.12 \pm 0.16 \pm 0.09$		BORTOLETTO88	CLEO	$e^+ e^-$ 10.55 GeV
$2.17 \pm 0.28 \pm 0.23$		ALBRECHT 85F	ARG	$e^+ e^-$ 10 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2.0 ± 0.9	48	BAILEY 86	ACCM	π^- Be fixed target
2.0 ± 1.0	10	BAILEY 83B	SPEC	π^- Be $\rightarrow D^0$
2.2 ± 0.8	214	PICCOLO 77	MRK1	$e^+ e^-$ 4.03, 4.41 GeV

$\Gamma(K^- \pi^+ \rho^0 \text{ total}) / \Gamma(K^- \pi^+ \pi^+ \pi^-)$

$\Gamma_{59} / \Gamma_{58}$

This includes $K^- a_1(1260)^+$, $\bar{K}^*(892)^0 \rho^0$, etc. The next entry gives the specifically 3-body fraction. We rely on the MARK III and E691 full amplitude analyses of the $K^- \pi^+ \pi^+ \pi^-$ channel for values of the resonant substructure.

VALUE	DOCUMENT ID	TECN	COMMENT
0.835 ± 0.035 OUR AVERAGE			
$0.80 \pm 0.03 \pm 0.05$	ANJOS 92C	E691	γ Be 90–260 GeV
$0.855 \pm 0.032 \pm 0.030$	COFFMAN 92B	MRK3	$e^+ e^-$ 3.77 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.98 \pm 0.12 \pm 0.10$	ALVAREZ 91B	NA14	Photoproduction

$\Gamma(K^- \pi^+ \rho^0 \text{ 3-body})/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{60}/Γ_{58}

We rely on the MARK III and E691 full amplitude analyses of the $K^- \pi^+ \pi^+ \pi^-$ channel for values of the resonant substructure.

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.063 ± 0.028 OUR AVERAGE				
0.05 ± 0.03 ± 0.02		ANJOS	92C E691	γ Be 90–260 GeV
0.084 ± 0.022 ± 0.04		COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.77 ± 0.06 ± 0.06		⁶⁸ ALVAREZ	91B NA14	Photoproduction
0.85 ^{+0.11} _{-0.22}	180	PICCOLO	77 MRK1	$e^+ e^-$ 4.03, 4.41 GeV

⁶⁸This value is for ρ^0 ($K^- \pi^+$)-nonresonant. ALVAREZ 91B cannot determine what fraction of this is $K^- a_1(1260)^+$.

$\Gamma(\bar{K}^*(892)^0 \rho^0)/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{97}/Γ_{58}

Unseen decay modes of the $\bar{K}^*(892)^0$ are included. We rely on the MARK III and E691 full amplitude analyses of the $K^- \pi^+ \pi^+ \pi^-$ channel for values of the resonant substructure.

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.195 ± 0.03 ± 0.03				
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.34 ± 0.09 ± 0.09		ALVAREZ	91B NA14	Photoproduction
0.75 ± 0.3	5	BAILEY	83B SPEC	π Be $\rightarrow D^0$
0.15 ^{+0.16} _{-0.15}	20	PICCOLO	77 MRK1	$e^+ e^-$ 4.03, 4.41 GeV

$\Gamma(\bar{K}^*(892)^0 \rho^0 \text{ transverse})/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{98}/Γ_{58}

Unseen decay modes of the $\bar{K}^*(892)^0$ are included.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.20 ± 0.07 OUR FIT			
0.213 ± 0.024 ± 0.075	COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(\bar{K}^*(892)^0 \rho^0 \text{ S-wave})/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{99}/Γ_{58}

Unseen decay modes of the $\bar{K}^*(892)^0$ are included.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.375 ± 0.045 ± 0.06	ANJOS	92C E691	γ Be 90–260 GeV

$\Gamma(\bar{K}^*(892)^0 \rho^0 \text{ S-wave long.})/\Gamma_{\text{total}}$ Γ_{100}/Γ

Unseen decay modes of the $\bar{K}^*(892)^0$ are included.

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<0.003	90	COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(\bar{K}^*(892)^0 \rho^0 \text{ P-wave})/\Gamma_{\text{total}}$ Γ_{101}/Γ

Unseen decay modes of the $\bar{K}^*(892)^0$ are included.

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<0.003	90	COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.009	90	ANJOS	92C E691	γ Be 90–260 GeV

$\Gamma(\bar{K}^*(892)^0 \rho^0 D\text{-wave})/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{102}/Γ_{58}

Unseen decay modes of the $\bar{K}^*(892)^0$ are included.

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.255 ± 0.045 ± 0.06		ANJOS	92C E691	γ Be 90–260 GeV

$\Gamma(K^- \pi^+ f_0(980))/\Gamma_{\text{total}}$ Γ_{107}/Γ

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
--------------	------------	--------------------	-------------	----------------

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

<0.011	90	ANJOS	92C E691	γ Be 90–260 GeV
--------	----	-------	----------	------------------------

$\Gamma(\bar{K}^*(892)^0 f_0(980))/\Gamma_{\text{total}}$ Γ_{108}/Γ

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
--------------	------------	--------------------	-------------	----------------

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

<0.007	90	ANJOS	92C E691	γ Be 90–260 GeV
--------	----	-------	----------	------------------------

$\Gamma(K^- a_1(1260)^+)/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{92}/Γ_{58}

Unseen decay modes of the $a_1(1260)^+$ are included, assuming that the $a_1(1260)^+$ decays entirely to $\rho\pi$ [or at least to $(\pi\pi)_{I=1}\pi$].

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
--------------	------------	--------------------	-------------	----------------

0.97 ± 0.14 OUR AVERAGE

0.94 ± 0.13 ± 0.20		ANJOS	92C E691	γ Be 90–260 GeV
0.984 ± 0.048 ± 0.16		COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(K^- a_2(1320)^+)/\Gamma_{\text{total}}$ Γ_{94}/Γ

Unseen decay modes of the $a_2(1320)^+$ are included.

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
--------------	------------	--------------------	-------------	----------------

<0.002	90	ANJOS	92C E691	γ Be 90–260 GeV
------------------	----	-------	----------	------------------------

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

<0.006	90	COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV
--------	----	---------	----------	--------------------

$\Gamma(K_1(1270)^- \pi^+)/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{109}/Γ_{58}

Unseen decay modes of the $K_1(1270)^-$ are included. The MARK3 and E691 experiments disagree considerably here.

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
--------------	------------	--------------------	-------------	----------------

0.14 ± 0.04 OUR FIT

0.194 ± 0.056 ± 0.088		COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV
------------------------------	--	---------	----------	--------------------

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

<0.013	90	ANJOS	92C E691	γ Be 90–260 GeV
--------	----	-------	----------	------------------------

$\Gamma(K_1(1400)^- \pi^+)/\Gamma_{\text{total}}$ Γ_{110}/Γ

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
--------------	------------	--------------------	-------------	----------------

<0.012	90	COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV
------------------	----	---------	----------	--------------------

$\Gamma(K^*(1410)^- \pi^+)/\Gamma_{\text{total}}$ Γ_{112}/Γ

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
--------------	------------	--------------------	-------------	----------------

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

<0.012	90	COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV
--------	----	---------	----------	--------------------

$\Gamma(\bar{K}^*(892)^0 \pi^+ \pi^- \text{ total}) / \Gamma(K^- \pi^+ \pi^+ \pi^-)$ $\Gamma_{95} / \Gamma_{58}$

This includes $\bar{K}^*(892)^0 \rho^0$, etc. The next entry gives the specifically 3-body fraction.
Unseen decay modes of the $\bar{K}^*(892)^0$ are included.

VALUE	DOCUMENT ID	TECN	COMMENT
0.30 ± 0.06 ± 0.03	ANJOS	92C E691	γ Be 90–260 GeV

$\Gamma(\bar{K}^*(892)^0 \pi^+ \pi^- \text{ 3-body}) / \Gamma(K^- \pi^+ \pi^+ \pi^-)$ $\Gamma_{96} / \Gamma_{58}$

Unseen decay modes of the $\bar{K}^*(892)^0$ are included.

VALUE	DOCUMENT ID	TECN	COMMENT
0.19 ± 0.04 OUR FIT			
0.18 ± 0.04 OUR AVERAGE			
0.165 ± 0.03 ± 0.045	ANJOS	92C E691	γ Be 90–260 GeV
0.210 ± 0.027 ± 0.06	COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(K^- \pi^+ \pi^+ \pi^- \text{ nonresonant}) / \Gamma(K^- \pi^+ \pi^+ \pi^-)$ $\Gamma_{66} / \Gamma_{58}$

VALUE	DOCUMENT ID	TECN	COMMENT
0.233 ± 0.032 OUR AVERAGE			
0.23 ± 0.02 ± 0.03	ANJOS	92C E691	γ Be 90–260 GeV
0.242 ± 0.025 ± 0.06	COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(K_S^0 \pi^+ \pi^- \pi^0) / \Gamma_{\text{total}}$ Γ_{67} / Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
5.3 ± 0.6 OUR FIT				
5.2 ± 1.1 ± 1.2	140	COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV

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

6.7 ^{+1.6} _{-1.7}	69	BARLAG	92C ACCM	π^- Cu 230 GeV
-------------------------------------	----	--------	----------	--------------------

⁶⁹BARLAG 92C computes the branching fraction using topological normalization.

$\Gamma(K_S^0 \pi^+ \pi^- \pi^0) / \Gamma(K_S^0 \pi^+ \pi^-)$ $\Gamma_{67} / \Gamma_{34}$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
1.83 ± 0.20 OUR FIT				
1.86 ± 0.23 OUR AVERAGE				
1.80 ± 0.20 ± 0.21	190	⁷⁰ ALBRECHT	92P ARG	$e^+ e^- \approx 10$ GeV
2.8 ± 0.8 ± 0.8	46	ANJOS	92C E691	γ Be 90–260 GeV
1.85 ± 0.26 ± 0.30	158	KINOSHITA	91 CLEO	$e^+ e^- \sim 10.7$ GeV

⁷⁰This value is calculated from numbers in Table 1 of ALBRECHT 92P.

$\Gamma(K_S^0 \eta) / \Gamma(K_S^0 \pi^0)$ $\Gamma_{89} / \Gamma_{33}$

Unseen decay modes of the η are included.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.33 ± 0.04 OUR FIT				
0.32 ± 0.04 ± 0.03	225 ± 30	PROCARIO	93B CLE2	$\eta \rightarrow \gamma\gamma$

$\Gamma(K_S^0 \eta) / \Gamma(K_S^0 \pi^+ \pi^-)$ $\Gamma_{89} / \Gamma_{34}$

Unseen decay modes of the η are included.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.130 ± 0.018 OUR FIT				
0.14 ± 0.02 ± 0.02	80 ± 12	PROCARIO	93B CLE2	$\eta \rightarrow \pi^+ \pi^- \pi^0$

$\Gamma(K_S^0 \omega) / \Gamma(K^- \pi^+)$ $\Gamma_{90} / \Gamma_{32}$

Unseen decay modes of the ω are included.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.29 ± 0.05 OUR FIT			
0.50 ± 0.18 ± 0.10	ALBRECHT	89D ARG	$e^+ e^-$ 10 GeV

$\Gamma(K_S^0 \omega) / \Gamma(K_S^0 \pi^+ \pi^-)$ $\Gamma_{90} / \Gamma_{34}$

Unseen decay modes of the ω are included.

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.38 ± 0.07 OUR FIT				
0.33 ± 0.09 OUR AVERAGE				Error includes scale factor of 1.1.
0.29 ± 0.08 ± 0.05	16	⁷¹ ALBRECHT	92P ARG	$e^+ e^- \approx 10$ GeV
0.54 ± 0.14 ± 0.16	40	KINOSHITA	91 CLEO	$e^+ e^- \sim 10.7$ GeV

⁷¹This value is calculated from numbers in Table 1 of ALBRECHT 92P.

$\Gamma(K_S^0 \omega) / \Gamma(K_S^0 \pi^+ \pi^- \pi^0)$ $\Gamma_{90} / \Gamma_{67}$

Unseen decay modes of the ω are included.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.21 ± 0.04 OUR FIT			
0.220 ± 0.048 ± 0.0116	COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(K_S^0 \eta'(958)) / \Gamma(K_S^0 \pi^+ \pi^-)$ $\Gamma_{91} / \Gamma_{34}$

Unseen decay modes of the $\eta'(958)$ are included.

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.32 ± 0.04 OUR AVERAGE				
0.31 ± 0.02 ± 0.04	594	PROCARIO	93B CLE2	$\eta' \rightarrow \eta \pi^+ \pi^-, \rho^0 \gamma$
0.37 ± 0.13 ± 0.06	18	⁷² ALBRECHT	92P ARG	$e^+ e^- \approx 10$ GeV

⁷²This value is calculated from numbers in Table 1 of ALBRECHT 92P.

$\Gamma(K^*(892)^- \rho^+) / \Gamma(K_S^0 \pi^+ \pi^- \pi^0)$ $\Gamma_{103} / \Gamma_{67}$

Unseen decay modes of the $K^*(892)^-$ are included.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1.212 ± 0.376 ± 0.252	COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(K^*(892)^- \rho^+ \text{longitudinal}) / \Gamma(K_S^0 \pi^+ \pi^- \pi^0)$ $\Gamma_{104} / \Gamma_{67}$

Unseen decay modes of the $K^*(892)^-$ are included.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.580 ± 0.222	COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(K^*(892)^- \rho^+ \text{transverse}) / \Gamma(K_S^0 \pi^+ \pi^- \pi^0)$ $\Gamma_{105} / \Gamma_{67}$

Unseen decay modes of the $K^*(892)^-$ are included.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.634 ± 0.360	COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(K^*(892)^- \rho^+ P\text{-wave}) / \Gamma_{\text{total}}$ Γ_{106} / Γ

Unseen decay modes of the $K^*(892)^-$ are included.

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
< 0.015	90	⁷³ COFFMAN	92B MRK3	$e^+ e^-$ 3.77 GeV

⁷³Obtained using other $\bar{K}^*(892) \rho$ P-wave limits and isospin relations.

$\Gamma(\overline{K}^*(892)^0 \rho^0 \text{ transverse}) / \Gamma(K_S^0 \pi^+ \pi^- \pi^0)$ $\Gamma_{98} / \Gamma_{67}$

Unseen decay modes of the $\overline{K}^*(892)^0$ are included.

VALUE		DOCUMENT ID	TECN	COMMENT
0.30 ± 0.11 OUR FIT				
0.252 ± 0.222		COFFMAN	92B	MRK3 $e^+ e^-$ 3.77 GeV

$\Gamma(\overline{K}^0 a_1(1260)^0) / \Gamma_{\text{total}}$ Γ_{93} / Γ

Unseen decay modes of the $a_1(1260)^+$ are included, assuming that the $a_1(1260)^+$ decays entirely to $\rho\pi$ [or at least to $(\pi\pi)_{J=1} \pi$].

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
< 0.019	90	COFFMAN	92B	MRK3 $e^+ e^-$ 3.77 GeV

$\Gamma(K_1(1270)^- \pi^+) / \Gamma(K_S^0 \pi^+ \pi^- \pi^0)$ $\Gamma_{109} / \Gamma_{67}$

Unseen decay modes of the $K_1(1270)^-$ are included.

VALUE		DOCUMENT ID	TECN	COMMENT
0.21 ± 0.06 OUR FIT				
0.20 ± 0.06		COFFMAN	92B	MRK3 $e^+ e^-$ 3.77 GeV

$\Gamma(\overline{K}_1(1400)^0 \pi^0) / \Gamma_{\text{total}}$ Γ_{111} / Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
< 0.037	90	COFFMAN	92B	MRK3 $e^+ e^-$ 3.77 GeV

$\Gamma(\overline{K}^*(892)^0 \pi^+ \pi^- \text{ 3-body}) / \Gamma(K_S^0 \pi^+ \pi^- \pi^0)$ $\Gamma_{96} / \Gamma_{67}$

Unseen decay modes of the $\overline{K}^*(892)^0$ are included.

VALUE		DOCUMENT ID	TECN	COMMENT
0.28 ± 0.07 OUR FIT	Error includes scale factor of 1.1.			
0.382 ± 0.210		COFFMAN	92B	MRK3 $e^+ e^-$ 3.77 GeV

$\Gamma(K_S^0 \pi^+ \pi^- \pi^0 \text{ nonresonant}) / \Gamma(K_S^0 \pi^+ \pi^- \pi^0)$ $\Gamma_{73} / \Gamma_{67}$

VALUE		DOCUMENT ID	TECN	COMMENT
0.210 ± 0.147 ± 0.150		COFFMAN	92B	MRK3 $e^+ e^-$ 3.77 GeV

$\Gamma(K^- \pi^+ \pi^0 \pi^0) / \Gamma_{\text{total}}$ Γ_{74} / Γ

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
-------	------	-------------	------	---------

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

0.177 ± 0.029		⁷⁴ BARLAG	92C	ACCM π^- Cu 230 GeV
0.149 ± 0.037 ± 0.030	24	⁷⁵ ADLER	88C	MRK3 $e^+ e^-$ 3.77 GeV
0.209 ^{+0.074} _{-0.043} ± 0.012	9	⁷⁴ AGUILAR-...	87F	HYBR $\pi p, p p$ 360, 400 GeV

⁷⁴ AGUILAR-BENITEZ 87F and BARLAG 92C compute the branching fraction using topological normalization. They do not distinguish the presence of a third π^0 , and thus are not included in the average.

⁷⁵ ADLER 88C uses an absolute normalization method finding this decay channel opposite a detected $\overline{D}^0 \rightarrow K^+ \pi^-$ in pure $D\overline{D}$ events.

$\Gamma(K^- \pi^+ \pi^+ \pi^- \pi^0) / \Gamma(K^- \pi^+)$ $\Gamma_{75} / \Gamma_{32}$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
1.07 ± 0.10 OUR FIT				
0.98 ± 0.11 ± 0.11	225	⁷⁶ ALBRECHT	92P	ARG $e^+ e^- \approx 10$ GeV

⁷⁶ This value is calculated from numbers in Table 1 of ALBRECHT 92P.

$\Gamma(K^- \pi^+ \pi^+ \pi^- \pi^0) / \Gamma(K^- \pi^+ \pi^+ \pi^-)$ $\Gamma_{75} / \Gamma_{58}$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.53 ± 0.05 OUR FIT				
0.56 ± 0.07 OUR AVERAGE				
0.55 ± 0.07 ^{+0.12} _{-0.09}	167	KINOSHITA	91	CLEO $e^+ e^- \sim 10.7$ GeV
0.57 ± 0.06 ± 0.05	180	ANJOS	90D	E691 Photoproduction

$\Gamma(\bar{K}^*(892)^0 \pi^+ \pi^- \pi^0) / \Gamma(K^- \pi^+ \pi^+ \pi^- \pi^0)$ $\Gamma_{113} / \Gamma_{75}$

Unseen decay modes of the $\bar{K}^*(892)^0$ are included.

VALUE	DOCUMENT ID	TECN	COMMENT
0.45 ± 0.15 ± 0.15	ANJOS	90D	E691 Photoproduction

$\Gamma(\bar{K}^*(892)^0 \eta) / \Gamma(K^- \pi^+)$ $\Gamma_{114} / \Gamma_{32}$

Unseen decay modes of the $\bar{K}^*(892)^0$ and η are included.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.58 ± 0.19 ^{+0.24} _{-0.28}	46	KINOSHITA	91	CLEO $e^+ e^- \sim 10.7$ GeV

$\Gamma(\bar{K}^*(892)^0 \eta) / \Gamma(K^- \pi^+ \pi^0)$ $\Gamma_{114} / \Gamma_{46}$

Unseen decay modes of the $\bar{K}^*(892)^0$ and η are included.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.13 ± 0.02 ± 0.03	214	PROCARIO	93B	CLE2 $\bar{K}^{*0} \eta \rightarrow K^- \pi^+ / \gamma \gamma$

$\Gamma(K_S^0 \eta \pi^0) / \Gamma(K_S^0 \pi^0)$ $\Gamma_{79} / \Gamma_{33}$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.46 ± 0.07 ± 0.06	155 ± 22	⁷⁷ RUBIN	04	CLEO $e^+ e^- \approx 10$ GeV
⁷⁷ The η here is detected in its $\gamma \gamma$ mode, but other η modes are included in the value given.				

$\Gamma(K_S^0 a_0(980), a_0(980) \rightarrow \eta \pi^0) / \Gamma(K_S^0 \eta \pi^0)$ $\Gamma_{80} / \Gamma_{79}$

This is the "fit fraction" from the Dalitz-plot analysis, with interference.

VALUE	DOCUMENT ID	TECN	COMMENT
1.19 ± 0.09 ± 0.26	⁷⁸ RUBIN	04	CLEO Dalitz fit, 155 evts
⁷⁸ In addition to $K_S^0 a_0(980)$ and $\bar{K}^*(892)^0 \eta$ modes, RUBIN 04 finds a fit fraction of $0.246 \pm 0.092 \pm 0.091$ for other, undetermined modes.			

$\Gamma(\bar{K}^*(892)^0 \eta, \bar{K}^*(892)^0 \rightarrow K_S^0 \pi^0) / \Gamma(K_S^0 \eta \pi^0)$ $\Gamma_{81} / \Gamma_{79}$

This is the "fit fraction" from the Dalitz-plot analysis, with interference.

VALUE	DOCUMENT ID	TECN	COMMENT
0.293 ± 0.062 ± 0.035	⁷⁹ RUBIN	04	CLEO Dalitz fit, 155 evts
⁷⁹ See the note on RUBIN 04 in the preceding data block.			

$\Gamma(K^- \pi^+ \omega) / \Gamma(K^- \pi^+)$ $\Gamma_{115} / \Gamma_{32}$

Unseen decay modes of the ω are included.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.78 ± 0.12 ± 0.10	99	⁸⁰ ALBRECHT	92P	ARG $e^+ e^- \approx 10$ GeV
⁸⁰ This value is calculated from numbers in Table 1 of ALBRECHT 92P.				

$\Gamma(\bar{K}^*(892)^0 \omega) / \Gamma(K^- \pi^+)$ $\Gamma_{116} / \Gamma_{32}$

Unseen decay modes of the $\bar{K}^*(892)^0$ and ω are included.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.28 ± 0.11 ± 0.04	17	⁸¹ ALBRECHT	92P ARG	$e^+ e^- \approx 10$ GeV

⁸¹ This value is calculated from numbers in Table 1 of ALBRECHT 92P.

$\Gamma(K^- \pi^+ \eta'(958)) / \Gamma(K^- \pi^+ \pi^+ \pi^-)$ $\Gamma_{117} / \Gamma_{58}$

Unseen decay modes of the $\eta'(958)$ are included.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.093 ± 0.014 ± 0.019	286	PROCARIO	93B CLE2	$\eta' \rightarrow \eta \pi^+ \pi^-, \rho^0 \gamma$

$\Gamma(\bar{K}^*(892)^0 \eta'(958)) / \Gamma(K^- \pi^+ \eta'(958))$ $\Gamma_{118} / \Gamma_{117}$

Unseen decay modes of the $\bar{K}^*(892)^0$ are included.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.15	90	PROCARIO	93B CLE2	

$\Gamma(K_S^0 2\pi^+ 2\pi^-) / \Gamma(K_S^0 \pi^+ \pi^-)$ $\Gamma_{82} / \Gamma_{34}$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.095 ± 0.005 ± 0.007	1283 ± 57	LINK	04D FOCS	γ A, $\bar{E}_\gamma \approx 180$ GeV

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

0.07 ± 0.02 ± 0.01	11	⁸² ALBRECHT	92P ARG	$e^+ e^- \approx 10$ GeV
0.149 ± 0.026	56	AMMAR	91 CLEO	$e^+ e^- \approx 10.5$ GeV
0.18 ± 0.07 ± 0.04	6	ANJOS	90D E691	Photoproduction

⁸² This value is calculated from numbers in Table 1 of ALBRECHT 92P.

$\Gamma(K_S^0 \rho^0 \pi^+ \pi^-, \text{no } K^*(892)^-) / \Gamma(K_S^0 2\pi^+ 2\pi^-)$ $\Gamma_{83} / \Gamma_{82}$

VALUE	DOCUMENT ID	TECN	COMMENT
0.40 ± 0.24 ± 0.07	LINK	04D FOCS	γ A, $\bar{E}_\gamma \approx 180$ GeV

$\Gamma(K^*(892)^- \pi^+ \pi^+ \pi^-, K^*(892)^- \rightarrow K_S^0 \pi^-, \text{no } \rho^0) / \Gamma(K_S^0 2\pi^+ 2\pi^-)$ $\Gamma_{84} / \Gamma_{82}$

VALUE	DOCUMENT ID	TECN	COMMENT
0.17 ± 0.28 ± 0.02	LINK	04D FOCS	γ A, $\bar{E}_\gamma \approx 180$ GeV

$\Gamma(K^*(892)^- \rho^0 \pi^+, K^*(892)^- \rightarrow K_S^0 \pi^-) / \Gamma(K_S^0 2\pi^+ 2\pi^-)$ $\Gamma_{85} / \Gamma_{82}$

VALUE	DOCUMENT ID	TECN	COMMENT
0.60 ± 0.21 ± 0.09	LINK	04D FOCS	γ A, $\bar{E}_\gamma \approx 180$ GeV

$\Gamma(K_S^0 2\pi^+ 2\pi^- \text{ nonresonant}) / \Gamma(K_S^0 2\pi^+ 2\pi^-)$ $\Gamma_{86} / \Gamma_{82}$

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.46	90	LINK	04D FOCS	γ A, $\bar{E}_\gamma \approx 180$ GeV

$\Gamma(K^- 3\pi^+ 2\pi^-) / \Gamma(K^- \pi^+ \pi^+ \pi^-)$ $\Gamma_{88} / \Gamma_{58}$

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
2.70 ± 0.58 ± 0.38	48 ± 10	LINK	04B FOCS	γ A, $\bar{E}_\gamma \approx 180$ GeV

————— Hadronic modes with three K 's —————

$\Gamma(K_S^0 K^+ K^-)/\Gamma(K_S^0 \pi^+ \pi^-)$ Γ_{119}/Γ_{34}

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.158 ± 0.001 ± 0.005	14k ± 116	AUBERT,B	05J BABR	$e^+ e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.20 ± 0.05 ± 0.04	47	FRABETTI	92B E687	γ Be, $\bar{E}_\gamma = 221$ GeV
0.170 ± 0.022	136	AMMAR	91 CLEO	$e^+ e^- \approx 10.5$ GeV
0.24 ± 0.08		BEBEK	86 CLEO	$e^+ e^-$ near $\Upsilon(4S)$
0.185 ± 0.055	52	ALBRECHT	85B ARG	$e^+ e^-$ 10 GeV

$\Gamma(K_S^0 a_0(980)^0, a_0^0 \rightarrow K^+ K^-)/\Gamma(K_S^0 K^+ K^-)$ $\Gamma_{120}/\Gamma_{119}$

This is the "fit fraction" from the Dalitz-plot analysis, with interference.

VALUE	DOCUMENT ID	TECN	COMMENT
0.664 ± 0.016 ± 0.070	AUBERT,B	05J BABR	Dalitz fit, 12540 ± 112 evts

$\Gamma(K^- a_0(980)^+, a_0^+ \rightarrow K^+ K_S^0)/\Gamma(K_S^0 K^+ K^-)$ $\Gamma_{121}/\Gamma_{119}$

This is the "fit fraction" from the Dalitz-plot analysis, with interference.

VALUE	DOCUMENT ID	TECN	COMMENT
0.134 ± 0.011 ± 0.037	AUBERT,B	05J BABR	Dalitz fit, 12540 ± 112 evts

$\Gamma(K^+ a_0(980)^-, a_0^- \rightarrow K^- K_S^0)/\Gamma(K_S^0 K^+ K^-)$ $\Gamma_{122}/\Gamma_{119}$

This is a doubly Cabibbo-suppressed mode.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.025	95	AUBERT,B	05J BABR	Dalitz fit, 12540 ± 112 evts

$\Gamma(K_S^0 f_0(980), f_0 \rightarrow K^+ K^-)/\Gamma(K_S^0 K^+ K^-)$ $\Gamma_{123}/\Gamma_{119}$

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.021	95	AUBERT,B	05J BABR	Dalitz fit, 12540 ± 112 evts

$\Gamma(K_S^0 \phi, \phi \rightarrow K^+ K^-)/\Gamma(K_S^0 K^+ K^-)$ $\Gamma_{124}/\Gamma_{119}$

This is the "fit fraction" from the Dalitz-plot analysis, with interference.

VALUE	DOCUMENT ID	TECN	COMMENT
0.459 ± 0.007 ± 0.007	AUBERT,B	05J BABR	Dalitz fit, 12540 ± 112 evts

$\Gamma(K_S^0 f_0(1400), f_0 \rightarrow K^+ K^-)/\Gamma(K_S^0 K^+ K^-)$ $\Gamma_{125}/\Gamma_{119}$

This is the "fit fraction" from the Dalitz-plot analysis, with interference.

VALUE	DOCUMENT ID	TECN	COMMENT
0.038 ± 0.007 ± 0.023	AUBERT,B	05J BABR	Dalitz fit, 12540 ± 112 evts

$\Gamma(3K_S^0)/\Gamma(K_S^0 \pi^+ \pi^-)$ Γ_{126}/Γ_{34}

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
3.2 ± 0.4 OUR AVERAGE				
3.58 ± 0.54 ± 0.52	170 ± 26	LINK	05A FOCS	γ Be, $\bar{E}_\gamma \approx 180$ GeV
2.78 ± 0.38 ± 0.48	61	ASNER	96B CLE2	$e^+ e^- \approx \Upsilon(4S)$
7.0 ± 2.4 ± 1.2	10 ± 3	FRABETTI	94J E687	γ Be, $\bar{E}_\gamma = 220$ GeV
3.2 ± 1.0	22	AMMAR	91 CLEO	$e^+ e^- \approx 10.5$ GeV
3.4 ± 1.4 ± 1.0	5	ALBRECHT	90C ARG	$e^+ e^- \approx 10$ GeV

$\Gamma(K^+ K^- K^- \pi^+)/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{127}/Γ_{58}

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.0027 ± 0.0004 OUR AVERAGE				Error includes scale factor of 1.1.
0.00257 ± 0.00034 ± 0.00024	143	LINK	03G FOCS	γ A, $\bar{E}_\gamma \approx 180$ GeV
0.0054 ± 0.0016 ± 0.0008	18	AITALA	01D E791	π^- A, 500 GeV
0.0028 ± 0.0007 ± 0.0001	20	FRABETTI	95C E687	γ Be, $\bar{E}_\gamma \approx 200$ GeV

$\Gamma(\phi \bar{K}^*(892)^0, \phi \rightarrow K^+ K^-, \bar{K}^*(892)^0 \rightarrow K^- \pi^+)/\Gamma(K^+ K^- K^- \pi^+)$ $\Gamma_{130}/\Gamma_{127}$

VALUE	DOCUMENT ID	TECN	COMMENT
0.48 ± 0.06 ± 0.01	LINK	03G FOCS	γ A, $\bar{E}_\gamma \approx 180$ GeV

$\Gamma(K^- \pi^+ \phi, \phi \rightarrow K^+ K^-)/\Gamma(K^+ K^- K^- \pi^+)$ $\Gamma_{129}/\Gamma_{127}$

VALUE	DOCUMENT ID	TECN	COMMENT
0.18 ± 0.06 ± 0.04	LINK	03G FOCS	γ A, $\bar{E}_\gamma \approx 180$ GeV

$\Gamma(K^+ K^- \bar{K}^*(892)^0, \bar{K}^*(892)^0 \rightarrow K^- \pi^+)/\Gamma(K^+ K^- K^- \pi^+)$ $\Gamma_{128}/\Gamma_{127}$

VALUE	DOCUMENT ID	TECN	COMMENT
0.20 ± 0.07 ± 0.02	LINK	03G FOCS	γ A, $\bar{E}_\gamma \approx 180$ GeV

$\Gamma(K^+ K^- K^- \pi^+ \text{nonresonant})/\Gamma(K^+ K^- K^- \pi^+)$ $\Gamma_{131}/\Gamma_{127}$

VALUE	DOCUMENT ID	TECN	COMMENT
0.15 ± 0.06 ± 0.02	LINK	03G FOCS	γ A, $\bar{E}_\gamma \approx 180$ GeV

$\Gamma(K_S^0 K_S^0 K^\pm \pi^\mp)/\Gamma(K_S^0 \pi^+ \pi^-)$ Γ_{132}/Γ_{34}

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
2.12 ± 0.38 ± 0.20	57 ± 10	LINK	05A FOCS	γ Be, $\bar{E}_\gamma \approx 180$ GeV

———— Pionic modes ————

$\Gamma(\pi^+ \pi^-)/\Gamma(K^- \pi^+)$ Γ_{133}/Γ_{32}

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
3.59 ± 0.05 OUR AVERAGE				
3.62 ± 0.10 ± 0.08	2085 ± 54	RUBIN	06 CLEO	$e^+ e^-$ at $\psi(3770)$
3.594 ± 0.054 ± 0.040	7334 ± 97	ACOSTA	05C CDF	$p\bar{p}$, $\sqrt{s} = 1.96$ TeV
3.53 ± 0.12 ± 0.06	3453	LINK	03 FOCS	γ A, $\bar{E}_\gamma \approx 180$ GeV
3.51 ± 0.16 ± 0.17	710	CSORNA	02 CLE2	$e^+ e^- \approx \Upsilon(4S)$
4.0 ± 0.2 ± 0.3	2043	AITALA	98C E791	π^- A, 500 GeV
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
3.4 ± 0.7 ± 0.1	76 ± 15	ABLIKIM	05F BES	$e^+ e^- \approx \psi(3770)$
4.3 ± 0.7 ± 0.3	177	FRABETTI	94C E687	γ Be $\bar{E}_\gamma = 220$ GeV
3.48 ± 0.30 ± 0.23	227	SELEN	93 CLE2	$e^+ e^- \approx \Upsilon(4S)$
5.5 ± 0.8 ± 0.5	120	ANJOS	91D E691	Photoproduction
5.0 ± 0.7 ± 0.5	110	ALEXANDER	90 CLEO	$e^+ e^-$ 10.5–11 GeV

$\Gamma(\pi^0\pi^0)/\Gamma(K^-\pi^+)$ Γ_{134}/Γ_{32}

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
2.07±0.19 OUR AVERAGE				
2.05±0.13±0.16	499 ± 32	RUBIN	06	CLEO e^+e^- at $\psi(3770)$
2.2 ±0.4 ±0.4	40	SELEN	93	CLE2 $e^+e^- \approx \Upsilon(4S)$

$\Gamma(\pi^+\pi^-\pi^0)/\Gamma(K^-\pi^+)$ Γ_{135}/Γ_{32}

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
37.1±2.0 OUR FIT Error includes scale factor of 2.3.				
34.4±0.5±1.2	11k±164	RUBIN	06	CLEO e^+e^- at $\psi(3770)$

$\Gamma(\pi^+\pi^-\pi^0)/\Gamma(K^-\pi^+\pi^0)$ Γ_{135}/Γ_{46}

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
10.5 ±0.4 OUR FIT Error includes scale factor of 2.9.				
10.59±0.06±0.13	60k±343	AUBERT,B	06x	BABR $e^+e^- \approx \Upsilon(4S)$

$\Gamma(\rho^+\pi^-)/\Gamma(\pi^+\pi^-\pi^0)$ $\Gamma_{136}/\Gamma_{135}$

This is the "fit fraction" from the Dalitz-plot analysis, with interference.

VALUE	DOCUMENT ID	TECN	COMMENT
0.763±0.019±0.025	CRONIN-HEN..05	CLEO	$e^+e^- \approx 10$ GeV

$\Gamma(\rho^0\pi^0)/\Gamma(\pi^+\pi^-\pi^0)$ $\Gamma_{137}/\Gamma_{135}$

This is the "fit fraction" from the Dalitz-plot analysis, with interference.

VALUE	DOCUMENT ID	TECN	COMMENT
0.244±0.020±0.021	CRONIN-HEN..05	CLEO	$e^+e^- \approx 10$ GeV

$\Gamma(\rho^-\pi^+)/\Gamma(\pi^+\pi^-\pi^0)$ $\Gamma_{138}/\Gamma_{135}$

This is the "fit fraction" from the Dalitz-plot analysis, with interference.

VALUE	DOCUMENT ID	TECN	COMMENT
0.345±0.024±0.013	CRONIN-HEN..05	CLEO	$e^+e^- \approx 10$ GeV

$\Gamma(f_0(980)\pi^0, f_0(980) \rightarrow \pi^+\pi^-)/\Gamma(\pi^+\pi^-\pi^0)$ $\Gamma_{139}/\Gamma_{135}$

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<2.6 × 10⁻⁴	95	⁸³ CRONIN-HEN..05	CLEO	$e^+e^- \approx 10$ GeV

⁸³The CRONIN-HENNESSY 05 fit here includes, in addition to the three $\rho\pi$ charged states, only the $f_0(980)\pi^0$ mode. See also the next entries for limits obtained in the same way for the $f_0(600)\pi^0$ mode and for an S -wave $\pi^+\pi^-$ parametrized using a K -matrix. Our $\rho\pi$ branching ratios, given above, use the fit with the K -matrix S wave.

$\Gamma(f_0(600)\pi^0, f_0(600) \rightarrow \pi^+\pi^-)/\Gamma(\pi^+\pi^-\pi^0)$ $\Gamma_{140}/\Gamma_{135}$

The $f_0(600)$ is the σ .

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<2.1 × 10⁻³	95	⁸⁴ CRONIN-HEN..05	CLEO	$e^+e^- \approx 10$ GeV

⁸⁴See the note on CRONIN-HENNESSY 05 in the proceeding data block.

$\Gamma((\pi^+\pi^-)_{S\text{-wave}}\pi^0)/\Gamma(\pi^+\pi^-\pi^0)$ $\Gamma_{141}/\Gamma_{135}$

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.019	95	⁸⁵ CRONIN-HEN..05	CLEO	$e^+e^- \approx 10$ GeV

⁸⁵See the note on CRONIN-HENNESSY 05 two data blocks up.

$\Gamma(3\pi^0)/\Gamma_{\text{total}}$		Γ_{142}/Γ		
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<3.5 \times 10^{-4}$	90	RUBIN	06	CLEO e^+e^- at $\psi(3770)$

$\Gamma(2\pi^+2\pi^-)/\Gamma(K^-\pi^+)$		Γ_{143}/Γ_{32}		
<u>VALUE (units 10^{-2})</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
19.2±0.6 OUR FIT				
19.1±0.4±0.6	7331 ± 130	RUBIN	06	CLEO e^+e^- at $\psi(3770)$

$\Gamma(2\pi^+2\pi^-)/\Gamma(K^-\pi^+\pi^-\pi^-)$		Γ_{143}/Γ_{58}		
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.095±0.004 OUR FIT	Error includes scale factor of 1.1.			
0.096±0.005 OUR AVERAGE				
0.079±0.018±0.005	162	ABLIKIM	05F	BES $e^+e^- \approx \psi(3770)$
0.095±0.007±0.002	814	FRABETTI	95C	E687 γBe , $\bar{E}_\gamma \approx 200$ GeV
0.115±0.023±0.016	64	ADAMOVICH	92	OMEG π^- 340 GeV
0.108±0.024±0.008	79	FRABETTI	92	E687 γBe
0.102±0.013	345	⁸⁶ AMMAR	91	CLEO $e^+e^- \approx 10.5$ GeV
0.096±0.018±0.007	66	ANJOS	91	E691 γBe 80–240 GeV

⁸⁶AMMAR 91 finds $1.25 \pm 0.25 \pm 0.25 \rho^0$'s per $\pi^+\pi^+\pi^-\pi^-$ decay, but can't untangle the resonant substructure ($\rho^0\rho^0$, $a_1^\pm\pi^\mp$, $\rho^0\pi^+\pi^-$).

$\Gamma(\pi^+\pi^-2\pi^0)/\Gamma(K^-\pi^+)$		Γ_{144}/Γ_{32}		
<u>VALUE (units 10^{-2})</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
25.8±1.5±1.8	2724 ± 166	RUBIN	06	CLEO e^+e^- at $\psi(3770)$

$\Gamma(\eta\pi^0)/\Gamma(K^-\pi^+)$		Γ_{145}/Γ_{32}		
Unseen decay modes of the η are included.				
<u>VALUE (units 10^{-2})</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1.47±0.34±0.11	62 ± 14	RUBIN	06	CLEO e^+e^- at $\psi(3770)$

$\Gamma(\omega\pi^0)/\Gamma_{\text{total}}$		Γ_{146}/Γ		
Unseen decay modes of the ω are included.				
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<2.6 \times 10^{-4}$	90	RUBIN	06	CLEO e^+e^- at $\psi(3770)$

$\Gamma(2\pi^+2\pi^-\pi^0)/\Gamma(K^-\pi^+)$		Γ_{147}/Γ_{32}		
<u>VALUE (units 10^{-2})</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
10.7±1.2±0.5	1614 ± 171	RUBIN	06	CLEO e^+e^- at $\psi(3770)$

$\Gamma(\eta\pi^+\pi^-)/\Gamma_{\text{total}}$		Γ_{148}/Γ		
Unseen decay modes of the η are included.				
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<1.9 \times 10^{-3}$	90	RUBIN	06	CLEO e^+e^- at $\psi(3770)$

$\Gamma(\omega\pi^+\pi^-)/\Gamma(K^-\pi^+)$		Γ_{149}/Γ_{32}		
Unseen decay modes of the ω are included.				
<u>VALUE (units 10^{-2})</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
4.1±1.2±0.4	472 ± 132	RUBIN	06	CLEO e^+e^- at $\psi(3770)$

$\Gamma(3\pi^+3\pi^-)/\Gamma(K^-\pi^+\pi^+\pi^-)$ Γ_{150}/Γ_{58}

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
5.23±0.59±1.35	149 ± 17	LINK	04B FOCS	$\gamma A, \bar{E}_\gamma \approx 180$ GeV

$\Gamma(3\pi^+3\pi^-)/\Gamma(K^-\pi^+\pi^+\pi^-)$ Γ_{150}/Γ_{88}

VALUE	DOCUMENT ID	TECN	COMMENT
1.93±047±0.48	⁸⁷ LINK	04B FOCS	$\gamma A, \bar{E}_\gamma \approx 180$ GeV

⁸⁷ This LINK 04B result is not independent of other results in these Listings.

————— **Hadronic modes with a $K\bar{K}$ pair** —————

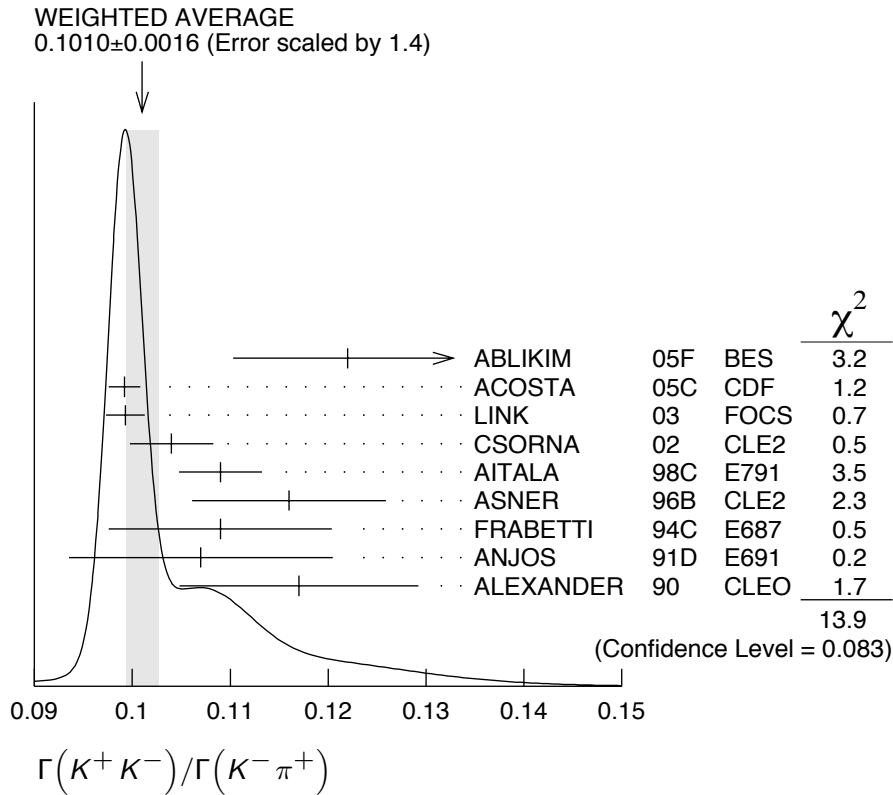
$\Gamma(K^+K^-)/\Gamma(K^-\pi^+)$ Γ_{151}/Γ_{32}

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.1010±0.0016 OUR AVERAGE				Error includes scale factor of 1.4. See the ideogram below.

0.122 ±0.011 ±0.004	242 ± 20	ABLIKIM	05F BES	$e^+e^- \approx \psi(3770)$
0.0992±0.0011±0.0012	16k±200	ACOSTA	05C CDF	$p\bar{p}, \sqrt{s}=1.96$ TeV
0.0993±0.0014±0.0014	11k	LINK	03 FOCS	γ nucleus, $\bar{E}_\gamma \approx 180$ GeV
0.1040±0.0033±0.0027	1900	CSORNA	02 CLE2	$e^+e^- \approx \Upsilon(4S)$
0.109 ±0.003 ±0.003	3317	AITALA	98C E791	π^- nucleus, 500 GeV
0.116 ±0.007 ±0.007	1102	ASNER	96B CLE2	$e^+e^- \approx \Upsilon(4S)$
0.109 ±0.007 ±0.009	581	FRABETTI	94C E687	$\gamma Be, \bar{E}_\gamma = 220$ GeV
0.107 ±0.010 ±0.009	193	ANJOS	91D E691	Photoproduction
0.117 ±0.010 ±0.007	249	ALEXANDER	90 CLEO	$e^+e^- 10.5-11$ GeV

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

0.107 ±0.029 ±0.015	103	ADAMOVICH	92 OMEG	$\pi^- 340$ GeV
0.138 ±0.027 ±0.010	155	FRABETTI	92 E687	γBe
0.16 ±0.05	34	ALVAREZ	91B NA14	Photoproduction
0.10 ±0.02 ±0.01	131	ALBRECHT	90C ARG	$e^+e^- \approx 10$ GeV
0.122 ±0.018 ±0.012	118	BALTRUSAIT..	85E MRK3	$e^+e^- 3.77$ GeV
0.113 ±0.030		ABRAMS	79D MRK2	$e^+e^- 3.77$ GeV



$\Gamma(K^+ K^-) / \Gamma(\pi^+ \pi^-)$ $\Gamma_{151} / \Gamma_{133}$

The unused results here are redundant with $\Gamma(K^+ K^-) / \Gamma(K^- \pi^+)$ and $\Gamma(\pi^+ \pi^-) / \Gamma(K^- \pi^+)$ measurements by the same experiments.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
$2.760 \pm 0.040 \pm 0.034$	7334	ACOSTA	05C	CDF $p\bar{p}$, $\sqrt{s}=1.96$ TeV
$2.81 \pm 0.10 \pm 0.06$		LINK	03	FOCS γ nucleus, $\bar{E}_\gamma \approx 180$ GeV
$2.96 \pm 0.16 \pm 0.15$	710	CSORNA	02	CLE2 $e^+ e^- \approx \Upsilon(4S)$
$2.75 \pm 0.15 \pm 0.16$		AITALA	98C	E791 π^- nucleus, 500 GeV
$2.53 \pm 0.46 \pm 0.19$		FRABETTI	94C	E687 γ Be $\bar{E}_\gamma = 220$ GeV
$2.23 \pm 0.81 \pm 0.46$		ADAMOVICH	92	OMEG π^- 340 GeV
$1.95 \pm 0.34 \pm 0.22$		ANJOS	91D	E691 Photoproduction
2.5 ± 0.7		ALBRECHT	90C	ARG $e^+ e^- \approx 10$ GeV
$2.35 \pm 0.37 \pm 0.28$		ALEXANDER	90	CLEO $e^+ e^-$ 10.5–11 GeV

$\Gamma(2K_S^0) / \Gamma(K_S^0 \pi^+ \pi^-)$ $\Gamma_{152} / \Gamma_{34}$

This is the same as $\Gamma(K^0 \bar{K}^0) / \Gamma(\bar{K}^0 \pi^+ \pi^-)$ because $D^0 \rightarrow K_S^0 K_L^0$ is forbidden by CP conservation.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.0126 ± 0.0022 OUR AVERAGE				
$0.0144 \pm 0.0032 \pm 0.0016$	79 ± 17	LINK	05A	FOCS γ Be, $\bar{E}_\gamma \approx 180$ GeV
$0.0101 \pm 0.0022 \pm 0.0016$	26	ASNER	96B	CLE2 $e^+ e^- \approx \Upsilon(4S)$
$0.039 \pm 0.013 \pm 0.013$	20 ± 7	FRABETTI	94J	E687 γ Be $\bar{E}_\gamma = 220$ GeV
$0.021 \begin{smallmatrix} +0.011 \\ -0.008 \end{smallmatrix} \pm 0.002$	5	ALEXANDER	90	CLEO $e^+ e^-$ 10.5–11 GeV

$\Gamma(K_S^0 K^- \pi^+)/\Gamma(K^- \pi^+)$ Γ_{153}/Γ_{32}

VALUE	DOCUMENT ID	TECN	COMMENT
0.089±0.013 OUR FIT	Error includes scale factor of 1.1.		
0.08 ±0.03	⁸⁸ ANJOS	91 E691	γ Be 80–240 GeV
⁸⁸ The factor 100 at the top of column 2 of Table I of ANJOS 91 should be omitted.			

$\Gamma(K_S^0 K^- \pi^+)/\Gamma(K_S^0 \pi^+ \pi^-)$ Γ_{153}/Γ_{34}

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.117±0.017 OUR FIT	Error includes scale factor of 1.1.			
0.119±0.021 OUR AVERAGE	Error includes scale factor of 1.3.			
0.108±0.019	61	AMMAR	91 CLEO	$e^+ e^- \approx 10.5$ GeV
0.16 ±0.03 ±0.02	39	ALBRECHT	90C ARG	$e^+ e^- \approx 10$ GeV

$\Gamma(\bar{K}^*(892)^0 K_S^0)/\Gamma(K_S^0 \pi^+ \pi^-)$ Γ_{177}/Γ_{34}

Unseen decay modes of the $\bar{K}^*(892)^0$ are included.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.029	90	AMMAR	91 CLEO	$e^+ e^- \approx 10.5$ GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.03	90	ALBRECHT	90C ARG	$e^+ e^- \approx 10$ GeV

$\Gamma(K_S^0 K^+ \pi^-)/\Gamma(K^- \pi^+)$ Γ_{155}/Γ_{32}

VALUE	DOCUMENT ID	TECN	COMMENT
0.068±0.013 OUR FIT			
0.05 ±0.025	⁸⁹ ANJOS	91 E691	γ Be 80–240 GeV
⁸⁹ The factor 100 at the top of column 2 of Table I of ANJOS 91 should be omitted.			

$\Gamma(K_S^0 K^+ \pi^-)/\Gamma(K_S^0 \pi^+ \pi^-)$ Γ_{155}/Γ_{34}

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.090±0.017 OUR FIT				
0.098±0.020	55	AMMAR	91 CLEO	$e^+ e^- \approx 10.5$ GeV

$\Gamma(K^*(892)^0 K_S^0)/\Gamma(K_S^0 \pi^+ \pi^-)$ Γ_{178}/Γ_{34}

Unseen decay modes of the $K^*(892)^0$ are included.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.015	90	AMMAR	91 CLEO	$e^+ e^- \approx 10.5$ GeV

$\Gamma(K^+ K^- \pi^0)/\Gamma(K^- \pi^+ \pi^0)$ Γ_{157}/Γ_{46}

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
2.37±0.03±0.04	11k±122	AUBERT,B	06X BABR	$e^+ e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.95±0.26	151	ASNER	96B CLE2	$e^+ e^- \approx \Upsilon(4S)$

$\Gamma(K^*(892)^+ K^-, K^*(892)^+ \rightarrow K^+ \pi^0)/\Gamma(K^+ K^- \pi^0)$ $\Gamma_{158}/\Gamma_{157}$

This is the “fit fraction” from the Dalitz-plot analysis with interference.

VALUE	DOCUMENT ID	TECN	COMMENT
0.461±0.031	⁹⁰ CAWLFIELD	06A CLEO	Dalitz fit, 627 ± 30 evts
⁹⁰ The error on this CAWLFIELD 06A result is statistical only.			

$\Gamma(K^*(892)^- K^+, K^*(892)^- \rightarrow K^- \pi^0) / \Gamma(K^+ K^- \pi^0)$ $\Gamma_{159} / \Gamma_{157}$

This is the "fit fraction" from the Dalitz-plot analysis with interference.

VALUE	DOCUMENT ID	TECN	COMMENT
0.123 ± 0.022	⁹¹ CAWLFIELD	06A	CLEO Dalitz fit, 627 ± 30 evts

⁹¹ The error on this CAWLFIELD 06A result is statistical only.

$\Gamma(\phi \pi^0, \phi \rightarrow K^+ K^-) / \Gamma(K^+ K^- \pi^0)$ $\Gamma_{160} / \Gamma_{157}$

This is the "fit fraction" from the Dalitz-plot analysis with interference.

VALUE	DOCUMENT ID	TECN	COMMENT
0.149 ± 0.016	⁹² CAWLFIELD	06A	CLEO Dalitz fit, 627 ± 30 evts

⁹² The error on this CAWLFIELD 06A result is statistical only.

$\Gamma(K^+ K^- \pi^0 \text{ nonresonant}) / \Gamma(K^+ K^- \pi^0)$ $\Gamma_{161} / \Gamma_{157}$

This is the "fit fraction" from the Dalitz-plot analysis with interference.

VALUE	DOCUMENT ID	TECN	COMMENT
0.360 ± 0.037	⁹³ CAWLFIELD	06A	CLEO Dalitz fit, 627 ± 30 evts

⁹³ The error is statistical only. CAWLFIELD 06A also fits the Dalitz plot replacing this flat nonresonant background with broad S -wave $\kappa^\pm \rightarrow K^\pm \pi^0$ resonances. There is no significant improvement in the fit, and $K^{*\pm} K^\mp$ and $\phi \pi^0$ results are not much changed.

$\Gamma(K_S^0 K_S^0 \pi^0) / \Gamma_{\text{total}}$ Γ_{162} / Γ

VALUE	DOCUMENT ID	TECN	COMMENT
< 0.00059	ASNER	96B	CLE2 $e^+ e^- \approx \Upsilon(4S)$

$\Gamma(\phi \pi^0) / \Gamma(K^+ K^-)$ $\Gamma_{179} / \Gamma_{151}$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.194 ± 0.006 ± 0.009	1254	TAJIMA	04	BELL $e^+ e^-$ at $\Upsilon(4S)$

$\Gamma(\phi \eta) / \Gamma(K^+ K^-)$ $\Gamma_{180} / \Gamma_{151}$

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
3.59 ± 1.14 ± 0.18	31	TAJIMA	04	BELL $e^+ e^-$ at $\Upsilon(4S)$

$\Gamma(\phi \omega) / \Gamma_{\text{total}}$ Γ_{181} / Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
< 0.0021	90	ALBRECHT	94i	ARG $e^+ e^- \approx 10$ GeV

$\Gamma(K^+ K^- \pi^+ \pi^-) / \Gamma(K^- \pi^+ \pi^+ \pi^-)$ $\Gamma_{163} / \Gamma_{58}$

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
3.00 ± 0.13 OUR AVERAGE				

2.95 ± 0.11 ± 0.08 2669 ± 101 ⁹⁴ LINK 05G FOCS $\gamma \text{Be}, \bar{E}_\gamma \approx 180$ GeV

3.13 ± 0.37 ± 0.36 136 ± 15 AITALA 98D E791 π^- nucleus, 500 GeV

3.5 ± 0.4 ± 0.2 244 ± 26 FRABETTI 95C E687 $\gamma \text{Be}, \bar{E}_\gamma \approx 200$ GeV

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

4.4 ± 1.8 ± 0.5 19 ± 8 ABLIKIM 05F BES $e^+ e^- \approx \psi(3770)$

4.1 ± 0.7 ± 0.5 114 ± 20 ALBRECHT 94i ARG $e^+ e^- \approx 10$ GeV

3.14 ± 1.0 89 ± 29 AMMAR 91 CLEO $e^+ e^- \approx 10.5$ GeV

2.8 ^{+0.8}/_{-0.7} ANJOS 91 E691 γBe 80–240 GeV

⁹⁴ LINK 05G uses a smaller, cleaner subset of 1279 ± 48 events for the amplitude analysis that gives the results in the next data blocks.

$\Gamma(\phi\pi^+\pi^- \text{ 3-body}, \phi \rightarrow K^+K^-)/\Gamma(K^+K^-\pi^+\pi^-)$ $\Gamma_{164}/\Gamma_{163}$

This is the fraction from a coherent amplitude analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
0.01±0.01	LINK	05G	FOCS 1279 ± 48 $K^+K^-\pi^+\pi^-$ evts.

$\Gamma(\phi\rho^0, \phi \rightarrow K^+K^-)/\Gamma(K^+K^-\pi^+\pi^-)$ $\Gamma_{165}/\Gamma_{163}$

This is the fraction from a coherent amplitude analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
0.29±0.02 ±0.01	LINK	05G	FOCS 1279 ± 48 $K^+K^-\pi^+\pi^-$ evts.

$\Gamma(K^+K^-\rho^0 \text{ 3-body})/\Gamma(K^+K^-\pi^+\pi^-)$ $\Gamma_{166}/\Gamma_{163}$

This is the fraction from a coherent amplitude analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
0.02±0.02 ±0.02	LINK	05G	FOCS 1279 ± 48 $K^+K^-\pi^+\pi^-$ evts.

$\Gamma(f_0(980)\pi^+\pi^-, f_0 \rightarrow K^+K^-)/\Gamma(K^+K^-\pi^+\pi^-)$ $\Gamma_{167}/\Gamma_{163}$

This is the fraction from a coherent amplitude analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
0.15±0.03±0.02	LINK	05G	FOCS 1279 ± 48 $K^+K^-\pi^+\pi^-$ evts.

$\Gamma(K^*(892)^0 K^\mp \pi^\pm \text{ 3-body}, K^{*0} \rightarrow K^\pm \pi^\mp)/\Gamma(K^+K^-\pi^+\pi^-)$ $\Gamma_{168}/\Gamma_{163}$

This is the fraction from a coherent amplitude analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
0.11±0.02 ±0.01	LINK	05G	FOCS 1279 ± 48 $K^+K^-\pi^+\pi^-$ evts.

$\Gamma(K^*(892)^0 \bar{K}^*(892)^0, K^{*0} \rightarrow K^\pm \pi^\mp)/\Gamma(K^+K^-\pi^+\pi^-)$ $\Gamma_{169}/\Gamma_{163}$

This is the fraction from a coherent amplitude analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
0.03±0.02 ±0.01	LINK	05G	FOCS 1279 ± 48 $K^+K^-\pi^+\pi^-$ evts.

$\Gamma(K_1(1270)^\pm K^\mp, K_1(1270)^\pm \rightarrow K^\pm \pi^+ \pi^-)/\Gamma(K^+K^-\pi^+\pi^-)$ $\Gamma_{170}/\Gamma_{163}$

This is the fraction from a coherent amplitude analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
0.33±0.06±0.04	⁹⁵ LINK	05G	FOCS 1279 ± 48 $K^+K^-\pi^+\pi^-$ evts.

⁹⁵This LINK 05G value includes $K_1(1270)^\pm \rightarrow \rho^0 K^\pm, \rightarrow K_0^*(1430)^0 \pi^\pm$, and $K^*(892)^0 \pi^\pm$.

$\Gamma(K_1(1400)^\pm K^\mp, K_1(1400)^\pm \rightarrow K^\pm \pi^+ \pi^-)/\Gamma(K^+K^-\pi^+\pi^-)$ $\Gamma_{171}/\Gamma_{163}$

This is the fraction from a coherent amplitude analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
0.22±0.03±0.04	LINK	05G	FOCS 1279 ± 48 $K^+K^-\pi^+\pi^-$ evts.

$\Gamma(K_S^0 K_S^0 \pi^+ \pi^-)/\Gamma(K_S^0 \pi^+ \pi^-)$ Γ_{174}/Γ_{34}

VALUE (units 10 ⁻²)	EVTS	DOCUMENT ID	TECN	COMMENT
4.3 ±0.8 OUR AVERAGE				
4.16±0.70±0.42	113 ± 21	LINK	05A	FOCS γ Be, $\bar{E}_\gamma \approx 180$ GeV
6.2 ±2.0 ±1.6	25	ALBRECHT	94I	ARG $e^+e^- \approx 10$ GeV

$\Gamma(K_S^0 K^- \pi^+ \pi^+ \pi^-) / \Gamma(K_S^0 2\pi^+ 2\pi^-)$					$\Gamma_{175} / \Gamma_{82}$
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<0.054	90	LINK	04D	FOCS	γ A, $\bar{E}_\gamma \approx 180$ GeV

$\Gamma(K^+ K^- \pi^+ \pi^- \pi^0) / \Gamma_{\text{total}}$					Γ_{176} / Γ
<u>VALUE</u>			<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.0031 ± 0.0020	96	BARLAG	92C	ACCM	π^- Cu 230 GeV

⁹⁶ BARLAG 92C computes the branching fraction using topological normalization.

———— Radiative modes ————

$\Gamma(\rho^0 \gamma) / \Gamma_{\text{total}}$					Γ_{182} / Γ
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>		
<2.4 × 10⁻⁴	90	ASNER	98	CLE2	

$\Gamma(\omega \gamma) / \Gamma_{\text{total}}$					Γ_{183} / Γ
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>		
<2.4 × 10⁻⁴	90	ASNER	98	CLE2	

$\Gamma(\phi \gamma) / \Gamma_{\text{total}}$					Γ_{184} / Γ
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>		
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.9 × 10⁻⁴	90	ASNER	98	CLE2	

$\Gamma(\phi \gamma) / \Gamma(K^+ K^-)$					$\Gamma_{184} / \Gamma_{151}$
<u>VALUE (units 10⁻³)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
6.31^{+1.70+0.30}_{-1.48-0.36}	28	TAJIMA	04	BELL	$e^+ e^-$ at $\Upsilon(4S)$

$\Gamma(\bar{K}^*(892)^0 \gamma) / \Gamma_{\text{total}}$					Γ_{185} / Γ
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>		
<7.6 × 10⁻⁴	90	ASNER	98	CLE2	

———— Doubly Cabibbo-suppressed / Mixing modes ————

$\Gamma(K^+ \ell^- \bar{\nu}_\ell \text{ (via } \bar{D}^0)) / \Gamma(K^- \ell^+ \nu_\ell)$					$\Gamma_{186} / \Gamma_{17}$
This is a limit on R_M without the complications of possible doubly-Cabibbo-suppressed decays that occur when using hadronic modes. For the limits on $ m_1 - m_2 $ and $(\Gamma_1 - \Gamma_2) / \Gamma$ that come from the best mixing limit, see near the beginning of these D^0 Listings.					

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<0.005	90	⁹⁷ AITALA	96C	E791	π^- nucleus, 500 GeV

⁹⁷ AITALA 96C uses $D^{*+} \rightarrow D^0 \pi^+$ (and charge conjugate) decays to identify the charm at production and $D^0 \rightarrow K^- \ell^+ \nu_\ell$ (and charge conjugate) decays to identify the charm at decay.

$$\frac{\Gamma(K^+ \text{ or } K^*(892)^+ e^- \bar{\nu}_e \text{ (via } \bar{D}^0))}{[\Gamma(K^- e^+ \nu_e) + \Gamma(K^*(892)^- e^+ \nu_e)]} \quad \Gamma_{187}/(\Gamma_{18} + \Gamma_{20})$$

This is a limit on R_M without the complications of possible doubly-Cabibbo-suppressed decays that occur when using hadronic modes. For the limits on $|m_1 - m_2|$ and $(\Gamma_1 - \Gamma_2)/\Gamma$ that come from the best mixing limit, see near the beginning of these D^0 Listings.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.001	90	98 BITENC	05	BELL $e^+ e^- \approx 10.6$ GeV
<0.0078	90	98 CAWLFIELD	05	CLEO $e^+ e^- \approx 10.6$ GeV
<0.0042	90	98 AUBERT,B	04Q	BABR $e^+ e^- \approx \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •
⁹⁸ AUBERT,B 04Q, CAWLFIELD 05, and BITENC 05 use $D^{*+} \rightarrow D^0 \pi^+$ (and charge conjugate) decays to identify the charm at production and the charge of the e to identify the charm at decay. These limits do not allow CP violation.

$$\Gamma(K^+ \pi^-)/\Gamma(K^- \pi^+) \quad \Gamma_{188}/\Gamma_{32}$$

This is R_D in the note on " D^0 - \bar{D}^0 Mixing," near the start of the D^0 Listings. The experiments here use the charge of the pion in $D^*(2010)^\pm \rightarrow (D^0 \text{ or } \bar{D}^0) \pi^\pm$ decay to tell whether a D^0 or a \bar{D}^0 was born. The $D^0 \rightarrow K^+ \pi^-$ decay can occur directly by doubly Cabibbo-suppressed (DCS) decay, or indirectly by $D^0 \rightarrow \bar{D}^0$ mixing followed by $\bar{D}^0 \rightarrow K^+ \pi^-$ decay. Some of the experiments can use the decay-time information to disentangle the two mechanisms. Here, we list the experimental branching ratio, which if there is no mixing is the DCS ratio. See the next data block for limits on the mixing ratio R_M , see the section on CP-violating asymmetries near the end of this D^0 Listing for values of A_D , and see the note on " D^0 - \bar{D}^0 Mixing" for limits on x' and y' .

Some early limits have been omitted from this Listing; see our 1998 edition (EPJ **C3** 1).

VALUE (units 10^{-3})	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
3.80 ± 0.08 OUR AVERAGE					
4.05 ± 0.21 ± 0.11	2.0 ± 0.1k		99 ABULENCIA	06X CDF	$p\bar{p}, \sqrt{s} = 1.96$ TeV
3.77 ± 0.08 ± 0.05	4024 ± 88		100 ZHANG	06 BELL	$e^+ e^-$
4.29 ^{+0.63} _{-0.61} ± 0.27		234	101 LINK	05H FOCS	γ nucleus
3.59 ± 0.20 ± 0.27			102 AUBERT	03Z BABR	$e^+ e^-$, 10.6 GeV
3.32 ^{+0.63} _{-0.65} ± 0.40		45	103 GODANG	00 CLE2	$e^+ e^-$
6.8 ^{+3.4} _{-3.3} ± 0.7		34	104 AITALA	98 E791	π^- nucl., 500 GeV

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

3.81 ± 0.17 ^{+0.08} _{-0.16}	845 ± 40		105 LI	05A BELL	See ZHANG 06
4.04 ± 0.85 ± 0.25		149	106 LINK	01 FOCS	γ nucleus
18.4 ± 5.9 ± 3.4		19	107 BARATE	98W ALEP	$e^+ e^-$ at Z^0
7.7 ± 2.5 ± 2.5		19	108 CINABRO	94 CLE2	$e^+ e^- \approx \Upsilon(4S)$
< 11	90		108 AMMAR	91 CLEO	$e^+ e^- \approx 10.5$ GeV
< 15	90	1 ± 6	109 ANJOS	88C E691	Photoproduction
< 14	90		108 ALBRECHT	87K ARG	$e^+ e^-$ 10 GeV

- ⁹⁹ This ABULENCIA 06X result assumes no mixing.
- ¹⁰⁰ This ZHANG 06 result assumes no mixing. If mixing but no *CP* violation is allowed, $R_D = (3.64 \pm 0.17) \times 10^{-3}$.
- ¹⁰¹ This LINK 05H result assumes no mixing or *CP* violation. Allowing *CP* violation but no mixing, $R_D = (4.29 \pm 0.63 \pm 0.28) \times 10^{-3}$ — negligibly different. Allowing mixing but no *CP* violation, $R_D = (3.81^{+1.67}_{-1.63} \pm 0.92) \times 10^{-3}$. Allowing mixing and *CP* violation, $R_D = (5.17^{+1.47}_{-1.58} \pm 0.76) \times 10^{-3}$.
- ¹⁰² This AUBERT 03Z result is for no mixing or *CP* violation. If *CP* violation but no mixing is allowed, $R_D = 0.00357 \pm 0.00022 \pm 0.00027$. If only mixing is allowed, the 95% confidence-level interval is $(2.4 < R_D < 4.9) \times 10^{-3}$. If both mixing and *CP* violation are allowed, this interval becomes $(2.3 < R_D < 5.2) \times 10^{-3}$.
- ¹⁰³ This GODANG 00 result assumes no $D^0\text{-}\bar{D}^0$ mixing ($R_M=0$ in the note on “ $D^0\text{-}\bar{D}^0$ Mixing” near the start of the D^0 Listings) but allows *CP* violation. The DCS ratio becomes $0.0048 \pm 0.0012 \pm 0.0004$ when mixing is allowed.
- ¹⁰⁴ This AITALA 98 result assumes no *CP* violation or mixing ($R_M=0$ in the note on “ $D^0\text{-}\bar{D}^0$ Mixing” near the start of the D^0 Listings). The DCS ratio becomes $0.0090^{+0.0120}_{-0.0109} \pm 0.0044$ when mixing is allowed.
- ¹⁰⁵ This LI 05A result assumes no mixing or *CP* violation. If mixing but no *CP* violation is allowed, $R_D = (2.87 \pm 0.37) \times 10^{-3}$.
- ¹⁰⁶ This LINK 01 result assumes no mixing or *CP* violation; see Fig. 4 of the paper for the DCS value as a function of the (unknown) mixing parameters x' and y' . See also the note on “ $D^0\text{-}\bar{D}^0$ Mixing” near the start of the D^0 Listings for results on x' and y' from FOCUS and other experiments.
- ¹⁰⁷ BARATE 98W gets $0.0177^{+0.0060}_{-0.0056} \pm 0.0031$ for the DCS ratio when mixing is allowed, assuming no interference between the DCS and mixing amplitudes ($y' = 0$ in the note on “ $D^0\text{-}\bar{D}^0$ Mixing” near the start of the D^0 Listings).
- ¹⁰⁸ CINABRO 94, AMMAR 91, and ALBRECHT 87K cannot distinguish between doubly Cabibbo-suppressed decay and $D^0\text{-}\bar{D}^0$ mixing.
- ¹⁰⁹ ANJOS 88C allows mixing but assumes no interference between the DCS and mixing amplitudes ($y' = 0$ in the note on “ $D^0\text{-}\bar{D}^0$ Mixing” near the start of the D^0 Listings). When interference is allowed, the limit degrades to 0.049.

$\Gamma(K^+\pi^-(\text{via } \bar{D}^0))/\Gamma(K^-\pi^+)$ Γ_{189}/Γ_{32}

This is R_M in the note on “ $D^0\text{-}\bar{D}^0$ Mixing” near the start of the D^0 Listings. The experiments here (1) use the charge of the pion in $D^*(2010)^\pm \rightarrow (D^0 \text{ or } \bar{D}^0) \pi^\pm$ decay to tell whether a D^0 or a \bar{D}^0 was born; and (2) use the decay-time distribution to disentangle doubly Cabibbo-suppressed decay and mixing. For the limits on $|m_1 - m_2|$ and $(\Gamma_1 - \Gamma_2)/\Gamma$ that come from the best mixing limit, see near the beginning of these D^0 Listings.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<0.00040	95	110	ZHANG 06	BELL	e^+e^-
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
<0.00046	95	111	LI 05A	BELL	See ZHANG 06
<0.0063	95	112	LINK 05H	FOCS	γ nucleus
<0.0013	95	113	AUBERT 03Z	BABR	e^+e^- , 10.6 GeV
<0.00041	95	114	GODANG 00	CLE2	e^+e^-
<0.0092	95	115	BARATE 98W	ALEP	e^+e^- at Z^0
<0.005	90	1 ± 4	116 ANJOS 88C	E691	Photoproduction

- 110 This ZHANG 06 result allows CP violation, but the result does not change if CP violation is not allowed.
- 111 This LI 05A result allows CP violation. The limit becomes < 0.00042 (95% CL) if CP violation is not allowed.
- 112 LINK 05H obtains the same result whether or not CP violation is allowed.
- 113 This AUBERT 03Z result allows CP violation and assumes that the strong phase between $D^0 \rightarrow K^+ \pi^-$ and $\bar{D}^0 \rightarrow K^+ \pi^-$ is small, and limits only $D^0 \rightarrow \bar{D}^0$ transitions via off-shell intermediate states. The limit on transitions via on-shell intermediate states is 0.0016.
- 114 This GODANG 00 result allows CP violation and assumes that the strong phase between $D^0 \rightarrow K^+ \pi^-$ and $\bar{D}^0 \rightarrow K^+ \pi^-$ is small, and limits only $D^0 \rightarrow \bar{D}^0$ transitions via off-shell intermediate states. The limit on transitions via on-shell intermediate states is 0.0017.
- 115 This BARATE 98W result assumes no interference between the DCS and mixing amplitudes ($y' = 0$ in the note on " D^0 - \bar{D}^0 Mixing" near the start of the D^0 Listings). When interference is allowed, the limit degrades to 0.036 (95%CL).
- 116 This ANJOS 88C result assumes no interference between the DCS and mixing amplitudes ($y' = 0$ in the note on " D^0 - \bar{D}^0 Mixing" near the start of the D^0 Listings). When interference is allowed, the limit degrades to 0.019.

$\Gamma(K_S^0 \pi^+ \pi^- \text{ (in } D^0 \rightarrow \bar{D}^0)) / \Gamma(K_S^0 \pi^+ \pi^-)$ $\Gamma_{190} / \Gamma_{34}$

This is R_M in the note on " D^0 - \bar{D}^0 Mixing" near the start of the D^0 Listings. The experiments here (1) use the charge of the pion in $D^*(2010)^\pm \rightarrow (D^0 \text{ or } \bar{D}^0) \pi^\pm$ decay to tell whether a D^0 or a \bar{D}^0 was born; and (2) use the decay-time distribution to disentangle doubly Cabibbo-suppressed decay and mixing. For the limits on $|m_1 - m_2|$ and $(\Gamma_1 - \Gamma_2) / \Gamma$ that come from the best mixing limit, see near the beginning of these D^0 Listings.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0063	95	117 ASNER	05 CLEO	$e^+ e^- \approx 10 \text{ GeV}$

- 117 This ASNER 05 limit allows CP violation. If CP violation is not allowed, the limit is 0.0042 at 95% CL.

$\Gamma(K^+ \pi^- \pi^0) / \Gamma(K^- \pi^+ \pi^0)$ $\Gamma_{192} / \Gamma_{46}$

The experiments here use the charge of the pion in $D^*(2010)^\pm \rightarrow (D^0 \text{ or } \bar{D}^0) \pi^\pm$ decay to tell whether a D^0 or a \bar{D}^0 was born. The $D^0 \rightarrow K^+ \pi^- \pi^0$ decay can occur directly by doubly Cabibbo-suppressed (DCS) decay, or indirectly by $D^0 \rightarrow \bar{D}^0$ mixing followed by $\bar{D}^0 \rightarrow K^+ \pi^- \pi^0$ decay.

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
2.20 ± 0.10 OUR AVERAGE				
2.14 ± 0.08 ± 0.08	763 ± 51	118 AUBERT,B	06N BABR	$e^+ e^- \approx \Upsilon(4S)$
2.29 ± 0.15 $^{+0.13}_{-0.09}$	1978 ± 104	TIAN	05 BELL	$e^+ e^- \approx \Upsilon(4S)$
4.3 $^{+1.1}_{-1.0}$ ± 0.7	38	BRANDENB...	01 CLE2	$e^+ e^- \approx \Upsilon(4S)$

- 118 This AUBERT,B 06N result assumes no mixing.

$\Gamma(K^+ \pi^- \pi^0 \text{ (via } \bar{D}^0)) / \Gamma(K^- \pi^+ \pi^0)$ $\Gamma_{193} / \Gamma_{46}$

This is R_M in the note on “ D^0 - \bar{D}^0 Mixing” near the start of the D^0 Listings. The experiments here (1) use the charge of the pion in $D^*(2010)^\pm \rightarrow (D^0 \text{ or } \bar{D}^0) \pi^\pm$ decay to tell whether a D^0 or a \bar{D}^0 was born; and (2) use the decay-time distribution to disentangle doubly Cabibbo-suppressed decay and mixing. For the limits on $|m_1 - m_2|$ and $(\Gamma_1 - \Gamma_2) / \Gamma$ that come from the best mixing limit, see near the beginning of these D^0 Listings.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
$<5.4 \times 10^{-4}$	95	¹¹⁹ AUBERT,B	06N	BABR $e^+ e^- \approx \Upsilon(4S)$

¹¹⁹ This AUBERT,B 06N limit assumes no CP violation. The measured value corresponding to the limit is $(2.3^{+1.8}_{-1.4} \pm 0.4) \times 10^{-4}$. If CP violation is allowed, this becomes $(1.0^{+2.2}_{-0.7} \pm 0.3) \times 10^{-4}$.

$\Gamma(K^+ \pi^- \pi^+ \pi^-) / \Gamma(K^- \pi^+ \pi^+ \pi^-)$ $\Gamma_{194} / \Gamma_{58}$

The experiments here use the charge of the pion in $D^*(2010)^\pm \rightarrow (D^0 \text{ or } \bar{D}^0) \pi^\pm$ decay to tell whether a D^0 or a \bar{D}^0 was born. The $D^0 \rightarrow K^+ \pi^- \pi^+ \pi^-$ decay can occur directly by doubly Cabibbo-suppressed (DCS) decay, or indirectly by $D^0 \rightarrow \bar{D}^0$ mixing followed by $\bar{D}^0 \rightarrow K^+ \pi^- \pi^+ \pi^-$ decay. Some of the experiments can use the decay-time information to disentangle the two mechanisms. Here, we list the experimental branching ratio, which if there is no mixing is the DCS ratio; in the next data block we give the limits on the mixing ratio.

Some early limits have been omitted from this Listing; see our 1998 edition (EPJ **C3** 1).

VALUE (units 10^{-3})	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$3.23^{+0.25}_{-0.22}$ OUR AVERAGE					
$3.20 \pm 0.18^{+0.18}_{-0.13}$		1721 ± 75	¹²⁰ TIAN	05	BELL $e^+ e^- \approx \Upsilon(4S)$
$4.4^{+1.3}_{-1.2} \pm 0.6$		54	¹²⁰ DYTMAN	01	CLE2 $e^+ e^- \approx \Upsilon(4S)$
$2.5^{+3.6}_{-3.4} \pm 0.3$			¹²¹ AITALA	98	E791 π^- nucl., 500 GeV

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

<18	90		¹²⁰ AMMAR	91	CLEO $e^+ e^- \approx 10.5$ GeV
<18	90	5 ± 12	¹²² ANJOS	88C	E691 Photoproduction

¹²⁰ AMMAR 91 cannot and DYTMAN 01 and TIAN 05 do not distinguish between doubly Cabibbo-suppressed decay and D^0 - \bar{D}^0 mixing.

¹²¹ This AITALA 98 result assumes no D^0 - \bar{D}^0 mixing (R_M in the note on “ D^0 - \bar{D}^0 Mixing”). It becomes $-0.0020^{+0.0117}_{-0.0106} \pm 0.0035$ when mixing is allowed and decay-time information is used to distinguish doubly Cabibbo-suppressed decays from mixing.

¹²² ANJOS 88C uses decay-time information to distinguish doubly Cabibbo-suppressed (DCS) decays from D^0 - \bar{D}^0 mixing. However, the result assumes no interference between the DCS and mixing amplitudes ($\gamma = 0$ in the note on “ D^0 - \bar{D}^0 Mixing” near the start of the D^0 Listings). When interference is allowed, the limit degrades to 0.033.

$\Gamma(K^+ \pi^- \pi^+ \pi^- \text{ (via } \bar{D}^0)) / \Gamma(K^- \pi^+ \pi^+ \pi^-)$ $\Gamma_{195} / \Gamma_{58}$

This is a D^0 - \bar{D}^0 mixing limit. The experiments here (1) use the charge of the pion in $D^*(2010)^\pm \rightarrow (D^0 \text{ or } \bar{D}^0) \pi^\pm$ decay to tell whether a D^0 or a \bar{D}^0 was born; and (2) use the decay-time distribution to disentangle doubly Cabibbo-suppressed decay and mixing. For the limits on $|m_{D_1^0} - m_{D_2^0}|$ and $(\Gamma_{D_1^0} - \Gamma_{D_2^0}) / \Gamma_{D^0}$ that come from the best mixing limit, see near the beginning of these D^0 Listings.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<0.005	90	0 ± 4	¹²³ ANJOS	88C E691	Photoproduction

¹²³ ANJOS 88C uses decay-time information to distinguish doubly Cabibbo-suppressed (DCS) decays from D^0 - \bar{D}^0 mixing. However, the result assumes no interference between the DCS and mixing amplitudes ($\gamma = 0$ in the note on " D^0 - \bar{D}^0 Mixing" near the start of the D^0 Listings). When interference is allowed, the limit degrades to 0.007.

$\Gamma(K^+ \pi^- \text{ or } K^+ \pi^- \pi^+ \pi^- \text{ (via } \bar{D}^0)) / \Gamma(K^- \pi^+ \text{ or } K^- \pi^+ \pi^+ \pi^-)$ Γ_{196} / Γ_0

This is a D^0 - \bar{D}^0 mixing limit. For the limits on $|m_{D_1^0} - m_{D_2^0}|$ and $(\Gamma_{D_1^0} - \Gamma_{D_2^0}) / \Gamma_{D^0}$ that come from the best mixing limit, see near the beginning of these D^0 Listings.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
-------	-----	-------------	------	---------

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

<0.0085	90	¹²⁴ AITALA	98 E791	π^- nucleus, 500 GeV
<0.0037	90	¹²⁵ ANJOS	88C E691	Photoproduction

¹²⁴ AITALA 98 uses decay-time information to distinguish doubly Cabibbo-suppressed decays from D^0 - \bar{D}^0 mixing. The fit allows interference between the two amplitudes, and also allows CP violation in this term. The central value obtained is $0.0039^{+0.0036}_{-0.0032} \pm 0.0016$. When interference is disallowed, the result becomes $0.0021 \pm 0.0009 \pm 0.0002$.

¹²⁵ This combines results of ANJOS 88C on $K^+ \pi^-$ and $K^+ \pi^- \pi^+ \pi^-$ (via \bar{D}^0) reported in the data block above (see footnotes there). It assumes no interference.

$\Gamma(\mu^- \text{ anything (via } \bar{D}^0)) / \Gamma(\mu^+ \text{ anything})$ Γ_{197} / Γ_6

This is a D^0 - \bar{D}^0 mixing limit. See the somewhat better limits above.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0056	90	LOUIS	86 SPEC	π^- W 225 GeV

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

<0.012	90	BENVENUTI	85 CNTR	μC , 200 GeV
<0.044	90	BODEK	82 SPEC	π^- , $pFe \rightarrow D^0$

————— Rare or forbidden modes —————

$\Gamma(\gamma\gamma) / \Gamma(\pi^0 \pi^0)$ $\Gamma_{198} / \Gamma_{134}$

$D^0 \rightarrow \gamma\gamma$ is a flavor-changing neutral-current decay, forbidden in the Standard Model at the tree level.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.033	90	COAN	03 CLE2	$e^+ e^- \approx \Upsilon(4S)$

$\Gamma(e^+e^-)/\Gamma_{\text{total}}$ **Γ_{199}/Γ**

A test for the $\Delta C = 1$ weak neutral current. Allowed by first-order weak interaction combined with electromagnetic interaction.

<u>VALUE</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<1.2 \times 10^{-6}$	90	3	AUBERT,B	04Y	BABR $e^+e^- \approx \gamma(4S)$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
$<8.19 \times 10^{-6}$	90		PRIPSTEIN	00	E789 p nucleus, 800 GeV
$<6.2 \times 10^{-6}$	90		AITALA	99G	E791 $\pi^- N$ 500 GeV
$<1.3 \times 10^{-5}$	90	0	FREYBERGER	96	CLE2 $e^+e^- \approx \gamma(4S)$
$<1.3 \times 10^{-4}$	90		ADLER	88	MRK3 e^+e^- 3.77 GeV
$<1.7 \times 10^{-4}$	90	7	ALBRECHT	88G	ARG e^+e^- 10 GeV
$<2.2 \times 10^{-4}$	90	8	HAAS	88	CLEO e^+e^- 10 GeV

$\Gamma(\mu^+\mu^-)/\Gamma_{\text{total}}$ **Γ_{200}/Γ**

A test for the $\Delta C = 1$ weak neutral current. Allowed by first-order weak interaction combined with electromagnetic interaction.

<u>VALUE</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<1.3 \times 10^{-6}$	90	1	AUBERT,B	04Y	BABR $e^+e^- \approx \gamma(4S)$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
$<2.0 \times 10^{-6}$	90		ABT	04	HERB pA , 920 GeV
$<2.5 \times 10^{-6}$	90		ACOSTA	03F	CDF $p\bar{p}$, $\sqrt{s} = 1.96$ TeV
$<1.56 \times 10^{-5}$	90		PRIPSTEIN	00	E789 p nucleus, 800 GeV
$<5.2 \times 10^{-6}$	90		AITALA	99G	E791 $\pi^- N$ 500 GeV
$<4.1 \times 10^{-6}$	90		ADAMOVICH	97	BEAT π^- Cu, W 350 GeV
$<4.2 \times 10^{-6}$	90		ALEXOPOU...	96	E771 p Si, 800 GeV
$<3.4 \times 10^{-5}$	90	1	FREYBERGER	96	CLE2 $e^+e^- \approx \gamma(4S)$
$<7.6 \times 10^{-6}$	90	0	ADAMOVICH	95	BEAT See ADAMOVICH 97
$<4.4 \times 10^{-5}$	90	0	KODAMA	95	E653 π^- emulsion 600 GeV
$<3.1 \times 10^{-5}$	90	¹²⁶	MISHRA	94	E789 -4.1 ± 4.8 events
$<7.0 \times 10^{-5}$	90	3	ALBRECHT	88G	ARG e^+e^- 10 GeV
$<1.1 \times 10^{-5}$	90		LOUIS	86	SPEC π^- W 225 GeV
$<3.4 \times 10^{-4}$	90		AUBERT	85	EMC Deep inelast. $\mu^- N$

¹²⁶ Here MISHRA 94 uses "the statistical approach advocated by the PDG." For an alternate approach, giving a limit of 9×10^{-6} at 90% confidence level, see the paper.

$\Gamma(\pi^0 e^+ e^-)/\Gamma_{\text{total}}$ **Γ_{201}/Γ**

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

<u>VALUE</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<4.5 \times 10^{-5}$	90	0	FREYBERGER	96	CLE2 $e^+e^- \approx \gamma(4S)$

$\Gamma(\pi^0 \mu^+ \mu^-)/\Gamma_{\text{total}}$ **Γ_{202}/Γ**

A test for the $\Delta C=1$ weak neutral current. Allowed by higher-order electroweak interactions.

<u>VALUE</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<1.8 \times 10^{-4}$	90	2	KODAMA	95	E653 π^- emulsion 600 GeV
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
$<5.4 \times 10^{-4}$	90	3	FREYBERGER	96	CLE2 $e^+e^- \approx \gamma(4S)$

$\Gamma(\eta e^+ e^-)/\Gamma_{\text{total}}$ **Γ_{203}/Γ**

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<1.1 \times 10^{-4}$	90	0	FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$

$\Gamma(\eta \mu^+ \mu^-)/\Gamma_{\text{total}}$ **Γ_{204}/Γ**

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<5.3 \times 10^{-4}$	90	0	FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$

$\Gamma(\pi^+ \pi^- e^+ e^-)/\Gamma_{\text{total}}$ **Γ_{205}/Γ**

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<3.73 \times 10^{-4}$	90	9	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(\rho^0 e^+ e^-)/\Gamma_{\text{total}}$ **Γ_{206}/Γ**

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<1.0 \times 10^{-4}$	90	2	¹²⁷ FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$

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

$<1.24 \times 10^{-4}$	90	1	AITALA	01C E791	π^- nucleus, 500 GeV
$<4.5 \times 10^{-4}$	90	2	HAAS	88 CLEO	$e^+ e^-$ 10 GeV

¹²⁷ This FREYBERGER 96 limit is obtained using a phase-space model. The limit changes to $< 1.8 \times 10^{-4}$ using a photon pole amplitude model.

$\Gamma(\pi^+ \pi^- \mu^+ \mu^-)/\Gamma_{\text{total}}$ **Γ_{207}/Γ**

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<3.0 \times 10^{-5}$	90	2	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(\rho^0 \mu^+ \mu^-)/\Gamma_{\text{total}}$ **Γ_{208}/Γ**

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<2.2 \times 10^{-5}$	90	0	AITALA	01C E791	π^- nucleus, 500 GeV

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

$<4.9 \times 10^{-4}$	90	1	¹²⁸ FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$
$<2.3 \times 10^{-4}$	90	0	KODAMA 95	E653	π^- emulsion 600 GeV
$<8.1 \times 10^{-4}$	90	5	HAAS	88 CLEO	$e^+ e^-$ 10 GeV

¹²⁸ This FREYBERGER 96 limit is obtained using a phase-space model. The limit changes to $< 4.5 \times 10^{-4}$ using a photon pole amplitude model.

$\Gamma(\omega e^+ e^-)/\Gamma_{\text{total}}$ Γ_{209}/Γ

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<1.8 \times 10^{-4}$	90	1	¹²⁹ FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$

¹²⁹ This FREYBERGER 96 limit is obtained using a phase-space model. The limit changes to $< 2.7 \times 10^{-4}$ using a photon pole amplitude model.

$\Gamma(\omega \mu^+ \mu^-)/\Gamma_{\text{total}}$ Γ_{210}/Γ

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<8.3 \times 10^{-4}$	90	0	¹³⁰ FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$

¹³⁰ This FREYBERGER 96 limit is obtained using a phase-space model. The limit changes to $< 6.5 \times 10^{-4}$ using a photon pole amplitude model.

$\Gamma(K^- K^+ e^+ e^-)/\Gamma_{\text{total}}$ Γ_{211}/Γ

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<3.15 \times 10^{-4}$	90	9	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(\phi e^+ e^-)/\Gamma_{\text{total}}$ Γ_{212}/Γ

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<5.2 \times 10^{-5}$	90	2	¹³¹ FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$

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

$<5.9 \times 10^{-5}$	90	0	AITALA	01C E791	π^- nucleus, 500 GeV
-----------------------	----	---	--------	----------	--------------------------

¹³¹ This FREYBERGER 96 limit is obtained using a phase-space model. The limit changes to $< 7.6 \times 10^{-5}$ using a photon pole amplitude model.

$\Gamma(K^- K^+ \mu^+ \mu^-)/\Gamma_{\text{total}}$ Γ_{213}/Γ

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<3.3 \times 10^{-5}$	90	0	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(\phi \mu^+ \mu^-)/\Gamma_{\text{total}}$ Γ_{214}/Γ

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<3.1 \times 10^{-5}$	90	0	AITALA	01C E791	π^- nucleus, 500 GeV

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

$<4.1 \times 10^{-4}$	90	0	¹³² FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$
-----------------------	----	---	------------------------------	------	------------------------------

¹³² This FREYBERGER 96 limit is obtained using a phase-space model. The limit changes to $< 2.4 \times 10^{-4}$ using a photon pole amplitude model.

$\Gamma(\bar{K}^0 e^+ e^-)/\Gamma_{\text{total}}$ **Γ_{215}/Γ**

Not a useful test for $\Delta C = 1$ weak neutral current because both quarks must change flavor.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<1.1 \times 10^{-4}$	90	0	FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.7 \times 10^{-3}$	90		ADLER	89C MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(\bar{K}^0 \mu^+ \mu^-)/\Gamma_{\text{total}}$ **Γ_{216}/Γ**

Not a useful test for $\Delta C = 1$ weak neutral current because both quarks must change flavor.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<2.6 \times 10^{-4}$	90	2	KODAMA	95 E653	π^- emulsion 600 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<6.7 \times 10^{-4}$	90	1	FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$

$\Gamma(K^- \pi^+ e^+ e^-)/\Gamma_{\text{total}}$ **Γ_{217}/Γ**

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<3.85 \times 10^{-4}$	90	6	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(\bar{K}^*(892)^0 e^+ e^-)/\Gamma_{\text{total}}$ **Γ_{218}/Γ**

Not a useful test for $\Delta C = 1$ weak neutral current because both quarks must change flavor.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<4.7 \times 10^{-5}$	90	2	AITALA	01C E791	π^- nucleus, 500 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.4 \times 10^{-4}$	90	1	¹³³ FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$

¹³³This FREYBERGER 96 limit is obtained using a phase-space model. The limit changes to $< 2.0 \times 10^{-4}$ using a photon pole amplitude model.

$\Gamma(K^- \pi^+ \mu^+ \mu^-)/\Gamma_{\text{total}}$ **Γ_{219}/Γ**

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<3.59 \times 10^{-4}$	90	12	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(\bar{K}^*(892)^0 \mu^+ \mu^-)/\Gamma_{\text{total}}$ **Γ_{220}/Γ**

Not a useful test for $\Delta C = 1$ weak neutral current because both quarks must change flavor.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<2.4 \times 10^{-5}$	90	3	AITALA	01C E791	π^- nucleus, 500 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.18 \times 10^{-3}$	90	1	¹³⁴ FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$

¹³⁴This FREYBERGER 96 limit is obtained using a phase-space model. The limit changes to $< 1.0 \times 10^{-3}$ using a photon pole amplitude model.

$\Gamma(\pi^+\pi^-\pi^0\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{221}/Γ

A test for the $\Delta C=1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<8.1 \times 10^{-4}$	90	1	KODAMA	95 E653	π^- emulsion 600 GeV

$\Gamma(\mu^\pm e^\mp)/\Gamma_{\text{total}}$ Γ_{222}/Γ

A test of lepton family number conservation.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$< 8.1 \times 10^{-7}$	90	0	AUBERT,B	04Y BABR	$e^+e^- \approx \gamma(4S)$

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

$< 1.72 \times 10^{-5}$	90		PRIPSTEIN	00 E789	p nucleus, 800 GeV
$< 8.1 \times 10^{-6}$	90		AITALA	99G E791	$\pi^- N$ 500 GeV
$< 1.9 \times 10^{-5}$	90	2	¹³⁵ FREYBERGER	96 CLE2	$e^+e^- \approx \gamma(4S)$
$< 1.0 \times 10^{-4}$	90	4	ALBRECHT	88G ARG	e^+e^- 10 GeV
$< 2.7 \times 10^{-4}$	90	9	HAAS	88 CLEO	e^+e^- 10 GeV
$< 1.2 \times 10^{-4}$	90		BECKER	87C MRK3	e^+e^- 3.77 GeV
$< 9 \times 10^{-4}$	90		PALKA	87 SILI	200 GeV πp
$< 21 \times 10^{-4}$	90	0	¹³⁶ RILES	87 MRK2	e^+e^- 29 GeV

¹³⁵ This is the corrected result given in the erratum to FREYBERGER 96.

¹³⁶ RILES 87 assumes $B(D \rightarrow K\pi) = 3.0\%$ and has production model dependency.

$\Gamma(\pi^0 e^\pm \mu^\mp)/\Gamma_{\text{total}}$ Γ_{223}/Γ

A test of lepton family number conservation. The value is for the sum of the two charge states.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<8.6 \times 10^{-5}$	90	2	FREYBERGER	96 CLE2	$e^+e^- \approx \gamma(4S)$

$\Gamma(\eta e^\pm \mu^\mp)/\Gamma_{\text{total}}$ Γ_{224}/Γ

A test of lepton family number conservation. The value is for the sum of the two charge states.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<1.0 \times 10^{-4}$	90	0	FREYBERGER	96 CLE2	$e^+e^- \approx \gamma(4S)$

$\Gamma(\pi^+\pi^-\pi^0 e^\pm \mu^\mp)/\Gamma_{\text{total}}$ Γ_{225}/Γ

A test of lepton family-number conservation. The value is for the sum of the two charge states.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<1.5 \times 10^{-5}$	90	1	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(\rho^0 e^\pm \mu^\mp)/\Gamma_{\text{total}}$ Γ_{226}/Γ

A test of lepton family number conservation. The value is for the sum of the two charge states.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<4.9 \times 10^{-5}$	90	0	¹³⁷ FREYBERGER	96 CLE2	$e^+e^- \approx \gamma(4S)$

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

$<6.6 \times 10^{-5}$	90	1	AITALA	01C E791	π^- nucleus, 500 GeV
-----------------------	----	---	--------	----------	--------------------------

¹³⁷ This FREYBERGER 96 limit is obtained using a phase-space model. The limit changes to $< 5.0 \times 10^{-5}$ using a photon pole amplitude model.

$\Gamma(\omega e^\pm \mu^\mp)/\Gamma_{\text{total}}$ Γ_{227}/Γ

A test of lepton family number conservation. The value is for the sum of the two charge states.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<1.2 \times 10^{-4}$	90	0	¹³⁸ FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$

¹³⁸ This FREYBERGER 96 limit is obtained using a phase-space model. The same limit is obtained using a photon pole amplitude model.

$\Gamma(K^- K^+ e^\pm \mu^\mp)/\Gamma_{\text{total}}$ Γ_{228}/Γ

A test of lepton family-number conservation. The value is for the sum of the two charge states.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<1.8 \times 10^{-4}$	90	5	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(\phi e^\pm \mu^\mp)/\Gamma_{\text{total}}$ Γ_{229}/Γ

A test of lepton family number conservation. The value is for the sum of the two charge states.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<3.4 \times 10^{-5}$	90	0	¹³⁹ FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$

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

$<4.7 \times 10^{-5}$	90	0	AITALA	01C E791	π^- nucleus, 500 GeV
-----------------------	----	---	--------	----------	--------------------------

¹³⁹ This FREYBERGER 96 limit is obtained using a phase-space model. The limit changes to $< 3.3 \times 10^{-5}$ using a photon pole amplitude model.

$\Gamma(\bar{K}^0 e^\pm \mu^\mp)/\Gamma_{\text{total}}$ Γ_{230}/Γ

A test of lepton family number conservation. The value is for the sum of the two charge states.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<1.0 \times 10^{-4}$	90	0	FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$

$\Gamma(K^- \pi^+ e^\pm \mu^\mp)/\Gamma_{\text{total}}$ Γ_{231}/Γ

A test of lepton family-number conservation. The value is for the sum of the two charge states.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<5.53 \times 10^{-4}$	90	15	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(\bar{K}^*(892)^0 e^\pm \mu^\mp)/\Gamma_{\text{total}}$ Γ_{232}/Γ

A test of lepton family number conservation. The value is for the sum of the two charge states.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<8.3 \times 10^{-5}$	90	9	AITALA	01C E791	π^- nucleus, 500 GeV

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

$<1.0 \times 10^{-4}$	90	0	¹⁴⁰ FREYBERGER 96	CLE2	$e^+ e^- \approx \gamma(4S)$
-----------------------	----	---	------------------------------	------	------------------------------

¹⁴⁰ This FREYBERGER 96 limit is obtained using a phase-space model. The same limit is obtained using a photon pole amplitude model.

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

A test of lepton-number conservation. The value is for the sum of the two charge states.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<1.12 \times 10^{-4}$	90	1	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(\pi^- \pi^- \mu^+ \mu^+ + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{234}/Γ

A test of lepton-number conservation. The value is for the sum of the two charge states.

<u>VALUE</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<2.9 \times 10^{-5}$	90	1	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(K^- \pi^- e^+ e^+ + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{235}/Γ

A test of lepton-number conservation. The value is for the sum of the two charge states.

<u>VALUE</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<2.06 \times 10^{-4}$	90	2	AITALA	01C E791	π^- nucleus, 500 GeV

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

A test of lepton-number conservation. The value is for the sum of the two charge states.

<u>VALUE</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<3.9 \times 10^{-4}$	90	14	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(K^- K^- e^+ e^+ + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{237}/Γ

A test of lepton-number conservation. The value is for the sum of the two charge states.

<u>VALUE</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<1.52 \times 10^{-4}$	90	2	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(K^- K^- \mu^+ \mu^+ + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{238}/Γ

A test of lepton-number conservation. The value is for the sum of the two charge states.

<u>VALUE</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<9.4 \times 10^{-5}$	90	1	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(\pi^- \pi^- e^+ \mu^+ + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{239}/Γ

A test of lepton-number conservation. The value is for the sum of the two charge states.

<u>VALUE</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<7.9 \times 10^{-5}$	90	4	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(K^- \pi^- e^+ \mu^+ + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{240}/Γ

A test of lepton-number conservation. The value is for the sum of the two charge states.

<u>VALUE</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<2.18 \times 10^{-4}$	90	7	AITALA	01C E791	π^- nucleus, 500 GeV

$\Gamma(K^- K^- e^+ \mu^+ + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{241}/Γ

A test of lepton-number conservation. The value is for the sum of the two charge states.

<u>VALUE</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<5.7 \times 10^{-5}$	90	0	AITALA	01C E791	π^- nucleus, 500 GeV

D^0 CP-VIOLATING DECAY-RATE ASYMMETRIES

$A_{CP}(K^+ K^-)$ in $D^0, \bar{D}^0 \rightarrow K^+ K^-$

This is the difference between D^0 and \bar{D}^0 partial widths for these modes divided by the sum of the widths. The D^0 and \bar{D}^0 are distinguished by the charge of the parent D^* : $D^{*+} \rightarrow D^0 \pi^+$ and $D^{*-} \rightarrow \bar{D}^0 \pi^-$.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.014 ± 0.010 OUR AVERAGE				
+0.020 ± 0.012 ± 0.006	141	ACOSTA	05C	CDF $p\bar{p}$, $\sqrt{s}=1.96$ TeV
0.000 ± 0.022 ± 0.008	3023	141 CSORNA	02	CLE2 $e^+ e^- \approx \Upsilon(4S)$
-0.001 ± 0.022 ± 0.015	3330	141 LINK	00B	FOCS
-0.010 ± 0.049 ± 0.012	609	141 AITALA	98C	E791 $-0.093 < A_{CP} < +0.073$ (90% CL)
+0.080 ± 0.061		BARTELT	95	CLE2 $-0.022 < A_{CP} < +0.18$ (90%CL)
+0.024 ± 0.084	141	FRABETTI	94I	E687 $-0.11 < A_{CP} < +0.16$ (90% CL)

¹⁴¹FRABETTI 94I, AITALA 98C, LINK 00B, CSORNA 02, and ACOSTA 05C measure $N(D^0 \rightarrow K^+ K^-)/N(D^0 \rightarrow K^- \pi^+)$, the ratio of numbers of events observed, and similarly for the \bar{D}^0 .

$A_{CP}(K_S^0 K_S^0)$ in $D^0, \bar{D}^0 \rightarrow K_S^0 K_S^0$

This is the difference between D^0 and \bar{D}^0 partial widths for these modes divided by the sum of the widths. The D^0 and \bar{D}^0 are distinguished by the charge of the parent D^* : $D^{*+} \rightarrow D^0 \pi^+$ and $D^{*-} \rightarrow \bar{D}^0 \pi^-$.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
-0.23 ± 0.19	65	BONVICINI	01	CLE2 $e^+ e^- \approx 10.6$ GeV

$A_{CP}(\pi^+ \pi^-)$ in $D^0, \bar{D}^0 \rightarrow \pi^+ \pi^-$

This is the difference between D^0 and \bar{D}^0 partial widths for these modes divided by the sum of the widths. The D^0 and \bar{D}^0 are distinguished by the charge of the parent D^* : $D^{*+} \rightarrow D^0 \pi^+$ and $D^{*-} \rightarrow \bar{D}^0 \pi^-$.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.013 ± 0.012 OUR AVERAGE				
+0.010 ± 0.013 ± 0.006	142	ACOSTA	05C	CDF $p\bar{p}$, $\sqrt{s}=1.96$ TeV
0.019 ± 0.032 ± 0.008	1136	142 CSORNA	02	CLE2 $e^+ e^- \approx \Upsilon(4S)$
+0.048 ± 0.039 ± 0.025	1177	142 LINK	00B	FOCS
-0.049 ± 0.078 ± 0.030	343	142 AITALA	98C	E791 $-0.186 < A_{CP} < +0.088$ (90% CL)

¹⁴²AITALA 98C, LINK 00B, CSORNA 02, and ACOSTA 05C measure $N(D^0 \rightarrow \pi^+ \pi^-)/N(D^0 \rightarrow K^- \pi^+)$, the ratio of numbers of events observed, and similarly for the \bar{D}^0 .

$A_{CP}(\pi^0 \pi^0)$ in $D^0, \bar{D}^0 \rightarrow \pi^0 \pi^0$

This is the difference between D^0 and \bar{D}^0 partial widths for these modes divided by the sum of the widths. The D^0 and \bar{D}^0 are distinguished by the charge of the parent D^* : $D^{*+} \rightarrow D^0 \pi^+$ and $D^{*-} \rightarrow \bar{D}^0 \pi^-$.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
+0.001 ± 0.048	810	BONVICINI	01	CLE2 $e^+ e^- \approx 10.6$ GeV

$A_{CP}(\pi^+\pi^-\pi^0)$ in $D^0, \bar{D}^0 \rightarrow \pi^+\pi^-\pi^0$

This is the difference between D^0 and \bar{D}^0 partial widths for these modes divided by the sum of the widths. The D^0 and \bar{D}^0 are distinguished by the charge of the parent D^* : $D^{*+} \rightarrow D^0\pi^+$ and $D^{*-} \rightarrow \bar{D}^0\pi^-$.

VALUE	DOCUMENT ID	TECN	COMMENT
$0.01^{+0.09}_{-0.07} \pm 0.05$	CRONIN-HEN..05	CLEO	$e^+e^- \approx 10$ GeV

$A_{CP}(K_S^0\phi)$ in $D^0, \bar{D}^0 \rightarrow K_S^0\phi$

This is the difference between D^0 and \bar{D}^0 partial widths for these modes divided by the sum of the widths. The D^0 and \bar{D}^0 are distinguished by the charge of the parent D^* : $D^{*+} \rightarrow D^0\pi^+$ and $D^{*-} \rightarrow \bar{D}^0\pi^-$.

VALUE	DOCUMENT ID	TECN	COMMENT
-0.028 ± 0.094	BARTELT 95	CLE2	$-0.182 < A_{CP} < +0.126$ (90%CL)

$A_{CP}(K_S^0\pi^0)$ in $D^0, \bar{D}^0 \rightarrow K_S^0\pi^0$

This is the difference between D^0 and \bar{D}^0 partial widths for these modes divided by the sum of the widths. The D^0 and \bar{D}^0 are distinguished by the charge of the parent D^* : $D^{*+} \rightarrow D^0\pi^+$ and $D^{*-} \rightarrow \bar{D}^0\pi^-$.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
$+0.001 \pm 0.013$	9099	BONVICINI 01	CLE2	$e^+e^- \approx 10.6$ GeV
-0.018 ± 0.030		BARTELT 95	CLE2	See BONVICINI 01

$A_{CP}(K^\pm\pi^\mp)$ in $D^0 \rightarrow K^+\pi^-, \bar{D}^0 \rightarrow K^-\pi^+$

This is the difference between D^0 and \bar{D}^0 partial widths for these modes divided by the sum of the widths. The D^0 and \bar{D}^0 are distinguished by the charge of the parent D^* : $D^{*+} \rightarrow D^0\pi^+$ and $D^{*-} \rightarrow \bar{D}^0\pi^-$.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.05 ± 0.04 OUR AVERAGE				
$+0.023 \pm 0.047$	4024 ± 88	143 ZHANG	06 BELL	e^+e^-
$+0.18 \pm 0.14 \pm 0.04$		144 LINK	05H FOCS	γ nucleus
$+0.095 \pm 0.061 \pm 0.083$		145 AUBERT	03Z BABR	e^+e^- , 10.6 GeV
$+0.02^{+0.19}_{-0.20} \pm 0.01$	45	146 GODANG	00 CLE2	$-0.43 < A_{CP} < +0.34$ (95%CL)

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

-0.080 ± 0.077	845 ± 40	147 LI	05A BELL	See ZHANG 06
--------------------	--------------	--------	----------	--------------

143 This ZHANG 06 result allows mixing.

144 This LINK 05H result assumes no mixing. If mixing is allowed, it becomes $0.13^{+0.33}_{-0.25} \pm 0.10$.

145 This AUBERT 03Z limit assumes no mixing. If mixing is allowed, the 95% confidence-level interval is $(-2.8 < A_D < 4.9) \times 10^{-3}$.

146 This GODANG 00 result assumes no D^0 - \bar{D}^0 mixing; it becomes $-0.01^{+0.16}_{-0.17} \pm 0.01$ when mixing is allowed.

147 This LI 05A result allows mixing.

$A_{CP}(K^{\mp}\pi^{\pm}\pi^0)$ in $D^0 \rightarrow K^-\pi^+\pi^0, \bar{D}^0 \rightarrow K^+\pi^-\pi^0$

This is the difference between D^0 and \bar{D}^0 partial widths for these modes divided by the sum of the widths. The D^0 and \bar{D}^0 are distinguished by the charge of the parent D^* : $D^{*+} \rightarrow D^0\pi^+$ and $D^{*-} \rightarrow \bar{D}^0\pi^-$.

VALUE	DOCUMENT ID	TECN	COMMENT
-0.031 ± 0.086	148 KOPP	01	CLE2 $e^+e^- \approx 10.6$ GeV

148 KOPP 01 fits separately the D^0 and \bar{D}^0 Dalitz plots and then calculates the integrated difference of normalized densities divided by the integrated sum.

$A_{CP}(K^{\pm}\pi^{\mp}\pi^0)$ in $D^0 \rightarrow K^+\pi^-\pi^0, \bar{D}^0 \rightarrow K^-\pi^+\pi^0$

This is the difference between D^0 and \bar{D}^0 partial widths for these modes divided by the sum of the widths. The D^0 and \bar{D}^0 are distinguished by the charge of the parent D^* : $D^{*+} \rightarrow D^0\pi^+$ and $D^{*-} \rightarrow \bar{D}^0\pi^-$.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.00 ± 0.05	OUR AVERAGE			
-0.006 ± 0.053	1978 ± 104	TIAN	05	BELL $e^+e^- \approx \Upsilon(4S)$
$+0.09^{+0.25}_{-0.22}$	38	BRANDENB...	01	CLE2 $e^+e^- \approx \Upsilon(4S)$

$A_{CP}(K_S^0\pi^+\pi^-)$ in $D^0, \bar{D}^0 \rightarrow K_S^0\pi^+\pi^-$

This is the difference between D^0 and \bar{D}^0 partial widths for these modes divided by the sum of the widths. The D^0 and \bar{D}^0 are distinguished by the charge of the parent D^* : $D^{*+} \rightarrow D^0\pi^+$ and $D^{*-} \rightarrow \bar{D}^0\pi^-$.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
$-0.009 \pm 0.021^{+0.016}_{-0.057}$	4854	149 ASNER	04A	CLEO $e^+e^- \approx 10$ GeV

149 This is the overall result of ASNER 04A; CP -violating limits are also given below for each of the 10 resonant submodes found in an amplitude analysis of the D^0 and $\bar{D}^0 \rightarrow K_S^0\pi^+\pi^-$ Dalitz plots. These limits range from $< 3.5 \times 10^{-4}$ to 28.4×10^{-4} at 95% CL.

$A_{CP}(K^*(892)^{\mp}\pi^{\pm}) \rightarrow K_S^0\pi^+\pi^-$ in $D^0 \rightarrow K^{*-}\pi^+, \bar{D}^0 \rightarrow K^{*+}\pi^-$

VALUE (units 10^{-4})	CL%	DOCUMENT ID	TECN	COMMENT
< 3.5	95	150 ASNER	04A	CLEO Dalitz fit, 4854 $D^0 + \bar{D}^0$ evts

150 This ASNER 04A limit comes from an amplitude analysis of the D^0 and $\bar{D}^0 \rightarrow K_S^0\pi^+\pi^-$ Dalitz plots.

$A_{CP}(K^*(892)^{\pm}\pi^{\mp}) \rightarrow K_S^0\pi^+\pi^-$ in $D^0 \rightarrow K^{*+}\pi^-, \bar{D}^0 \rightarrow K^{*-}\pi^+$

VALUE (units 10^{-4})	CL%	DOCUMENT ID	TECN	COMMENT
< 7.8	95	151 ASNER	04A	CLEO Dalitz fit, 4854 $D^0 + \bar{D}^0$ evts

151 This ASNER 04A limit comes from an amplitude analysis of the D^0 and $\bar{D}^0 \rightarrow K_S^0\pi^+\pi^-$ Dalitz plots.

$A_{CP}(K_S^0\rho^0 \rightarrow K_S^0\pi^+\pi^-)$ in $D^0 \rightarrow \bar{K}^0\rho^0, \bar{D}^0 \rightarrow K^0\rho^0$

VALUE (units 10^{-4})	CL%	DOCUMENT ID	TECN	COMMENT
< 4.8	95	152 ASNER	04A	CLEO Dalitz fit, 4854 $D^0 + \bar{D}^0$ evts

152 This ASNER 04A limit comes from an amplitude analysis of the D^0 and $\bar{D}^0 \rightarrow K_S^0\pi^+\pi^-$ Dalitz plots.

$A_{CP}(K_S^0 \omega \rightarrow K_S^0 \pi^+ \pi^-)$ in $D^0 \rightarrow \bar{K}^0 \omega, \bar{D}^0 \rightarrow K^0 \omega$

VALUE (units 10^{-4})	CL%	DOCUMENT ID	TECN	COMMENT
<9.2	95	153 ASNER	04A CLEO	Dalitz fit, 4854 $D^0 + \bar{D}^0$ evts

153 This ASNER 04A limit comes from an amplitude analysis of the D^0 and $\bar{D}^0 \rightarrow K_S^0 \pi^+ \pi^-$ Dalitz plots.

$A_{CP}(K_S^0 f_0(980) \rightarrow K_S^0 \pi^+ \pi^-)$ in $D^0 \rightarrow \bar{K}^0 f_0(980), \bar{D}^0 \rightarrow K^0 f_0(980)$

VALUE (units 10^{-4})	CL%	DOCUMENT ID	TECN	COMMENT
<6.8	95	154 ASNER	04A CLEO	Dalitz fit, 4854 $D^0 + \bar{D}^0$ evts

154 This ASNER 04A limit comes from an amplitude analysis of the D^0 and $\bar{D}^0 \rightarrow K_S^0 \pi^+ \pi^-$ Dalitz plots.

$A_{CP}(K_S^0 f_2(1270) \rightarrow K_S^0 \pi^+ \pi^-)$ in $D^0 \rightarrow \bar{K}^0 f_2(1270), \bar{D}^0 \rightarrow K^0 f_2(1270)$

VALUE (units 10^{-4})	CL%	DOCUMENT ID	TECN	COMMENT
<13.5	95	155 ASNER	04A CLEO	Dalitz fit, 4854 $D^0 + \bar{D}^0$ evts

155 This ASNER 04A limit comes from an amplitude analysis of the D^0 and $\bar{D}^0 \rightarrow K_S^0 \pi^+ \pi^-$ Dalitz plots.

$A_{CP}(K_S^0 f_0(1370) \rightarrow K_S^0 \pi^+ \pi^-)$ in $D^0 \rightarrow \bar{K}^0 f_0(1370), \bar{D}^0 \rightarrow K^0 f_0(1370)$

VALUE (units 10^{-4})	CL%	DOCUMENT ID	TECN	COMMENT
<25.5	95	156 ASNER	04A CLEO	Dalitz fit, 4854 $D^0 + \bar{D}^0$ evts

156 This ASNER 04A limit comes from an amplitude analysis of the D^0 and $\bar{D}^0 \rightarrow K_S^0 \pi^+ \pi^-$ Dalitz plots.

$A_{CP}(K_0^*(1430)^{\mp} \pi^{\pm} \rightarrow K_S^0 \pi^+ \pi^-)$ in $D^0 \rightarrow K_0^*(1430)^- \pi^+, \bar{D}^0 \rightarrow K_0^*(1430)^+ \pi^-$

VALUE (units 10^{-4})	CL%	DOCUMENT ID	TECN	COMMENT
<9.0	95	157 ASNER	04A CLEO	Dalitz fit, 4854 $D^0 + \bar{D}^0$ evts

157 This ASNER 04A limit comes from an amplitude analysis of the D^0 and $\bar{D}^0 \rightarrow K_S^0 \pi^+ \pi^-$ Dalitz plots.

$A_{CP}(K_2^*(1430)^{\mp} \pi^{\pm} \rightarrow K_S^0 \pi^+ \pi^-)$ in $D^0 \rightarrow K_2^*(1430)^- \pi^+, \bar{D}^0 \rightarrow K_2^*(1430)^+ \pi^-$

VALUE (units 10^{-4})	CL%	DOCUMENT ID	TECN	COMMENT
<6.5	95	158 ASNER	04A CLEO	Dalitz fit, 4854 $D^0 + \bar{D}^0$ evts

158 This ASNER 04A limit comes from an amplitude analysis of the D^0 and $\bar{D}^0 \rightarrow K_S^0 \pi^+ \pi^-$ Dalitz plots.

$A_{CP}(K^*(1680)^{\mp} \pi^{\pm} \rightarrow K_S^0 \pi^+ \pi^-)$ in $D^0 \rightarrow K^*(1680)^- \pi^+, \bar{D}^0 \rightarrow K^*(1680)^+ \pi^-$

VALUE (units 10^{-4})	CL%	DOCUMENT ID	TECN	COMMENT
<28.4	95	159 ASNER	04A CLEO	Dalitz fit, 4854 $D^0 + \bar{D}^0$ evts

159 This ASNER 04A limit comes from an amplitude analysis of the D^0 and $\bar{D}^0 \rightarrow K_S^0 \pi^+ \pi^-$ Dalitz plots.

$A_{CP}(K^\pm \pi^\mp \pi^+ \pi^-)$ in $D^0 \rightarrow K^+ \pi^- \pi^+ \pi^-$, $\bar{D}^0 \rightarrow K^- \pi^+ \pi^+ \pi^-$

This is the difference between D^0 and \bar{D}^0 partial widths for these modes divided by the sum of the widths. The D^0 and \bar{D}^0 are distinguished by the charge of the parent D^* : $D^{*+} \rightarrow D^0 \pi^+$ and $D^{*-} \rightarrow \bar{D}^0 \pi^-$.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
-0.018 ± 0.044	1721 ± 75	TIAN	05 BELL	$e^+ e^- \approx \Upsilon(4S)$

$A_{CP}(K^+ K^- \pi^+ \pi^-)$ in $D^0, \bar{D}^0 \rightarrow K^+ K^- \pi^+ \pi^-$

This is the difference between D^0 and \bar{D}^0 partial widths for these modes divided by the sum of the widths. The D^0 and \bar{D}^0 are distinguished by the charge of the parent D^* : $D^{*+} \rightarrow D^0 \pi^+$ and $D^{*-} \rightarrow \bar{D}^0 \pi^-$.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
$-0.082 \pm 0.056 \pm 0.047$	828 ± 46	LINK	05E FOCS	$\gamma A, \bar{E}_\gamma \approx 180 \text{ GeV}$

$D^0\text{-}\bar{D}^0$ T-VIOLATING DECAY-RATE ASYMMETRIES

D^0 and \bar{D}^0 are distinguished by the charge of the parent D^* : $D^{*+} \rightarrow D^0 \pi^+$ and $D^{*-} \rightarrow \bar{D}^0 \pi^-$.

$A_{Tviol}(K^+ K^- \pi^+ \pi^-)$ in $D^0, \bar{D}^0 \rightarrow K^+ K^- \pi^+ \pi^-$

$C_T \equiv \vec{p}_{K^+} \cdot (\vec{p}_{\pi^+} \times \vec{p}_{\pi^-})$ is a T -odd correlation of the K^+ , π^+ , and π^- momenta for the D^0 . $\bar{C}_T \equiv \vec{p}_{K^-} \cdot (\vec{p}_{\pi^-} \times \vec{p}_{\pi^+})$ is the corresponding quantity for the \bar{D}^0 . $A_T \equiv [\Gamma(C_T > 0) - \Gamma(C_T < 0)] / [\Gamma(C_T > 0) + \Gamma(C_T < 0)]$ would, in the absence of strong phases, test for T violation in D^0 decays (the Γ 's are partial widths). With $\bar{A}_T \equiv [\Gamma(-\bar{C}_T > 0) - \Gamma(-\bar{C}_T < 0)] / [\Gamma(-\bar{C}_T > 0) + \Gamma(-\bar{C}_T < 0)]$, the asymmetry $A_{Tviol} \equiv \frac{1}{2}(A_T - \bar{A}_T)$ tests for T violation even with nonzero strong phases.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
$+0.010 \pm 0.057 \pm 0.037$	828 ± 46	LINK	05E FOCS	$\gamma A, \bar{E}_\gamma \approx 180 \text{ GeV}$

D^0 CPT-VIOLATING DECAY-RATE ASYMMETRIES

$A_{CPT}(K^\mp \pi^\pm)$ in $D^0 \rightarrow K^- \pi^+$, $\bar{D}^0 \rightarrow K^+ \pi^-$

$A_{CPT}(t)$ is defined in terms of the time-dependent decay probabilities $P(D^0 \rightarrow K^- \pi^+)$ and $\bar{P}(\bar{D}^0 \rightarrow K^+ \pi^-)$ by $A_{CPT}(t) = (\bar{P} - P) / (\bar{P} + P)$. For small mixing parameters $x \equiv \Delta m / \Gamma$ and $y \equiv \Delta \Gamma / 2\Gamma$ (as is the case), and times t , $A_{CPT}(t)$ reduces to $[y \text{ Re } \xi - x \text{ Im } \xi] \Gamma t$, where ξ is the CPT -violating parameter.

The following is actually $y \text{ Re } \xi - x \text{ Im } \xi$.

VALUE	DOCUMENT ID	TECN	COMMENT
$0.0083 \pm 0.0065 \pm 0.0041$	LINK	03B FOCS	γ nucleus, $\bar{E}_\gamma \approx 180 \text{ GeV}$

$D^0 \rightarrow K^*(892)^- \ell^+ \nu_\ell$ FORM FACTORS

$r_V \equiv V(0)/A_1(0)$ in $D^0 \rightarrow K^*(892)^- \ell^+ \nu_\ell$

VALUE	DOCUMENT ID	TECN	COMMENT
$1.71 \pm 0.68 \pm 0.34$	LINK	05B FOCS	$K^*(892)^- \mu^+ \nu_\mu$

$$r_2 \equiv A_2(0)/A_1(0) \text{ in } D^0 \rightarrow K^*(892)^- \ell^+ \nu_\ell$$

VALUE	DOCUMENT ID	TECN	COMMENT
0.91±0.37±0.10	LINK	05B FOCS	$K^*(892)^- \mu^+ \nu_\mu$

D⁰ REFERENCES

CRAWFIELD	07	PRL 98 092002	C. Cawfield <i>et al.</i>	(CLEO Collab.)
ABLIKIM	06O	EPJ C47 31	M. Ablikim <i>et al.</i>	(BES Collab.)
ABLIKIM	06U	PL B643 246	M. Ablikim <i>et al.</i>	(BES Collab.)
ABULENCIA	06X	PR D74 031109R	A. Abulencia <i>et al.</i>	(CDF Collab.)
ADAM	06A	PRL 97 251801	N.E. Adam <i>et al.</i>	(CLEO Collab.)
AUBERT,B	06N	PRL 97 221803	B. Aubert <i>et al.</i>	(BABAR Collab.)
AUBERT,B	06X	PR D74 091102R	B. Aubert <i>et al.</i>	(BABAR Collab.)
CRAWFIELD	06A	PR D74 031108R	C. Cawfield <i>et al.</i>	(CLEO Collab.)
HUANG	06B	PR D74 112005	G.S. Huang <i>et al.</i>	(CLEO Collab.)
PDG	06	JPG 33 1	W.-M. Yao <i>et al.</i>	(PDG Collab.)
RUBIN	06	PRL 96 081802	P. Rubin <i>et al.</i>	(CLEO Collab.)
WIDHALM	06	PRL 97 061804	L. Widhalm <i>et al.</i>	(BELLE Collab.)
ZHANG	06	PRL 96 151801	L.M. Zhang <i>et al.</i>	(BELLE Collab.)
ABLIKIM	05F	PL B622 6	M. Ablikim <i>et al.</i>	(BES Collab.)
ABLIKIM	05P	PL B625 196	M. Ablikim <i>et al.</i>	(BES Collab.)
ACOSTA	05C	PRL 94 122001	D. Acosta <i>et al.</i>	(FNAL CDF Collab.)
ASNER	05	PR D72 012001	D.M. Asner <i>et al.</i>	(CLEO Collab.)
AUBERT,B	05J	PR D72 052008	B. Aubert <i>et al.</i>	(BABAR Collab.)
BITENC	05	PR D72 071101R	U. Bitenc <i>et al.</i>	(BELLE Collab.)
CRAWFIELD	05	PR D71 077101	C. Cawfield <i>et al.</i>	(CLEO Collab.)
COAN	05	PRL 95 181802	T.E. Coan <i>et al.</i>	(CLEO Collab.)
CRONIN-HENNESSY	05	PR D72 031102R	D. Cronin-Hennessy <i>et al.</i>	(CLEO Collab.)
HE	05	PRL 95 121801	Q. He <i>et al.</i>	(CLEO Collab.)
Also		PRL 96 199903 (errata.)	Q. He <i>et al.</i>	(CLEO Collab.)
HUANG	05	PRL 94 011802	G.S. Huang <i>et al.</i>	(CLEO Collab.)
KAYIS-TOPAKSU	05	PL B626 24	A. Kayis-Topaksu <i>et al.</i>	(CERN CHORUS Collab.)
LI	05A	PRL 94 071801	J. Li <i>et al.</i>	(BELLE Collab.)
LINK	05	PL B607 51	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
LINK	05A	PL B607 59	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
LINK	05B	PL B607 67	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
LINK	05E	PL B622 239	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
LINK	05G	PL B610 225	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
LINK	05H	PL B618 23	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
ONENGUT	05	PL B613 105	G. Onengut <i>et al.</i>	(CERN CHORUS Collab.)
TIAN	05	PRL 95 231801	X.C. Tian <i>et al.</i>	(BELLE Collab.)
ABLIKIM	04C	PL B597 39	M. Ablikim <i>et al.</i>	(BEP C BES Collab.)
ABT	04	PL B596 173	I. Abt <i>et al.</i>	(HERA B Collab.)
ASNER	04A	PR D70 091101R	D.M. Asner <i>et al.</i>	(CLEO Collab.)
AUBERT	04Q	PR D69 051101R	B. Aubert <i>et al.</i>	(BABAR Collab.)
AUBERT,B	04Q	PR D70 091102R	B. Aubert <i>et al.</i>	(BaBar Collab.)
AUBERT,B	04Y	PRL 93 191801	B. Aubert <i>et al.</i>	(BaBar Collab.)
LINK	04B	PL B586 21	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
LINK	04D	PL B586 191	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
RUBIN	04	PRL 93 111801	P. Rubin <i>et al.</i>	(CLEO Collab.)
TAJIMA	04	PRL 92 101803	O. Tajima <i>et al.</i>	(BELLE Collab.)
ACOSTA	03F	PR D68 091101R	D. Acosta <i>et al.</i>	(CDF Collab.)
AUBERT	03P	PRL 91 121801	B. Aubert <i>et al.</i>	(BaBar Collab.)
AUBERT	03Z	PRL 91 171801	B. Aubert <i>et al.</i>	(BaBar Collab.)
COAN	03	PRL 90 101801	T.E. Coan <i>et al.</i>	(CLEO Collab.)
LINK	03	PL B555 167	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
LINK	03B	PL B556 7	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
LINK	03G	PL B575 190	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
ABE	02I	PRL 88 162001	K. Abe <i>et al.</i>	(KEK BELLE Collab.)
CSORNA	02	PR D65 092001	S.E. Csorna <i>et al.</i>	(CLEO Collab.)
LINK	02F	PL B537 192	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
MURAMATSU	02	PRL 89 251802	H. Muramatsu <i>et al.</i>	(CLEO Collab.)
Also		PRL 90 059901 (erratum)	H. Muramatsu <i>et al.</i>	(CLEO Collab.)
AITALA	01C	PRL 86 3969	E.M. Aitala <i>et al.</i>	(FNAL E791 Collab.)
AITALA	01D	PR D64 112003	E.M. Aitala <i>et al.</i>	(FNAL E791 Collab.)
BONVICINI	01	PR D63 071101R	G. Bonvicini <i>et al.</i>	(CLEO Collab.)
BRANDENBURG	01	PRL 87 071802	G. Brandenburg <i>et al.</i>	(CLEO Collab.)
DYTMAN	01	PR D64 111101R	S.A. Dytman <i>et al.</i>	(CLEO Collab.)

KOPP	01	PR D63 092001	S. Kopp <i>et al.</i>	(CLEO Collab.)
KUSHNIR...	01	PRL 86 5243	A. Kushnirenko <i>et al.</i>	(FNAL SELEX Collab.)
LINK	01	PRL 86 2955	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
BAI	00C	PR D62 052001	J.Z. Bai <i>et al.</i>	(BEP C BES Collab.)
GODANG	00	PRL 84 5038	R. Godang <i>et al.</i>	(CLEO Collab.)
JUN	00	PRL 84 1857	S.Y. Jun <i>et al.</i>	(FNAL SELEX Collab.)
LINK	00	PL B485 62	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
LINK	00B	PL B491 232	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
Also		PL B495 443 (erratum)	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
PRIPSTEIN	00	PR D61 032005	D. Pripstein <i>et al.</i>	(FNAL E789 Collab.)
AITALA	99E	PRL 83 32	E.M. Aitala <i>et al.</i>	(FNAL E791 Collab.)
AITALA	99G	PL B462 401	E.M. Aitala <i>et al.</i>	(FNAL E791 Collab.)
BONVICINI	99	PRL 82 4586	G. Bonvicini <i>et al.</i>	(CLEO Collab.)
AITALA	98	PR D57 13	E.M. Aitala <i>et al.</i>	(FNAL E791 Collab.)
AITALA	98C	PL B421 405	E.M. Aitala <i>et al.</i>	(FNAL E791 Collab.)
AITALA	98D	PL B423 185	E.M. Aitala <i>et al.</i>	(FNAL E791 Collab.)
ARTUSO	98	PRL 80 3193	M. Artuso <i>et al.</i>	(CLEO Collab.)
ASNER	98	PR D58 092001	D.M. Asner <i>et al.</i>	(CLEO Collab.)
BARATE	98W	PL B436 211	R. Barate <i>et al.</i>	(ALEPH Collab.)
COAN	98	PRL 80 1150	T.E. Coan <i>et al.</i>	(CLEO Collab.)
ADAMOVICH	97	PL B408 469	M.I. Adamovich <i>et al.</i>	(CERN BEATRICE Collab.)
BARATE	97C	PL B403 367	R. Barate <i>et al.</i>	(ALEPH Collab.)
AITALA	96C	PRL 77 2384	E.M. Aitala <i>et al.</i>	(FNAL E791 Collab.)
ALBRECHT	96C	PL B374 249	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
ALEXOPOU...	96	PRL 77 2380	T. Alexopoulos <i>et al.</i>	(FNAL E771 Collab.)
ASNER	96B	PR D54 4211	D.M. Asner <i>et al.</i>	(CLEO Collab.)
BARISH	96	PL B373 334	B.C. Barish <i>et al.</i>	(CLEO Collab.)
FRABETTI	96B	PL B382 312	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
FREYBERGER	96	PRL 76 3065	A. Freyberger <i>et al.</i>	(CLEO Collab.)
Also		PRL 77 2147 (erratum)	A. Freyberger <i>et al.</i>	(CLEO Collab.)
KUBOTA	96B	PR D54 2994	Y. Kubota <i>et al.</i>	(CLEO Collab.)
ADAMOVICH	95	PL B353 563	M.I. Adamovich <i>et al.</i>	(CERN BEATRICE Collab.)
BARTELT	95	PR D52 4860	J.E. Bartelt <i>et al.</i>	(CLEO Collab.)
BUTLER	95	PR D52 2656	F. Butler <i>et al.</i>	(CLEO Collab.)
FRABETTI	95C	PL B354 486	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
FRABETTI	95G	PL B364 127	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
KODAMA	95	PL B345 85	K. Kodama <i>et al.</i>	(FNAL E653 Collab.)
ALBRECHT	94	PL B324 249	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
ALBRECHT	94F	PL B340 125	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
ALBRECHT	94I	ZPHY C64 375	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
CINABRO	94	PRL 72 1406	D. Cinabro <i>et al.</i>	(CLEO Collab.)
FRABETTI	94C	PL B321 295	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
FRABETTI	94D	PL B323 459	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
FRABETTI	94G	PL B331 217	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
FRABETTI	94I	PR D50 R2953	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
FRABETTI	94J	PL B340 254	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
KODAMA	94	PL B336 605	K. Kodama <i>et al.</i>	(FNAL E653 Collab.)
MISHRA	94	PR D50 R9	C.S. Mishra <i>et al.</i>	(FNAL E789 Collab.)
AKERIB	93	PRL 71 3070	D.S. Akerib <i>et al.</i>	(CLEO Collab.)
ALBRECHT	93D	PL B308 435	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
ANJOS	93	PR D48 56	J.C. Anjos <i>et al.</i>	(FNAL E691 Collab.)
BEAN	93C	PL B317 647	A. Bean <i>et al.</i>	(CLEO Collab.)
FRABETTI	93I	PL B315 203	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
KODAMA	93B	PL B313 260	K. Kodama <i>et al.</i>	(FNAL E653 Collab.)
PROCARIO	93B	PR D48 4007	M. Procaro <i>et al.</i>	(CLEO Collab.)
SELEN	93	PRL 71 1973	M.A. Selen <i>et al.</i>	(CLEO Collab.)
ADAMOVICH	92	PL B280 163	M.I. Adamovich <i>et al.</i>	(CERN WA82 Collab.)
ALBRECHT	92P	ZPHY C56 7	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
ANJOS	92B	PR D46 R1	J.C. Anjos <i>et al.</i>	(FNAL E691 Collab.)
ANJOS	92C	PR D46 1941	J.C. Anjos <i>et al.</i>	(FNAL E691 Collab.)
BARLAG	92C	ZPHY C55 383	S. Barlag <i>et al.</i>	(ACCMOR Collab.)
Also		ZPHY C48 29	S. Barlag <i>et al.</i>	(ACCMOR Collab.)
COFFMAN	92B	PR D45 2196	D.M. Coffman <i>et al.</i>	(Mark III Collab.)
Also		PRL 64 2615	J. Adler <i>et al.</i>	(Mark III Collab.)
FRABETTI	92	PL B281 167	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
FRABETTI	92B	PL B286 195	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
ALVAREZ	91B	ZPHY C50 11	M.P. Alvarez <i>et al.</i>	(CERN NA14/2 Collab.)
AMMAR	91	PR D44 3383	R. Ammar <i>et al.</i>	(CLEO Collab.)
ANJOS	91	PR D43 R635	J.C. Anjos <i>et al.</i>	(FNAL-TPS Collab.)
ANJOS	91D	PR D44 R3371	J.C. Anjos <i>et al.</i>	(FNAL-TPS Collab.)
BAI	91	PRL 66 1011	Z. Bai <i>et al.</i>	(Mark III Collab.)

COFFMAN	91	PL B263 135	D.M. Coffman <i>et al.</i>	(Mark III Collab.)
CRAWFORD	91B	PR D44 3394	G. Crawford <i>et al.</i>	(CLEO Collab.)
DECAMP	91J	PL B266 218	D. Decamp <i>et al.</i>	(ALEPH Collab.)
FRABETTI	91	PL B263 584	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
KINOSHITA	91	PR D43 2836	K. Kinoshita <i>et al.</i>	(CLEO Collab.)
KODAMA	91	PRL 66 1819	K. Kodama <i>et al.</i>	(FNAL E653 Collab.)
ALBRECHT	90C	ZPHY C46 9	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
ALEXANDER	90	PRL 65 1184	J. Alexander <i>et al.</i>	(CLEO Collab.)
ALEXANDER	90B	PRL 65 1531	J. Alexander <i>et al.</i>	(CLEO Collab.)
ALVAREZ	90	ZPHY C47 539	M.P. Alvarez <i>et al.</i>	(CERN NA14/2 Collab.)
ANJOS	90D	PR D42 2414	J.C. Anjos <i>et al.</i>	(FNAL E691 Collab.)
BARLAG	90C	ZPHY C46 563	S. Barlag <i>et al.</i>	(ACCMOR Collab.)
ADLER	89	PRL 62 1821	J. Adler <i>et al.</i>	(Mark III Collab.)
ADLER	89C	PR D40 906	J. Adler <i>et al.</i>	(Mark III Collab.)
ALBRECHT	89D	ZPHY C43 181	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
ANJOS	89F	PRL 62 1587	J.C. Anjos <i>et al.</i>	(FNAL E691 Collab.)
ABACHI	88	PL B205 411	S. Abachi <i>et al.</i>	(HRS Collab.)
ADLER	88	PR D37 2023	J. Adler <i>et al.</i>	(Mark III Collab.)
ADLER	88C	PRL 60 89	J. Adler <i>et al.</i>	(Mark III Collab.)
ALBRECHT	88G	PL B209 380	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
ALBRECHT	88I	PL B210 267	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
ANJOS	88C	PRL 60 1239	J.C. Anjos <i>et al.</i>	(FNAL E691 Collab.)
BORTOLETTO	88	PR D37 1719	D. Bortoletto <i>et al.</i>	(CLEO Collab.)
Also		PR D39 1471 (erratum)	D. Bortoletto <i>et al.</i>	(CLEO Collab.)
HAAS	88	PRL 60 1614	P. Haas <i>et al.</i>	(CLEO Collab.)
RAAB	88	PR D37 2391	J.R. Raab <i>et al.</i>	(FNAL E691 Collab.)
ADAMOVICH	87	EPL 4 887	M.I. Adamovich <i>et al.</i>	(Photon Emulsion Collab.)
ADLER	87	PL B196 107	J. Adler <i>et al.</i>	(Mark III Collab.)
AGUILAR-...	87E	ZPHY C36 551	M. Aguilar-Benitez <i>et al.</i>	(LEBC-EHS Collab.)
Also		ZPHY C40 321	M. Aguilar-Benitez <i>et al.</i>	(LEBC-EHS Collab.)
AGUILAR-...	87F	ZPHY C36 559	M. Aguilar-Benitez <i>et al.</i>	(LEBC-EHS Collab.)
Also		ZPHY C38 520 (erratum)	M. Aguilar-Benitez <i>et al.</i>	(LEBC-EHS Collab.)
ALBRECHT	87K	PL B199 447	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
BARLAG	87B	ZPHY C37 17	S. Barlag <i>et al.</i>	(ACCMOR Collab.)
BECKER	87C	PL B193 147	J.J. Becker <i>et al.</i>	(Mark III Collab.)
Also		PL B198 590 (erratum)	J.J. Becker <i>et al.</i>	(Mark III Collab.)
PALKA	87	PL B189 238	H. Palka <i>et al.</i>	(ACCMOR Collab.)
RILES	87	PR D35 2914	K. Riles <i>et al.</i>	(Mark II Collab.)
BAILEY	86	ZPHY C30 51	R. Bailey <i>et al.</i>	(ACCMOR Collab.)
BEBEK	86	PRL 56 1893	C. Bebek <i>et al.</i>	(CLEO Collab.)
LOUIS	86	PRL 56 1027	W.C. Louis <i>et al.</i>	(PRIN, CHIC, ISU)
ALBRECHT	85B	PL 158B 525	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
ALBRECHT	85F	PL 150B 235	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
AUBERT	85	PL 155B 461	J.J. Aubert <i>et al.</i>	(EMC Collab.)
BALTRUSAIT...	85B	PRL 54 1976	R.M. Baltrusaitis <i>et al.</i>	(Mark III Collab.)
BALTRUSAIT...	85E	PRL 55 150	R.M. Baltrusaitis <i>et al.</i>	(Mark III Collab.)
BENVENUTI	85	PL 158B 531	A.C. Benvenuti <i>et al.</i>	(BCDMS Collab.)
ADAMOVICH	84B	PL 140B 123	M.I. Adamovich <i>et al.</i>	(CERN WA58 Collab.)
DERRICK	84	PRL 53 1971	M. Derrick <i>et al.</i>	(HRS Collab.)
SUMMERS	84	PRL 52 410	D.J. Summers <i>et al.</i>	(UCSB, CARL, COLO+)
BAILEY	83B	PL 132B 237	R. Bailey <i>et al.</i>	(ACCMOR Collab.)
BODEK	82	PL 113B 82	A. Bodek <i>et al.</i>	(ROCH, CIT, CHIC, FNAL+)
FIORINO	81	LNC 30 166	A. Fiorino <i>et al.</i>	
SCHINDLER	81	PR D24 78	R.H. Schindler <i>et al.</i>	(Mark II Collab.)
TRILLING	81	PRPL 75 57	G.H. Trilling	(LBL, UCB) J
ASTON	80E	PL 94B 113	D. Aston <i>et al.</i>	(BONN, CERN, EPOL, GLAS+)
AVERY	80	PRL 44 1309	P. Avery <i>et al.</i>	(ILL, FNAL, COLU)
ZHOLENTZ	80	PL 96B 214	A.A. Zholents <i>et al.</i>	(NOVO)
Also		SJNP 34 814	A.A. Zholents <i>et al.</i>	(NOVO)
		Translated from YAF 34 1471.		
ABRAMS	79D	PRL 43 481	G.S. Abrams <i>et al.</i>	(Mark II Collab.)
ATIYA	79	PRL 43 414	M.S. Atiya <i>et al.</i>	(COLU, ILL, FNAL)
BALTAY	78C	PRL 41 73	C. Baltay <i>et al.</i>	(COLU, BNL)
VUILLEMIN	78	PRL 41 1149	V. Vuillemin <i>et al.</i>	(Mark I Collab.)
GOLDHABER	77	PL 69B 503	G. Goldhaber <i>et al.</i>	(Mark I Collab.)
PERUZZI	77	PRL 39 1301	I. Peruzzi <i>et al.</i>	(Mark I Collab.)
PICCOLO	77	PL 70B 260	M. Piccolo <i>et al.</i>	(Mark I Collab.)
GOLDHABER	76	PRL 37 255	G. Goldhaber <i>et al.</i>	(Mark I Collab.)

————— **OTHER RELATED PAPERS** —————

RICHMAN	95	RMP 67 893	J.D. Richman, P.R. Burchat	(UCSB, STAN)
ROSNER	95	CNPP 21 369	J. Rosner	(CHIC)
