D^0

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

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*
1864.5± 0.4 OUR FIT	Error includes scale factor of 1.1.				
1864.1± 1.0 OUR AVERAGE					
1864.6± 0.3±1.0	641	BARLAG	90C	ACCM	π^- Cu 230 GeV
1852 ± 7	16	ADAMOVICH	87	EMUL	Photoproduction
1861 ± 4		DERRICK	84	HRS	e^+e^- 29 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1856 ±36	22	ADAMOVICH	84B	EMUL	Photoproduction
1847 ± 7	1	FIORINO	81	EMUL	$\gamma N \rightarrow \overline{D}^0 +$
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	$\gamma p \rightarrow \overline{D}^0$
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	$\gamma N \rightarrow D^0 \overline{D}^0$
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 $K3\pi$

[1] PERUZZI 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.

[2] Error 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 $> 20 \times 10^{-15}$ s have been omitted from the average.

VALUE (10^{-15} s)	EVTS	DOCUMENT ID		TECN	COMMENT
410.3± 1.5 OUR AVERAGE					
409.6± 1.1± 1.5	210k	LINK	02F	FOCS	γ nucleus, $\approx$ 180 GeV
407.9± 6.0± 4.3	10k	KUSHNIR...	01	SELX	$D^0 \to K^-\pi^+$, $K^-\pi^+\pi^+\pi^-$
413 ± 3 ± 4	35k	AITALA	99E	E791	$K^-\pi^+$
408.5± 4.1 $^{+3.5}_{-3.4}$	25k	BONVICINI	99	CLE2	$e^+e^- \approx \Upsilon(4S)$
413 ± 4 ± 3	16k	FRABETTI	94D	E687	$K^-\pi^+$, $K^-\pi^+\pi^+\pi^-$
424 ±11 ± 7	5118	FRABETTI	91	E687	$K^-\pi^+$, $K^-\pi^+\pi^+\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
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.

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$\left|m_{D_1^0} - m_{D_2^0}\right|$

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-$\overline{D}{}^0$ Mixing," above.

VALUE ($10^{10}\ \hbar$ s^{-1})	CL%	DOCUMENT ID		TECN	COMMENT
< 7	95	[5] GODANG	00	CLE2	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<11	95	[6] AUBERT	03Z	BABR	e^+e^-, 10.6 GeV
<32	90	[7,8] AITALA	98	E791	π^- nucleus, 500 GeV
<24	90	[9] AITALA	96C	E791	π^- nucleus, 500 GeV
<21	90	[8,10] ANJOS	88C	E691	Photoproduction

[5] This GODANG 00 limit is inferred from the D^0-$\overline{D}{}^0$ mixing ratio $\Gamma(K^+\pi^-$ (via $\overline{D}{}^0))/\Gamma(K^-\pi^+)$ given near the end of this D^0 Listings. Decay-time information is used to distinguish DCS decays from D^0-$\overline{D}{}^0$ mixing. The limit allows interference between the DCS and mixing ratios, and also allows CP violation. The strong phase between $D^0 \to K^+\pi^-$ and $\overline{D}{}^0 \to K^+\pi^-$ is assumed to be small. If an arbitrary relative strong phase is allowed, the limit degrades by a factor of two.

[6] This AUBERT 03Z limit is inferred from the D^0-$\overline{D}{}^0$ mixing ratio $\Gamma(K^+\pi^-$ (via $\overline{D}{}^0))/\Gamma(K^-\pi^+)$ given near the end of this D^0 Listings. Decay-time information is used to distinguish DCS decays from D^0-$\overline{D}{}^0$ mixing. The limit allows interference between

the DCS and mixing ratios, and also allows CP violation. The strong phase between $D^0 \to K^+\pi^-$ and $\overline{D}^0 \to K^+\pi^-$ is assumed to be small. If an arbitrary relative strong phase is allowed, the limit degrades by 20%.

[7] 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-$\overline{D}^0$ Mixing," above.

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

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

[10] ANJOS 88C assumes that $y = 0$. See the note on "D^0-$\overline{D}^0$ 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-$\overline{D}^0$ Mixing," above.

VALUE	*CL%*	*EVTS*	*DOCUMENT ID*	*TECN*	*COMMENT*
0.016 ±0.010 OUR AVERAGE					
$0.016 \pm 0.008 {}^{+0.010}_{-0.008}$		450k	[11] AUBERT 03P	BABR	$e^+e^- \approx \Upsilon(4S)$
$-0.010 \pm 0.020 {}^{+0.014}_{-0.016}$		18k	[12] ABE 02I	BELL	$e^+e^- \approx \Upsilon(4S)$
$-0.024 \pm 0.050 \pm 0.028$		3393	[13] CSORNA 02	CLE2	$e^+e^- \approx \Upsilon(4S)$
$0.0684 \pm 0.0278 \pm 0.0148$		10k	[12] LINK 00	FOCS	γ nucleus
$+0.016 \pm 0.058 \pm 0.021$			[12] AITALA 99E	E791	$K^-\pi^+$, K^+K^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.016 {}^{+0.062}_{-0.128}$			[14,15] AUBERT 03Z	BABR	e^+e^-, 10.6 GeV
$-0.050 {}^{+0.028}_{-0.032} \pm 0.006$			[15] GODANG 00	CLE2	e^+e^-
$\lvert\Delta\Gamma\rvert/\Gamma < 0.26$	90		[16,17] AITALA 98	E791	π^- nucleus, 500 GeV
$\lvert\Delta\Gamma\rvert/\Gamma < 0.20$	90		[18] AITALA 96C	E791	π^- nucleus, 500 GeV
$\lvert\Delta\Gamma\rvert/\Gamma < 0.17$	90		[17,19] ANJOS 88C	E691	Photoproduction

[11] AUBERT 03P measures $Y \equiv 2\,\tau^0 / (\tau^+ + \tau^-) - 1$, where τ^0 is the $D^0 \to K^-\pi^+$ (and $\overline{D}^0 \to K^+\pi^-$) lifetime, and τ^+ and τ^- are the D^0 and $\overline{D}^0$ 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 $\Delta Y = -0.008 \pm 0.006 \pm 0.002$.

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

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

[14] The range of this AUBERT 03Z measurement is for 95% confidence level.

[15] The GODANG 00 and AUBERT 03Z limits are inferred from the D^0-$\overline{D}^0$ mixing ratio $\Gamma(K^+\pi^-$ (via $\overline{D}^0$))/$\Gamma(K^-\pi^+)$ given near the end of this D^0 Listings. Decay-time information is used to distinguish DCS decays from D^0-$\overline{D}^0$ 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 $\overline{D}^0 \rightarrow K^+\pi^-$ 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-$\overline{D}^0$ Mixing."

[16] 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-$\overline{D}^0$ Mixing," above.

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

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

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

D^0 DECAY MODES

$\overline{D}^0$ modes are charge conjugates of the modes below.

	Mode		Fraction (Γ_i/Γ)	Scale factor/ Confidence level
	Inclusive modes			
Γ_1	e^+ anything	[a]	(6.87 ± 0.28) %	
Γ_2	μ^+ anything		(6.6 ± 0.8) %	
Γ_3	K^- anything		(53 ± 4) %	S=1.3
Γ_4	$\overline{K}^0$ anything + K^0 anything		(42 ± 5) %	
Γ_5	K^+ anything		$(3.4 {}^{+0.6}_{-0.4})$ %	
Γ_6	η anything	[b]	< 13 %	CL=90%
Γ_7	ϕ anything		(1.7 ± 0.8) %	
	Semileptonic modes			
Γ_8	$K^-\ell^+\nu_\ell$	[c]	(3.48 ± 0.16) %	S=1.3
Γ_9	$K^-e^+\nu_e$		(3.62 ± 0.16) %	
Γ_{10}	$K^-\mu^+\nu_\mu$		(3.20 ± 0.17) %	
Γ_{11}	$K^-\pi^0e^+\nu_e$		$(1.1 {}^{+0.8}_{-0.6})$ %	S=1.6
Γ_{12}	$\overline{K}^0\pi^-e^+\nu_e$		(1.8 ± 0.8) %	S=1.5
Γ_{13}	$K^*(892)^-e^+\nu_e$, $K^*(892)^- \rightarrow \overline{K}^0\pi^-$		(1.42 ± 0.23) %	
Γ_{14}	$\overline{K}^0\pi^-\mu^+\nu_\mu$			
Γ_{15}	$K^*(892)^-\mu^+\nu_\mu$, $K^*(892)^- \rightarrow \overline{K}^0\pi^-$		(1.31 ± 0.17) %	

Γ_{16}	$K^*(892)^- \ell^+ \nu_\ell$			
Γ_{17}	$\overline{K}^*(892)^0 \pi^- e^+ \nu_e$			
Γ_{18}	$K^- \pi^+ \pi^- \mu^+ \nu_\mu$		$< 1.2 \times 10^{-3}$	CL=90%
Γ_{19}	$(\overline{K}^*(892)\pi)^- \mu^+ \nu_\mu$		$< 1.4 \times 10^{-3}$	CL=90%
Γ_{20}	$\pi^- e^+ \nu_e$		$(3.11 \pm 0.30) \times 10^{-3}$	S=1.1
Γ_{21}	$\pi^- \mu^+ \nu_\mu$		$(2.4 \pm 0.4) \times 10^{-3}$	

Fractions of the following resonance modes have already appeared above as submodes of charged-particle modes.

Γ_{22}	$K^*(892)^- e^+ \nu_e$		(2.13 ± 0.35) %	
Γ_{23}	$K^*(892)^- \mu^+ \nu_\mu$		(1.97 ± 0.25) %	

Hadronic modes with one $\overline{K}$

Γ_{24}	$K^- \pi^+$		(3.81 ± 0.09) %	
Γ_{25}	$\overline{K}^0 \pi^0$		(2.30 ± 0.24) %	
Γ_{26}	$\overline{K}^0 \pi^+ \pi^-$	[d]	(5.8 ± 0.4) %	
Γ_{27}	$\overline{K}^0 \rho^0$		$(1.52^{+0.13}_{-0.17})$ %	
Γ_{28}	$\overline{K}^0 \omega$, $\omega \to \pi^+ \pi^-$		$(4.2 \pm 1.2) \times 10^{-4}$	
Γ_{29}	$\overline{K}^0 f_0(980)$, $f_0(980) \to \pi^+ \pi^-$		$(2.7^{+0.6}_{-0.4}) \times 10^{-3}$	
Γ_{30}	$\overline{K}^0 f_2(1270)$, $f_2(1270) \to \pi^+ \pi^-$		$(2.6^{+2.3}_{-1.3}) \times 10^{-4}$	
Γ_{31}	$\overline{K}^0 f_0(1370)$, $f_0(1370) \to \pi^+ \pi^-$		$(5.0^{+1.1}_{-1.3}) \times 10^{-3}$	
Γ_{32}	$K^*(892)^- \pi^+$, $K^*(892)^- \to \overline{K}^0 \pi^-$		(3.86 ± 0.29) %	
Γ_{33}	$K_0^*(1430)^- \pi^+$, $K_0^*(1430)^- \to \overline{K}^0 \pi^-$		$(5.6^{+1.3}_{-0.8}) \times 10^{-3}$	
Γ_{34}	$K_2^*(1430)^- \pi^+$, $K_2^*(1430)^- \to \overline{K}^0 \pi^-$		$(6.4^{+4.3}_{-2.1}) \times 10^{-4}$	
Γ_{35}	$K^*(1680)^- \pi^+$, $K^*(1680)^- \to \overline{K}^0 \pi^-$		$(1.3^{+1.1}_{-0.9}) \times 10^{-3}$	
Γ_{36}	$K^*(892)^+ \pi^-$, $K^*(892)^+ \to K^0 \pi^+$		$(2.0^{+2.5}_{-0.8}) \times 10^{-4}$	
Γ_{37}	$\overline{K}^0 \pi^+ \pi^-$ nonresonant		$(5.3^{+12.0}_{-3.3}) \times 10^{-4}$	
Γ_{38}	$K^- \pi^+ \pi^0$	[d]	(13.2 ± 1.0) %	S=1.4
Γ_{39}	$K^- \rho^+$		(10.3 ± 0.9) %	
Γ_{40}	$K^- \rho(1700)^+$, $\rho(1700)^+ \to \pi^+ \pi^0$		$(7.5 \pm 1.7) \times 10^{-3}$	
Γ_{41}	$K^*(892)^- \pi^+$, $K^*(892)^- \to K^- \pi^0$		$(2.11^{+0.37}_{-0.23})$ %	

Γ_{42}	$\overline{K}^*(892)^0\pi^0$, $\overline{K}^*(892)^0 \to K^-\pi^+$		(1.79 ± 0.25) %
Γ_{43}	$K_0^*(1430)^-\pi^+$, $K_0^*(1430)^- \to K^-\pi^0$		$(4.4 \pm 2.0) \times 10^{-3}$
Γ_{44}	$\overline{K}_0^*(1430)^0\pi^0$, $\overline{K}_0^*(1430)^0 \to K^-\pi^+$		$(5.4 {}^{+4.3}_{-1.5}) \times 10^{-3}$
Γ_{45}	$K^*(1680)^-\pi^+$, $K^*(1680)^- \to K^-\pi^0$		$(1.7 \pm 0.7) \times 10^{-3}$
Γ_{46}	$K^-\pi^+\pi^0$ nonresonant		$(1.06 {}^{+0.51}_{-0.20})$ %
Γ_{47}	$\overline{K}^0\pi^0\pi^0$		—
Γ_{48}	$\overline{K}^*(892)^0\pi^0$, $\overline{K}^*(892)^0 \to \overline{K}^0\pi^0$		$(1.36 {}^{+0.35}_{-0.29})$ %
Γ_{49}	$\overline{K}^0\pi^0\pi^0$ nonresonant		$(8.5 \pm 2.2) \times 10^{-3}$
Γ_{50}	$K^-\pi^+\pi^+\pi^-$	[d]	(7.48 ± 0.30) %
Γ_{51}	$K^-\pi^+\rho^0$ total		(6.2 ± 0.4) %
Γ_{52}	$K^-\pi^+\rho^0$ 3-body		$(4.7 \pm 2.1) \times 10^{-3}$
Γ_{53}	$\overline{K}^*(892)^0\rho^0$, $\overline{K}^*(892)^0 \to K^-\pi^+$		$(9.7 \pm 2.1) \times 10^{-3}$
Γ_{54}	$K^-a_1(1260)^+$, $a_1(1260)^+ \to \pi^+\pi^+\pi^-$		(3.6 ± 0.6) %
Γ_{55}	$\overline{K}^*(892)^0\pi^+\pi^-$ total, $\overline{K}^*(892)^0 \to K^-\pi^+$		(1.5 ± 0.4) %
Γ_{56}	$\overline{K}^*(892)^0\pi^+\pi^-$ 3-body, $\overline{K}^*(892)^0 \to K^-\pi^+$		$(9.5 \pm 2.1) \times 10^{-3}$
Γ_{57}	$K_1(1270)^-\pi^+$, $K_1(1270)^- \to K^-\pi^+\pi^-$	[e]	$(2.9 \pm 0.3) \times 10^{-3}$
Γ_{58}	$K^-\pi^+\pi^+\pi^-$ nonresonant		(1.74 ± 0.25) %
Γ_{59}	$\overline{K}^0\pi^+\pi^-\pi^0$	[d]	(11.0 ± 1.3) %
Γ_{60}	$\overline{K}^0\eta$, $\eta \to \pi^+\pi^-\pi^0$		$(1.72\pm 0.25) \times 10^{-3}$
Γ_{61}	$\overline{K}^0\omega$, $\omega \to \pi^+\pi^-\pi^0$		(2.3 ± 0.5) %
Γ_{62}	$K^*(892)^-\rho^+$, $K^*(892)^- \to \overline{K}^0\pi^-$		(4.4 ± 1.7) %
Γ_{63}	$\overline{K}^*(892)^0\rho^0$, $\overline{K}^*(892)^0 \to \overline{K}^0\pi^0$		$(4.9 \pm 1.1) \times 10^{-3}$
Γ_{64}	$K_1(1270)^-\pi^+$, $K_1(1270)^- \to \overline{K}^0\pi^-\pi^0$	[e]	$(4.5 \pm 1.2) \times 10^{-3}$
Γ_{65}	$\overline{K}^*(892)^0\pi^+\pi^-$ 3-body, $\overline{K}^*(892)^0 \to \overline{K}^0\pi^0$		$(4.7 \pm 1.0) \times 10^{-3}$
Γ_{66}	$\overline{K}^0\pi^+\pi^-\pi^0$ nonresonant		(2.3 ± 2.3) %
Γ_{67}	$K^-\pi^+\pi^0\pi^0$		
Γ_{68}	$K^-\pi^+\pi^+\pi^-\pi^0$		(4.0 ± 0.4) %
Γ_{69}	$\overline{K}^*(892)^0\pi^+\pi^-\pi^0$, $\overline{K}^*(892)^0 \to K^-\pi^+$		(1.2 ± 0.6) %

Γ_{70}	$\overline{K}^*(892)^0\eta$, $\overline{K}^*(892)^0 \to K^-\pi^+$, $\eta \to \pi^+\pi^-\pi^0$	$(2.7 \pm 0.6) \times 10^{-3}$		
Γ_{71}	$K^-\pi^+\omega$, $\omega \to \pi^+\pi^-\pi^0$	(2.7 ± 0.5) %		
Γ_{72}	$\overline{K}^*(892)^0\omega$, $\overline{K}^*(892)^0 \to K^-\pi^+$, $\omega \to \pi^+\pi^-\pi^0$	$(6.5 \pm 2.4) \times 10^{-3}$		
Γ_{73}	$K^0_S\eta\pi^0$	$(5.3 \pm 1.2) \times 10^{-3}$		
Γ_{74}	$K^0_S a_0(980)$, $a_0(980) \to \eta\pi^0$	$(6.3 \pm 2.0) \times 10^{-3}$		
Γ_{75}	$\overline{K}^*(892)^0\eta$, $\overline{K}^*(892)^0 \to K^0_S\pi^0$	$(1.6 \pm 0.5) \times 10^{-3}$		
Γ_{76}	$\overline{K}^0 2\pi^+ 2\pi^-$	$(5.7 \pm 0.8) \times 10^{-3}$		
Γ_{77}	$\overline{K}^0\rho^0\pi^+\pi^-$, no $K^*(892)^-$	$(2.3 \pm 1.5) \times 10^{-3}$		
Γ_{78}	$K^*(892)^-\pi^+\pi^+\pi^-$, $K^*(892)^- \to \overline{K}^0\pi^-$, no ρ^0	$(10 \pm 16) \times 10^{-4}$		
Γ_{79}	$K^*(892)^-\rho^0\pi^+$, $K^*(892)^- \to \overline{K}^0\pi^-$	$(3.4 \pm 1.4) \times 10^{-3}$		
Γ_{80}	$\overline{K}^0 2\pi^+ 2\pi^-$ nonresonant	< 2.6	$\times 10^{-3}$	CL=90%
Γ_{81}	$\overline{K}^0\pi^+\pi^-\pi^0\pi^0(\pi^0)$			
Γ_{82}	$K^- 3\pi^+ 2\pi^-$	$(2.0 \pm 0.5) \times 10^{-4}$		

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_{83}	$\overline{K}^0\eta$	$(7.6 \pm 1.1) \times 10^{-3}$		
Γ_{84}	$\overline{K}^0\omega$	(2.6 ± 0.6) %		
Γ_{85}	$\overline{K}^0\eta'(958)$	(1.84 ± 0.28) %		
Γ_{86}	$K^- a_1(1260)^+$	(7.2 ± 1.1) %		
Γ_{87}	$\overline{K}^0 a_1(1260)^0$	< 1.9	%	CL=90%
Γ_{88}	$K^- a_2(1320)^+$	< 2	$\times 10^{-3}$	CL=90%
Γ_{89}	$\overline{K}^*(892)^0\pi^+\pi^-$ total	(2.2 ± 0.5) %		
Γ_{90}	$\overline{K}^*(892)^0\pi^+\pi^-$ 3-body	(1.42 ± 0.31) %		
Γ_{91}	$K^-\pi^+\rho^0$ total	(6.2 ± 0.4) %		
Γ_{92}	$K^-\pi^+\rho^0$ 3-body	$(4.7 \pm 2.1) \times 10^{-3}$		
Γ_{93}	$\overline{K}^*(892)^0\rho^0$	(1.46 ± 0.32) %		
Γ_{94}	$\overline{K}^*(892)^0\rho^0$ transverse	(1.6 ± 0.5) %		
Γ_{95}	$\overline{K}^*(892)^0\rho^0$ *S*-wave	(2.8 ± 0.6) %		
Γ_{96}	$\overline{K}^*(892)^0\rho^0$ *S*-wave long.	< 3	$\times 10^{-3}$	CL=90%
Γ_{97}	$\overline{K}^*(892)^0\rho^0$ *P*-wave	< 3	$\times 10^{-3}$	CL=90%
Γ_{98}	$\overline{K}^*(892)^0\rho^0$ *D*-wave	(1.9 ± 0.6) %		
Γ_{99}	$K^*(892)^-\rho^+$	(6.6 ± 2.6) %		
Γ_{100}	$K^*(892)^-\rho^+$ longitudinal	(3.2 ± 1.3) %		

Γ_{101}	$K^*(892)^- \rho^+$ transverse		(3.5 ± 2.0) %	
Γ_{102}	$K^*(892)^- \rho^+$ P-wave		< 1.5 %	CL=90%
Γ_{103}	$K^- \pi^+ f_0(980)$			
Γ_{104}	$\overline{K}^*(892)^0 f_0(980)$			
Γ_{105}	$K_1(1270)^- \pi^+$	[e]	(1.15 ± 0.32) %	
Γ_{106}	$K_1(1400)^- \pi^+$		< 1.2 %	CL=90%
Γ_{107}	$\overline{K}_1(1400)^0 \pi^0$		< 3.7 %	CL=90%
Γ_{108}	$K^*(1410)^- \pi^+$			
Γ_{109}	$\overline{K}^*(892)^0 \pi^+ \pi^- \pi^0$		(1.8 ± 0.9) %	
Γ_{110}	$\overline{K}^*(892)^0 \eta$			
Γ_{111}	$K^- \pi^+ \omega$		(3.0 ± 0.6) %	
Γ_{112}	$\overline{K}^*(892)^0 \omega$		(1.1 ± 0.4) %	
Γ_{113}	$K^- \pi^+ \eta'(958)$		$(7.0 \pm 1.8) \times 10^{-3}$	
Γ_{114}	$\overline{K}^*(892)^0 \eta'(958)$		$< 1.0 \times 10^{-3}$	CL=90%

Hadronic modes with three K's

Γ_{115}	$\overline{K}^0 K^+ K^-$	(1.01 ± 0.10) %	
	In the fit as $\frac{1}{2}\Gamma_{126} + \Gamma_{117}$, where $\frac{1}{2}\Gamma_{126} = \Gamma_{116}$.		
Γ_{116}	$\overline{K}^0 \phi$, $\phi \to K^+ K^-$	$(4.6 \pm 0.6) \times 10^{-3}$	
Γ_{117}	$\overline{K}^0 K^+ K^-$ non-ϕ	$(5.4 \pm 0.9) \times 10^{-3}$	
Γ_{118}	$K^0_S K^0_S K^0_S$	$(9.4 \pm 1.4) \times 10^{-4}$	
Γ_{119}	$K^+ K^- K^- \pi^+$	$(2.05 \pm 0.30) \times 10^{-4}$	
Γ_{120}	$K^+ K^- \overline{K}^*(892)^0$, $\overline{K}^*(892)^0 \to K^- \pi^+$	$(4.1 \pm 1.7) \times 10^{-5}$	
Γ_{121}	$K^- \pi^+ \phi$, $\phi \to K^+ K^-$	$(3.8 \pm 1.6) \times 10^{-5}$	
Γ_{122}	$\phi \overline{K}^*(892)^0$, $\phi \to K^+ K^-$, $\overline{K}^*(892)^0 \to K^- \pi^+$	$(1.0 \pm 0.2) \times 10^{-4}$	
Γ_{123}	$K^+ K^- K^- \pi^+$ nonresonant	$(3.1 \pm 1.4) \times 10^{-5}$	
Γ_{124}	$K^+ K^- \overline{K}^0 \pi^0$		
Γ_{125}	$K^0_S K^0_S K^\pm \pi^\mp$	$(6.2 \pm 1.3) \times 10^{-4}$	

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

Γ_{126}	$\overline{K}^0 \phi$	$(9.2 \pm 1.1) \times 10^{-3}$	
Γ_{127}	$K^- \pi^+ \phi$	$(7.6 \pm 3.2) \times 10^{-5}$	
Γ_{128}	$K^+ K^- \overline{K}^*(892)^0$	$(6.1 \pm 2.5) \times 10^{-5}$	
Γ_{129}	$\phi \overline{K}^*(892)^0$	$(3.0 \pm 0.6) \times 10^{-4}$	

Pionic modes

Γ_{130}	$\pi^+ \pi^-$	$(1.38 \pm 0.05) \times 10^{-3}$	
Γ_{131}	$\pi^0 \pi^0$	$(8.4 \pm 2.2) \times 10^{-4}$	
Γ_{132}	$\pi^+ \pi^- \pi^0$	(1.1 ± 0.4) %	
Γ_{133}	$2\pi^+ 2\pi^-$	$(7.3 \pm 0.5) \times 10^{-3}$	
Γ_{134}	$2\pi^+ 2\pi^- \pi^0$		
Γ_{135}	$3\pi^+ 3\pi^-$	$(3.9 \pm 1.1) \times 10^{-4}$	

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

Γ_{136}	K^+K^-		$(3.90\pm 0.12)\times 10^{-3}$	
Γ_{137}	$K^0\overline{K}^0$		$(7.4\pm 1.4)\times 10^{-4}$	
Γ_{138}	$K^0K^-\pi^+$		$(6.8\pm 1.0)\times 10^{-3}$	S=1.1
Γ_{139}	$\overline{K}^*(892)^0K^0$, $\overline{K}^*(892)^0\to K^-\pi^+$		$<1.1\times 10^{-3}$	CL=90%
Γ_{140}	$K^*(892)^+K^-$, $K^*(892)^+\to K^0\pi^+$		$(2.5\pm 0.5)\times 10^{-3}$	
Γ_{141}	$K^0K^-\pi^+$ nonresonant		$(2.3\pm 2.3)\times 10^{-3}$	
Γ_{142}	$\overline{K}^0K^+\pi^-$		$(5.2\pm 1.0)\times 10^{-3}$	
Γ_{143}	$K^*(892)^0\overline{K}^0$, $K^*(892)^0\to K^+\pi^-$		$<6\times 10^{-4}$	CL=90%
Γ_{144}	$K^*(892)^-K^+$, $K^*(892)^-\to\overline{K}^0\pi^-$		$(1.3\pm 0.7)\times 10^{-3}$	
Γ_{145}	$\overline{K}^0K^+\pi^-$ nonresonant		$(3.8^{+2.3}_{-1.9})\times 10^{-3}$	
Γ_{146}	$K^+K^-\pi^0$		$(1.3\pm 0.4)\times 10^{-3}$	
Γ_{147}	$K^0_SK^0_S\pi^0$		$<5.9\times 10^{-4}$	
Γ_{148}	$K^+K^-\pi^+\pi^-$	[f]	$(2.49\pm 0.23)\times 10^{-3}$	
Γ_{149}	$\phi\pi^+\pi^-$, $\phi\to K^+K^-$		$(5.3\pm 1.4)\times 10^{-4}$	
Γ_{150}	$\phi\rho^0$, $\phi\to K^+K^-$		$(2.9\pm 1.5)\times 10^{-4}$	
Γ_{151}	$K^+K^-\rho^0$ 3-body		$(9.0\pm 2.3)\times 10^{-4}$	
Γ_{152}	$K^*(892)^0K^-\pi^+$ + c.c., $K^*(892)^0\to K^+\pi^-$	[g]	$<5\times 10^{-4}$	
Γ_{153}	$K^*(892)^0\overline{K}^*(892)^0$ $\times$ B$^2(K^{*0}\to K^+\pi^-)$		$(6\pm 2)\times 10^{-4}$	
Γ_{154}	$K^+K^-\pi^+\pi^-$ non-ϕ			
Γ_{155}	$K^+K^-\pi^+\pi^-$ nonresonant		$<8\times 10^{-4}$	CL=90%
Γ_{156}	$K^0_SK^0_S\pi^+\pi^-$		$(1.27\pm 0.24)\times 10^{-3}$	
Γ_{157}	$K^0K^-\pi^+\pi^+\pi^-$		$<3.1\times 10^{-4}$	CL=90%
Γ_{158}	$K^+K^-\pi^+\pi^-\pi^0$		$(3.1\pm 2.0)\times 10^{-3}$	

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

Γ_{159}	$\overline{K}^*(892)^0K^0$	$<1.7\times 10^{-3}$	CL=90%
Γ_{160}	$K^*(892)^+K^-$	$(3.7\pm 0.8)\times 10^{-3}$	
Γ_{161}	$K^*(892)^0\overline{K}^0$	$<9\times 10^{-4}$	CL=90%
Γ_{162}	$K^*(892)^-K^+$	$(2.0\pm 1.1)\times 10^{-3}$	
Γ_{163}	$\phi\pi^0$	$(7.6\pm 0.5)\times 10^{-4}$	
Γ_{164}	$\phi\eta$	$(1.4\pm 0.5)\times 10^{-4}$	
Γ_{165}	$\phi\omega$	$<2.1\times 10^{-3}$	CL=90%
Γ_{166}	$\phi\pi^+\pi^-$	$(1.07\pm 0.28)\times 10^{-3}$	
Γ_{167}	$\phi\rho^0$	$(5.7\pm 3.0)\times 10^{-4}$	

Γ_{168}	$\phi\pi^+\pi^-$ 3-body			$(7 \pm 5) \times 10^{-4}$	
Γ_{169}	$K^*(892)^0 K^-\pi^+$ + c.c.		[g] <	7×10^{-4}	CL=90%
Γ_{170}	$K^*(892)^0 K^-\pi^+$				
Γ_{171}	$\overline{K}^*(892)^0 K^+\pi^-$				
Γ_{172}	$K^*(892)^0 \overline{K}^*(892)^0$			$(1.4 \pm 0.5) \times 10^{-3}$	

Radiative modes

Γ_{173}	$\rho^0\gamma$		<	2.4×10^{-4}	CL=90%
Γ_{174}	$\omega\gamma$		<	2.4×10^{-4}	CL=90%
Γ_{175}	$\phi\gamma$			$(2.5 {}^{+0.7}_{-0.6}) \times 10^{-5}$	
Γ_{176}	$\overline{K}^*(892)^0\gamma$		<	7.6×10^{-4}	CL=90%

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

Γ_{177}	$K^+\ell^-\overline{\nu}_\ell$ (via $\overline{D}^0$)	*C2M*	<	1.7×10^{-4}	CL=90%
Γ_{178}	K^+ or $K^*(892)^+ e^-\overline{\nu}_e$ (via $\overline{D}^0$)	*C2M*			
Γ_{179}	$K^+\pi^-$	*DC*		$(1.38 \pm 0.11) \times 10^{-4}$	
Γ_{180}	$K^+\pi^-$ (via $\overline{D}^0$)	*C2M*	<	1.6×10^{-5}	CL=95%
Γ_{181}	$K^*(892)^+\pi^-$, $K^*(892)^+ \to K^0\pi^+$			$(2.0 {}^{+2.5}_{-0.8}) \times 10^{-4}$	
Γ_{182}	$K^+\pi^-\pi^0$			$(5.7 \pm 1.7) \times 10^{-4}$	
Γ_{183}	$K^+\pi^-\pi^+\pi^-$	*DC*		$(3.1 \pm 1.0) \times 10^{-4}$	
Γ_{184}	$K^+\pi^-\pi^+\pi^-$ (via $\overline{D}^0$)	*C2M*	<	4×10^{-4}	CL=90%
Γ_{185}	$K^+\pi^-$ or $K^+\pi^-\pi^+\pi^-$ (via $\overline{D}^0$)		<	1.0×10^{-3}	CL=90%
Γ_{186}	μ^- anything (via $\overline{D}^0$)	*C2M*	<	4×10^{-4}	CL=90%

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

Γ_{187}	$\gamma\gamma$	*C1*	<	2.8×10^{-5}	CL=90%
Γ_{188}	e^+e^-	*C1*	<	1.2×10^{-6}	CL=90%
Γ_{189}	$\mu^+\mu^-$	*C1*	<	1.3×10^{-6}	CL=90%
Γ_{190}	$\pi^0 e^+e^-$	*C1*	<	4.5×10^{-5}	CL=90%
Γ_{191}	$\pi^0\mu^+\mu^-$	*C1*	<	1.8×10^{-4}	CL=90%
Γ_{192}	ηe^+e^-	*C1*	<	1.1×10^{-4}	CL=90%
Γ_{193}	$\eta\mu^+\mu^-$	*C1*	<	5.3×10^{-4}	CL=90%
Γ_{194}	$\pi^+\pi^- e^+e^-$	*C1*	<	3.73×10^{-4}	CL=90%
Γ_{195}	$\rho^0 e^+e^-$	*C1*	<	1.0×10^{-4}	CL=90%
Γ_{196}	$\pi^+\pi^-\mu^+\mu^-$	*C1*	<	3.0×10^{-5}	CL=90%
Γ_{197}	$\rho^0\mu^+\mu^-$	*C1*	<	2.2×10^{-5}	CL=90%
Γ_{198}	ωe^+e^-	*C1*	<	1.8×10^{-4}	CL=90%
Γ_{199}	$\omega\mu^+\mu^-$	*C1*	<	8.3×10^{-4}	CL=90%
Γ_{200}	$K^-K^+e^+e^-$	*C1*	<	3.15×10^{-4}	CL=90%

Γ_{201}	$\phi e^+ e^-$	C1	$<$	5.2	$\times 10^{-5}$	CL=90%
Γ_{202}	$K^- K^+ \mu^+ \mu^-$	C1	$<$	3.3	$\times 10^{-5}$	CL=90%
Γ_{203}	$\phi \mu^+ \mu^-$	C1	$<$	3.1	$\times 10^{-5}$	CL=90%
Γ_{204}	$\overline{K}^0 e^+ e^-$		[h] $<$	1.1	$\times 10^{-4}$	CL=90%
Γ_{205}	$\overline{K}^0 \mu^+ \mu^-$		[h] $<$	2.6	$\times 10^{-4}$	CL=90%
Γ_{206}	$K^- \pi^+ e^+ e^-$	C1	$<$	3.85	$\times 10^{-4}$	CL=90%
Γ_{207}	$\overline{K}^*(892)^0 e^+ e^-$		[h] $<$	4.7	$\times 10^{-5}$	CL=90%
Γ_{208}	$K^- \pi^+ \mu^+ \mu^-$	C1	$<$	3.59	$\times 10^{-4}$	CL=90%
Γ_{209}	$\overline{K}^*(892)^0 \mu^+ \mu^-$		[h] $<$	2.4	$\times 10^{-5}$	CL=90%
Γ_{210}	$\pi^+ \pi^- \pi^0 \mu^+ \mu^-$	C1	$<$	8.1	$\times 10^{-4}$	CL=90%
Γ_{211}	$\mu^\pm e^\mp$	LF	[i] $<$	8.1	$\times 10^{-7}$	CL=90%
Γ_{212}	$\pi^0 e^\pm \mu^\mp$	LF	[i] $<$	8.6	$\times 10^{-5}$	CL=90%
Γ_{213}	$\eta e^\pm \mu^\mp$	LF	[i] $<$	1.0	$\times 10^{-4}$	CL=90%
Γ_{214}	$\pi^+ \pi^- e^\pm \mu^\mp$	LF	[i] $<$	1.5	$\times 10^{-5}$	CL=90%
Γ_{215}	$\rho^0 e^\pm \mu^\mp$	LF	[i] $<$	4.9	$\times 10^{-5}$	CL=90%
Γ_{216}	$\omega e^\pm \mu^\mp$	LF	[i] $<$	1.2	$\times 10^{-4}$	CL=90%
Γ_{217}	$K^- K^+ e^\pm \mu^\mp$	LF	[i] $<$	1.8	$\times 10^{-4}$	CL=90%
Γ_{218}	$\phi e^\pm \mu^\mp$	LF	[i] $<$	3.4	$\times 10^{-5}$	CL=90%
Γ_{219}	$\overline{K}^0 e^\pm \mu^\mp$	LF	[i] $<$	1.0	$\times 10^{-4}$	CL=90%
Γ_{220}	$K^- \pi^+ e^\pm \mu^\mp$	LF	[i] $<$	5.53	$\times 10^{-4}$	CL=90%
Γ_{221}	$\overline{K}^*(892)^0 e^\pm \mu^\mp$	LF	[i] $<$	8.3	$\times 10^{-5}$	CL=90%
Γ_{222}	$\pi^- \pi^- e^+ e^+ +$ c.c.	L	$<$	1.12	$\times 10^{-4}$	CL=90%
Γ_{223}	$\pi^- \pi^- \mu^+ \mu^+ +$ c.c.	L	$<$	2.9	$\times 10^{-5}$	CL=90%
Γ_{224}	$K^- \pi^- e^+ e^+ +$ c.c.	L	$<$	2.06	$\times 10^{-4}$	CL=90%
Γ_{225}	$K^- \pi^- \mu^+ \mu^+ +$ c.c.	L	$<$	3.9	$\times 10^{-4}$	CL=90%
Γ_{226}	$K^- K^- e^+ e^+ +$ c.c.	L	$<$	1.52	$\times 10^{-4}$	CL=90%
Γ_{227}	$K^- K^- \mu^+ \mu^+ +$ c.c.	L	$<$	9.4	$\times 10^{-5}$	CL=90%
Γ_{228}	$\pi^- \pi^- e^+ \mu^+ +$ c.c.	L	$<$	7.9	$\times 10^{-5}$	CL=90%
Γ_{229}	$K^- \pi^- e^+ \mu^+ +$ c.c.	L	$<$	2.18	$\times 10^{-4}$	CL=90%
Γ_{230}	$K^- K^- e^+ \mu^+ +$ c.c.	L	$<$	5.7	$\times 10^{-5}$	CL=90%

Γ_{231} A dummy mode used by the fit. (23.1 ± 3.0) %

[a] The exclusive e^+ modes $K^- e^+ \nu_e$, $K^- \pi^0 e^+ \nu_e$, $\overline{K}^0 \pi^- e^+ \nu_e$ and $\pi^- e^+ \nu_e$ are constrained to equal this (well-measured) inclusive fraction.

[b] This is a weighted average of $D^\pm$ (44%) and D^0 (56%) branching fractions. See "D^+ and $D^0 \rightarrow$ (η anything) / (total D^+ and D^0)" under "D^+ Branching Ratios" in these Particle Listings.

[c] This value averages the e^+ and μ^+ branching fractions, after making a small phase-space adjustment to the μ^+ fraction to be able to use it as an e^+ fraction; hence our ℓ^+ here is really an e^+.

[*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*] The two experiments measuring this fraction are in serious disagreement. See the Particle Listings.

[*f*] The experiments on the division of this charge mode amongst its submodes disagree, and the submode branching fractions here add up to considerably more than the charged-mode fraction.

[*g*] However, these upper limits are in serious disagreement with values obtained in another experiment.

[*h*] This mode is not a useful test for a ΔC=1 weak neutral current because both quarks must change flavor in this decay.

[*i*] 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 98 measurements and one constraint to determine 25 parameters. The overall fit has a $\chi^2 = 45.4$ for 74 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\left\langle\delta x_i \delta x_j\right\rangle/(\delta x_i \cdot \delta x_j)$, 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_9	6									
x_{10}	31	18								
x_{11}	0	−7	−1							
x_{12}	−1	−15	−3	−91						
x_{20}	3	46	8	−4	−9					
x_{22}	1	8	3	−1	−1	4				
x_{24}	13	42	41	−3	−6	19	7			
x_{25}	1	5	4	0	−1	2	20	8		
x_{26}	2	7	6	−1	−1	3	32	14	62	
x_{38}	3	9	9	−1	−1	4	1	21	2	3
x_{50}	5	17	16	−1	−2	8	3	39	4	6
x_{59}	1	4	3	0	−1	2	14	7	28	44
x_{68}	2	8	8	−1	−1	4	1	19	2	3
x_{83}	1	3	3	0	0	2	14	6	58	45
x_{84}	1	2	2	0	0	1	7	4	14	22
x_{90}	1	3	3	0	0	1	1	7	1	1
x_{94}	1	2	2	0	0	1	1	4	2	4
x_{105}	0	2	1	0	0	1	5	3	10	17
x_{117}	1	3	2	0	0	1	13	6	26	42
x_{126}	1	4	3	0	−1	2	18	8	35	56
x_{138}	1	4	3	0	−1	2	12	7	23	37
x_{142}	1	3	3	0	0	1	8	6	16	26
x_{160}	1	2	2	0	0	1	9	5	18	28
x_{231}	−31	−15	−25	0	0	−7	−29	−32	−42	−58
	x_2	x_9	x_{10}	x_{11}	x_{12}	x_{20}	x_{22}	x_{24}	x_{25}	x_{26}

x_{50}	8									
x_{59}	1	4								
x_{68}	4	28	2							
x_{83}	1	3	20	1						
x_{84}	1	2	49	1	10					
x_{90}	1	18	1	5	0	0				
x_{94}	1	10	8	3	2	4	2			
x_{105}	1	4	38	1	7	19	1	3		
x_{117}	1	2	18	1	19	9	0	2	7	
x_{126}	2	3	25	1	25	12	1	2	9	2
x_{138}	2	3	16	1	16	8	1	1	6	15
x_{142}	1	3	12	1	12	6	0	1	4	11
x_{160}	1	2	12	1	13	6	0	1	5	12
x_{231}	−38	−28	−73	−22	−31	−50	−15	−25	−37	−26
	x_{38}	x_{50}	x_{59}	x_{68}	x_{83}	x_{84}	x_{90}	x_{94}	x_{105}	x_{117}

x_{138}	20			
x_{142}	14	10		
x_{160}	16	10	7	
x_{231}	−34	−25	−19	−19
	x_{126}	x_{138}	x_{142}	x_{160}

D^0 BRANCHING RATIOS

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

Inclusive modes

$\Gamma(e^+ \text{anything})/\Gamma_{\text{total}}$ $\qquad\qquad$ $\Gamma_1/\Gamma = (\Gamma_9+\Gamma_{11}+\Gamma_{12}+\Gamma_{20})/\Gamma$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0687±0.0028 OUR FIT					
0.0675±0.0029 OUR AVERAGE					
0.069 ±0.003 ±0.005	1670	ALBRECHT	96C	ARG	$e^+e^- \approx$ 10 GeV
0.0664±0.0018±0.0029	4609	[20] KUBOTA	96B	CLE2	$e^+e^- \approx \Upsilon(4S)$
0.075 ±0.011 ±0.004	137	BALTRUSAIT...	85B	MRK3	e^+e^- 3.77 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.15 ±0.05		AGUILAR-...	87E	HYBR	πp, $p p$ 360, 400 GeV
0.055 ±0.037	12	SCHINDLER	81	MRK2	e^+e^- 3.771 GeV

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

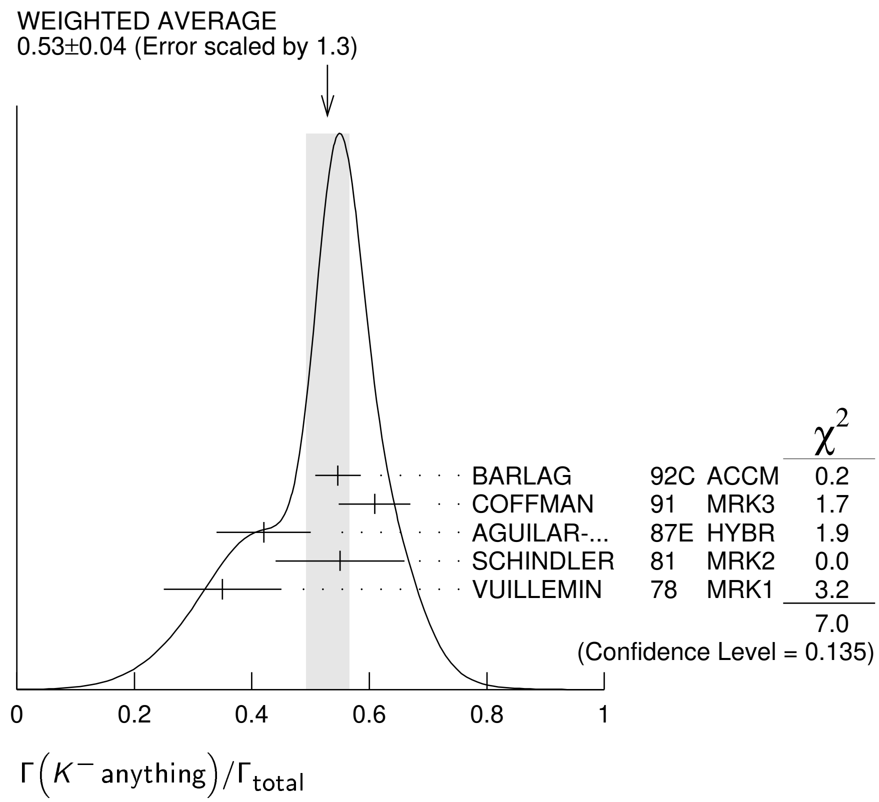
$\Gamma(\mu^+ \text{anything})/\Gamma_{\text{total}}$ $\qquad\qquad$ Γ_2/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.066±0.008 OUR FIT					
0.060±0.007±0.012	310	ALBRECHT	96C	ARG	$e^+e^- \approx$ 10 GeV

$\Gamma(K^- \text{anything})/\Gamma_{\text{total}}$ Γ_3/Γ

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.53 ±0.04 OUR AVERAGE		Error includes scale factor of 1.3. See the ideogram below.		
$0.546^{+0.039}_{-0.038}$		[21] 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	πp, 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

[21] BARLAG 92C computes the branching fraction using topological normalization.



$[\Gamma(\overline{K}^0 \text{anything}) + \Gamma(K^0 \text{anything})]/\Gamma_{\text{total}}$ Γ_4/Γ

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.42 ±0.05 OUR AVERAGE				
0.455±0.050±0.032		COFFMAN	91 MRK3	e^+e^- 3.77 GeV
0.29 ±0.11	13	SCHINDLER	81 MRK2	e^+e^- 3.771 GeV
0.57 ±0.26	6	VUILLEMIN	78 MRK1	e^+e^- 3.772 GeV

$\Gamma(K^+ \text{anything})/\Gamma_{\text{total}}$ Γ_5/Γ

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
$\mathbf{0.034^{+0.006}_{-0.004}}$ **OUR AVERAGE**				
$0.034^{+0.007}_{-0.005}$		[22] 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	πp, $p p$ 360, 400 GeV
$0.08\ \pm0.03$	25	SCHINDLER	81	MRK2	$e^+ e^-$ 3.771 GeV

[22] BARLAG 92C computes the branching fraction using topological normalization.

$\Gamma(\phi\ \text{anything})/\Gamma_{\text{total}}$ Γ_7/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.0171^{+0.0076}_{-0.0071}\pm0.0017}$	9	[23] BAI	00C	BES	$e^+ e^- \rightarrow D\overline{D}^*$, $D^*\overline{D}^*$

[23] BAI 00C finds the average (ϕ anything) branching fraction for the 4.03-GeV mix of D^+ and D^0 mesons to be $(1.34 \pm 0.52 \pm 0.12)\%$.

Semileptonic modes

$\Gamma(K^- \ell^+ \nu_\ell)/\Gamma_{\text{total}}$ Γ_8/Γ

We average our $K^- e^+ \nu_e$ and $K^- \mu^+ \nu_\mu$ branching fractions, after multiplying the latter by a phase-space factor of 1.03 to be able to use it with the $K^- e^+ \nu_e$ fraction. Hence our ℓ^+ here is really an e^+.

VALUE	DOCUMENT ID		COMMENT
0.0348±0.0016 OUR AVERAGE	Error includes scale factor of 1.3.		
0.0362±0.0016	PDG	05	Our $\Gamma(K^- e^+ \nu_e)/\Gamma_{\text{total}}$
0.0330±0.0018	PDG	05	$1.03 \times$ our $\Gamma(K^- \mu^+ \nu_\mu)/\Gamma_{\text{total}}$

$\Gamma(K^- e^+ \nu_e)/\Gamma_{\text{total}}$ Γ_9/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.62±0.16 OUR FIT					
3.7 ±0.4 OUR AVERAGE					
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_9/Γ_{24}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.95 ±0.04 OUR FIT					
0.95 ±0.04 OUR AVERAGE					
0.978±0.027±0.044	2510	[24] BEAN	93C	CLE2	$e^+ e^- \approx \Upsilon(4S)$
0.90 ±0.06 ±0.06	584	[25] CRAWFORD	91B	CLEO	$e^+ e^- \approx$ 10.5 GeV
0.91 ±0.07 ±0.11	250	[26] ANJOS	89F	E691	Photoproduction

[24] 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 $2.00 \pm 0.12 \pm 0.18$ GeV/c^2 is obtained from the q^2 dependence of the decay rate.

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

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

$\Gamma(K^- \mu^+ \nu_\mu)/\Gamma(K^- \pi^+)$ — Γ_{10}/Γ_{24}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.84 ±0.04 OUR FIT					
0.84 ±0.04 OUR AVERAGE					
0.852±0.034±0.028	1897	[27] FRABETTI	95G	E687	γ Be $\overline{E}_\gamma$= 220 GeV
0.82 ±0.13 ±0.13	338	[28] FRABETTI	93I	E687	γ Be $\overline{E}_\gamma$= 221 GeV
0.79 ±0.08 ±0.09	231	[29] CRAWFORD	91B	CLEO	$e^+ e^- \approx$ 10.5 GeV

[27] 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 $1.87^{+0.11}_{-0.08}{}^{+0.07}_{-0.06}$ GeV/c^2 from the q^2 dependence of the decay rate.

[28] FRABETTI 93I measures a pole mass of $2.1^{+0.7}_{-0.3}{}^{+0.7}_{-0.3}$ GeV/c^2 from the q^2 dependence of the decay rate.

[29] CRAWFORD 91B measures a pole mass of 2.00 ± 0.12 ± 0.18 GeV/c^2 from the q^2 dependence of the decay rate.

$\Gamma(K^- \mu^+ \nu_\mu)/\Gamma(\mu^+ \text{anything})$ — Γ_{10}/Γ_2

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.49 ±0.06 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_{11}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.011^{+0.008}_{-0.006}}$ **OUR FIT** Error includes scale factor of 1.6.					
$\mathbf{0.016^{+0.013}_{-0.005}\pm0.002}$	4	[30] BAI	91	MRK3	$e^+ e^- \approx$ 3.77 GeV

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

$\Gamma(\overline{K}^0 \pi^- e^+ \nu_e)/\Gamma_{\text{total}}$ — Γ_{12}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.018±0.008 OUR FIT Error includes scale factor of 1.5.					
$\mathbf{0.028^{+0.017}_{-0.008}\pm0.003}$	6	[31] BAI	91	MRK3	$e^+ e^- \approx$ 3.77 GeV

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

$\Gamma(K^*(892)^- e^+ \nu_e)/\Gamma(K^- e^+ \nu_e)$ — Γ_{22}/Γ_9

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.59±0.10 OUR FIT				
0.51±0.18±0.06	CRAWFORD	91B	CLEO	$e^+ e^- \approx$ 10.5 GeV

$\Gamma(K^*(892)^- e^+ \nu_e)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ — Γ_{22}/Γ_{26}

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

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.36±0.06 OUR FIT				
0.38±0.06±0.03	152	[32] BEAN 93C	CLE2	$e^+ e^- \approx \Upsilon(4S)$

[32] 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.

$\Gamma(K^*(892)^- \mu^+ \nu_\mu)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ — Γ_{23}/Γ_{26}

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

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.337±0.034±0.013	175 ± 17	[33] LINK 05B	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV

[33] LINK 05B finds that in $D^0 \to \overline{K}^0 \pi^- \mu^+ \nu_\mu$ the $\overline{K}^0 \pi^-$ system is 6% in S-wave.

$\Gamma(K^*(892)^- \ell^+ \nu_\ell)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ — Γ_{16}/Γ_{26}

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. • • •				
0.24±0.07±0.06	137	[34] ALEXANDER 90B	CLEO	$e^+ e^-$ 10.5–11 GeV

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

$\Gamma(\overline{K}^*(892)^0 \pi^- e^+ \nu_e)/\Gamma(K^*(892)^- e^+ \nu_e)$ — Γ_{17}/Γ_{22}

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

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.64	90	[35] CRAWFORD 91B	CLEO	$e^+ e^- \approx$ 10.5 GeV

[35] The limit on $(\overline{K}^*(892)\pi)^- \mu^+ \nu_\mu$ below is much stronger.

$\Gamma(K^- \pi^+ \pi^- \mu^+ \nu_\mu)/\Gamma(K^- \mu^+ \nu_\mu)$ — Γ_{18}/Γ_{10}

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

$\Gamma((\overline{K}^*(892)\pi)^- \mu^+ \nu_\mu)/\Gamma(K^- \mu^+ \nu_\mu)$ — Γ_{19}/Γ_{10}

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.043	90	[36] KODAMA 93B	E653	π^- emulsion 600 GeV

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

$\Gamma(\pi^- e^+ \nu_e)/\Gamma_{\text{total}}$ — Γ_{20}/Γ

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.00311±0.00030 OUR FIT Error includes scale factor of 1.1.				
0.0036 $^{+0.0012}_{-0.0009}$ OUR AVERAGE				
0.0033 ±0.0013 ±0.0003	9 ± 4	[37] ABLIKIM 04C	BES	$e^+ e^-$, 3.773 GeV
0.0039 $^{+0.0023}_{-0.0011}$ ±0.0004	7	[38] ADLER 89	MRK3	$e^+ e^-$ 3.77 GeV

[37] ABLIKIM 04C measures $\left|\frac{f_+^\pi(0)}{f_+^K(0)}\right|$ to be 0.93 ± 0.19 ± 0.07.

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

$\Gamma(\pi^- e^+ \nu_e)/\Gamma(K^- e^+ \nu_e)$ — Γ_{20}/Γ_9

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.086±0.007 OUR FIT	Error includes scale factor of 1.1.				
0.085±0.007 OUR AVERAGE					
0.082±0.006±0.005		[39] HUANG	05	CLEO	$e^+e^- \approx \Upsilon(4S)$
0.101±0.020±0.003	91	[40] FRABETTI	96B	E687	γ Be, $\overline{E}_\gamma \approx$ 200 GeV
0.103±0.039±0.013	87	[41] BUTLER	95	CLE2	$<$ 0.156 (90% CL)

[39] HUANG 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 $\left|\frac{V_{cd}}{V_{cs}} \cdot \frac{f_+^\pi(0)}{f_+^K(0)}\right|^2 = 0.038^{+0.006}_{-0.007}{}^{+0.005}_{-0.003}$.

[40] FRABETTI 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 $\left|\frac{V_{cd}}{V_{cs}} \cdot \frac{f_+^\pi(0)}{f_+^K(0)}\right|^2 = 0.050 \pm 0.011 \pm 0.002$.

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

$\Gamma(\pi^- \mu^+ \nu_\mu)/\Gamma(K^- \mu^+ \nu_\mu)$ — Γ_{21}/Γ_{10}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.074±0.008±0.007	288 ± 29	[42] LINK	05	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV

[42] LINK 05 finds the form-factor rate $\left|f_0^\pi(0)\ /\ f_0^K(0)\right|$ to be 0.85 ± 0.04 ± 0.04 ± 0.01.

Hadronic modes with a $\overline{K}$ or $\overline{K}K\overline{K}$

$\Gamma(K^- \pi^+)/\Gamma_{total}$ — Γ_{24}/Γ

We list measurements *before* radiative corrections are made.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0381±0.0009 OUR FIT					
0.0385±0.0009 OUR AVERAGE					
0.0382±0.0007±0.0012		[43] ARTUSO	98	CLE2	CLEO average
0.0390±0.0009±0.0012	5392	[44] BARATE	97C	ALEP	From Z decays
0.045 ±0.006 ±0.004		[45] ALBRECHT	94	ARG	$e^+e^- \approx \Upsilon(4S)$
0.0341±0.0012±0.0028	1173	[44] ALBRECHT	94F	ARG	$e^+e^- \approx \Upsilon(4S)$
0.0362±0.0034±0.0044		[44] DECAMP	91J	ALEP	From Z decays
0.045 ±0.008 ±0.005	56	[44] ABACHI	88	HRS	e^+e^- 29 GeV
0.042 ±0.004 ±0.004	930	ADLER	88C	MRK3	e^+e^- 3.77 GeV
0.041 ±0.006	263	[46] SCHINDLER	81	MRK2	e^+e^- 3.771 GeV
0.043 ±0.010	130	[47] PERUZZI	77	MRK1	e^+e^- 3.77 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.0381±0.0015±0.0016	1165	[48] ARTUSO	98	CLE2	e^+e^- at $\Upsilon(4S)$
0.0369±0.0011±0.0016		[49] COAN	98	CLE2	See ARTUSO 98
0.0391±0.0008±0.0017	4208	[44,50] AKERIB	93	CLE2	See ARTUSO 98

[43] This combines the CLEO results of ARTUSO 98, COAN 98, and AKERIB 93.

[44] 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.

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

[46] 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.

[47] 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.

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

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

[50] This AKERIB 93 value does not include radiative corrections; with them, the value is $0.0395 \pm 0.0008 \pm 0.0017$. AKERIB 93 is included in the CLEO average in ARTUSO 98.

$\Gamma(\overline{K}^0\pi^0)/\Gamma(K^-\pi^+)$ — Γ_{25}/Γ_{24}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.60±0.06 OUR FIT					
1.36±0.23±0.22	119	ANJOS	92B	E691	γ Be 80–240 GeV

$\Gamma(\overline{K}^0\pi^0)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{25}/Γ_{26}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.394±0.033 OUR FIT Error includes scale factor of 1.1.					
0.378±0.033 OUR AVERAGE					
0.44 ±0.02 ±0.05	1942	PROCARIO	93B	CLE2	e^+e^- 10.36–10.7 GeV
0.34 ±0.04 ±0.02	92	[51] ALBRECHT	92P	ARG	$e^+e^- \approx$ 10 GeV
0.36 ±0.04 ±0.08	104	KINOSHITA	91	CLEO	$e^+e^- \sim$ 10.7 GeV

[51] This value is calculated from numbers in Table 1 of ALBRECHT 92P.

$\Gamma(\overline{K}^0\pi^+\pi^-)/\Gamma_{\text{total}}$ — Γ_{26}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.058 ±0.004 OUR FIT					
0.055 ±0.005 OUR AVERAGE					
0.0503±0.0039±0.0049	284	[52] ALBRECHT	94F	ARG	$e^+e^- \approx \Upsilon(4S)$
0.064 ±0.005 ±0.010		ADLER	87	MRK3	e^+e^- 3.77 GeV
0.052 ±0.016	32	[53] SCHINDLER	81	MRK2	e^+e^- 3.771 GeV
0.079 ±0.023	28	[54] PERUZZI	77	MRK1	e^+e^- 3.77 GeV

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

[53] 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.

[54] 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.

$\Gamma(\overline{K}^0\pi^+\pi^-)/\Gamma(K^-\pi^+)$ — Γ_{26}/Γ_{24}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.53±0.10 OUR FIT					
1.65±0.17 OUR AVERAGE					
1.61±0.10±0.15	856	FRABETTI	94J	E687	γ Be $\overline{E}_\gamma$=220 GeV
1.7 ±0.8	35	AVERY	80	SPEC	$\gamma N \to D^{*+}$
2.8 ±1.0	116	PICCOLO	77	MRK1	e^+e^- 4.03, 4.41 GeV

$\Gamma(\overline{K}^0\rho^0)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{27}/Γ_{26}

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.			
$0.264\pm0.009^{+0.010}_{-0.026}$	MURAMATSU	02	CLE2	Dalitz fit, 5299 evts
0.350±0.028±0.067	FRABETTI	94G	E687	γ Be, $\overline{E}_\gamma\approx$ 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. • • •				
$0.267\pm0.011^{+0.009}_{-0.028}$	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, $\overline{E}_\gamma$= 221 GeV
0.12 ±0.01 ±0.07	ADLER	87	MRK3	e^+e^- 3.77 GeV

$\Gamma(\overline{K}^0\omega, \omega\to\pi^+\pi^-)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{28}/Γ_{26}

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

VALUE	DOCUMENT ID		TECN	COMMENT
$0.0072\pm0.0018^{+0.0010}_{-0.0009}$	MURAMATSU	02	CLE2	Dalitz fit, 5299 evts
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.0081\pm0.0019^{+0.0018}_{-0.0010}$	ASNER	04A	CLEO	See MURAMATSU 02

$\Gamma(\overline{K}^0 f_0(980), f_0(980)\to\pi^+\pi^-)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{29}/Γ_{26}

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

VALUE	DOCUMENT ID		TECN	COMMENT
$0.047^{+0.010}_{-0.007}$ OUR AVERAGE				
$0.043\pm0.005^{+0.012}_{-0.006}$	MURAMATSU	02	CLE2	Dalitz fit, 5299 evts
0.068±0.016±0.018	FRABETTI	94G	E687	γ Be, $\overline{E}_\gamma\approx$ 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. • • •				
$0.042\pm0.005^{+0.011}_{-0.005}$	ASNER	04A	CLEO	See MURAMATSU 02

$\Gamma\big(\overline{K}^0 f_2(1270),\ f_2(1270) \to \pi^+\pi^-\big)/\Gamma\big(\overline{K}^0\pi^+\pi^-\big)$ Γ_{30}/Γ_{26}

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
$\mathbf{0.0045^{+0.0039}_{-0.0022}}$ **OUR AVERAGE**				
$0.0027\pm0.0015^{+0.0037}_{-0.0017}$	MURAMATSU	02	CLE2	Dalitz fit, 5299 evts
$0.037\ \pm0.014\ \pm0.017$	FRABETTI	94G	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$0.050\ \pm0.021\ \pm0.008$	ALBRECHT	93D	ARG	$e^+e^- \approx$ 10 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.0036\pm0.0022^{+0.0032}_{-0.0019}$	ASNER	04A	CLEO	See MURAMATSU 02

$\Gamma\big(\overline{K}^0 f_0(1370),\ f_0(1370) \to \pi^+\pi^-\big)/\Gamma\big(\overline{K}^0\pi^+\pi^-\big)$ Γ_{31}/Γ_{26}

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

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.085^{+0.019}_{-0.021}}$ **OUR AVERAGE**				
$0.099\pm0.011^{+0.028}_{-0.044}$	MURAMATSU	02	CLE2	Dalitz fit, 5299 evts
$0.077\pm0.022\pm0.031$	FRABETTI	94G	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$0.082\pm0.028\pm0.013$	ALBRECHT	93D	ARG	$e^+e^- \approx$ 10 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.098\pm0.014^{+0.026}_{-0.036}$	ASNER	04A	CLEO	See MURAMATSU 02

$\Gamma\big(K^*(892)^-\pi^+,\ K^*(892)^- \to \overline{K}^0\pi^-\big)/\Gamma\big(\overline{K}^0\pi^+\pi^-\big)$ Γ_{32}/Γ_{26}

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

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.660^{+0.019}_{-0.026}}$ **OUR AVERAGE**				
$0.657\pm0.013^{+0.018}_{-0.040}$	MURAMATSU	02	CLE2	Dalitz fit, 5299 evts
$0.625\pm0.036\pm0.026$	FRABETTI	94G	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$0.718\pm0.042\pm0.030$	ALBRECHT	93D	ARG	$e^+e^- \approx$ 10 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.663\pm0.013^{+0.024}_{-0.043}$	ASNER	04A	CLEO	See MURAMATSU 02
0.480 ± 0.097	ANJOS	93	E691	γ Be 90–260 GeV
$0.56\ \pm0.04\ \pm0.05$	ADLER	87	MRK3	e^+e^- 3.77 GeV

$\Gamma\big(K_0^*(1430)^-\pi^+,\ K_0^*(1430)^- \to \overline{K}^0\pi^-\big)/\Gamma\big(\overline{K}^0\pi^+\pi^-\big)$ Γ_{33}/Γ_{26}

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

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.096^{+0.021}_{-0.012}}$ **OUR AVERAGE**				
$0.073\pm0.007^{+0.031}_{-0.011}$	MURAMATSU	02	CLE2	Dalitz fit, 5299 evts
$0.109\pm0.027\pm0.029$	FRABETTI	94G	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$0.129\pm0.034\pm0.021$	ALBRECHT	93D	ARG	$e^+e^- \approx$ 10 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.072\pm0.007^{+0.014}_{-0.013}$	ASNER	04A	CLEO	See MURAMATSU 02

$\Gamma(K_2^*(1430)^-\pi^+, K_2^*(1430)^- \to \overline{K}^0\pi^-)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{34}/Γ_{26}

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

$\Gamma(K^*(1680)^-\pi^+, K^*(1680)^- \to \overline{K}^0\pi^-)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{35}/Γ_{26}

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

$\Gamma(\overline{K}^0\pi^+\pi^-$ nonresonant$)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{37}/Γ_{26}

This is the "fit fraction" from the Dalitz-plot analysis. Neither FRABETTI 94G nor ALBRECHT 93D 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, $\overline{E}_\gamma = 221$ GeV
$0.33 \pm 0.05 \pm 0.10$	ADLER 87	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^-\pi^+\pi^0)/\Gamma_{total}$ — Γ_{38}/Γ

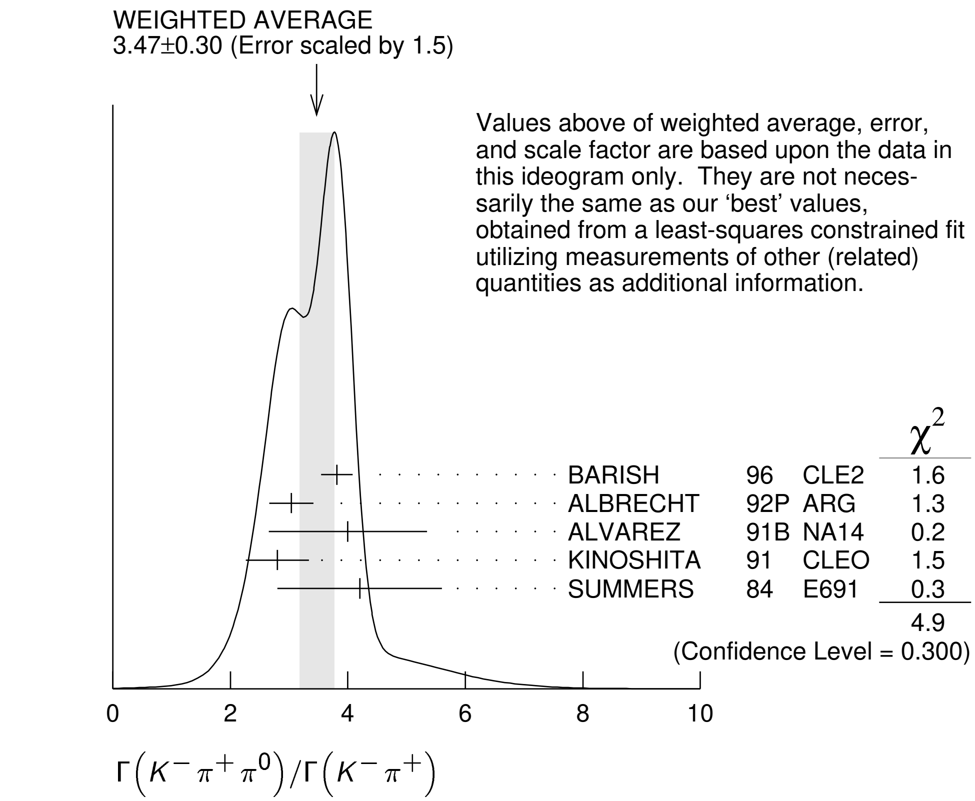
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.132 ± 0.010 OUR FIT Error includes scale factor of 1.4.				
0.131 ± 0.016 OUR AVERAGE				
$0.133 \pm 0.012 \pm 0.013$	931	ADLER 88C	MRK3	e^+e^- 3.77 GeV
0.117 ± 0.043	37	[55] SCHINDLER 81	MRK2	e^+e^- 3.771 GeV

[55] SCHINDLER 81 (MARK-2) measures $\sigma(e^+e^- \to \psi(3770)) \times$ 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_{38}/Γ_{24}

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
3.46 ± 0.25 OUR FIT Error includes scale factor of 1.4.				
3.47 ± 0.30 OUR AVERAGE Error includes scale factor of 1.5. See the ideogram below.				
$3.81 \pm 0.07 \pm 0.26$	10k	BARISH 96	CLE2	$e^+e^- \approx \Upsilon(4S)$
$3.04 \pm 0.16 \pm 0.34$	931	[56] ALBRECHT 92P	ARG	$e^+e^- \approx 10$ GeV
$4.0 \pm 0.9 \pm 1.0$	69	ALVAREZ 91B	NA14	Photoproduction
$2.8 \pm 0.14 \pm 0.52$	1050	KINOSHITA 91	CLEO	$e^+e^- \sim 10.7$ GeV
4.2 ± 1.4	41	SUMMERS 84	E691	Photoproduction

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



$\Gamma\left(K^-\rho^+\right)/\Gamma\left(K^-\pi^+\pi^0\right)$ — Γ_{39}/Γ_{38}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.78 ±0.04 OUR AVERAGE					
0.788±0.019±0.048		KOPP	01	CLE2	$e^+e^- \approx$ 10.6 GeV
0.765±0.041±0.054		FRABETTI	94G	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.647±0.039±0.150		ANJOS	93	E691	γ Be 90–260 GeV
0.81 ±0.03 ±0.06		ADLER	87	MRK3	e^+e^- 3.77 GeV
0.31 $^{+0.20}_{-0.14}$	13	SUMMERS	84	E691	Photoproduction
0.85 $^{+0.11}_{-0.15}$ $^{+0.09}_{-0.10}$	31	SCHINDLER	81	MRK2	e^+e^- 3.771 GeV

$\Gamma\left(K^-\rho(1700)^+, \rho(1700)^+ \to \pi^+\pi^0\right)/\Gamma\left(K^-\pi^+\pi^0\right)$ — Γ_{40}/Γ_{38}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.057±0.008±0.009	KOPP	01	CLE2	$e^+e^- \approx$ 10.6 GeV

$\Gamma\big(K^*(892)^-\pi^+ , K^*(892)^- \to K^-\pi^0\big)/\Gamma\big(K^-\pi^+\pi^0\big)$ — Γ_{41}/Γ_{38}

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

VALUE	DOCUMENT ID		TECN	COMMENT
$0.160^{+0.025}_{-0.013}$ OUR AVERAGE				
$0.161\pm0.007^{+0.027}_{-0.011}$	KOPP	01	CLE2	$e^+e^- \approx$ 10.6 GeV
$0.148\pm0.028\pm0.049$	FRABETTI	94G	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.084\pm0.011\pm0.012$	ANJOS	93	E691	γ Be 90–260 GeV
$0.12\ \pm0.02\ \ \pm0.03$	ADLER	87	MRK3	e^+e^- 3.77 GeV

$\Gamma\big(\overline{K}^*(892)^0\pi^0 , \overline{K}^*(892)^0 \to K^-\pi^+\big)/\Gamma\big(K^-\pi^+\pi^0\big)$ — Γ_{42}/Γ_{38}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.135 ± 0.016 OUR AVERAGE				
$0.127\pm0.009\pm0.016$	KOPP	01	CLE2	$e^+e^- \approx$ 10.6 GeV
$0.165\pm0.031\pm0.015$	FRABETTI	94G	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.142\pm0.018\pm0.024$	ANJOS	93	E691	γ Be 90–260 GeV
$0.13\ \pm0.02\ \ \pm0.03$	ADLER	87	MRK3	e^+e^- 3.77 GeV

$\Gamma\big(K_0^*(1430)^-\pi^+ , K_0^*(1430)^- \to K^-\pi^0\big)/\Gamma\big(K^-\pi^+\pi^0\big)$ — Γ_{43}/Γ_{38}

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

VALUE	DOCUMENT ID		TECN	COMMENT
$0.033\pm0.006\pm0.014$	KOPP	01	CLE2	$e^+e^- \approx$ 10.6 GeV

$\Gamma\big(\overline{K}_0^*(1430)^0\pi^0 , \overline{K}_0^*(1430)^0 \to K^-\pi^+\big)/\Gamma\big(K^-\pi^+\pi^0\big)$ — Γ_{44}/Γ_{38}

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

VALUE	DOCUMENT ID		TECN	COMMENT
$0.041\pm0.006^{+0.032}_{-0.009}$	KOPP	01	CLE2	$e^+e^- \approx$ 10.6 GeV

$\Gamma\big(K^*(1680)^-\pi^+ , K^*(1680)^- \to K^-\pi^0\big)/\Gamma\big(K^-\pi^+\pi^0\big)$ — Γ_{45}/Γ_{38}

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

VALUE	DOCUMENT ID		TECN	COMMENT
$0.013\pm0.003\pm0.004$	KOPP	01	CLE2	$e^+e^- \approx$ 10.6 GeV

$\Gamma\big(K^-\pi^+\pi^0$ nonresonant$\big)/\Gamma\big(K^-\pi^+\pi^0\big)$ — Γ_{46}/Γ_{38}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$0.080^{+0.038}_{-0.014}$ OUR AVERAGE					
$0.075\pm0.009^{+0.056}_{-0.011}$		KOPP	01	CLE2	$e^+e^- \approx$ 10.6 GeV
$0.101\pm0.033\pm0.040$		FRABETTI	94G	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.036\pm0.004\pm0.018$		ANJOS	93	E691	γ Be 90–260 GeV
$0.09\ \pm0.02\ \ \pm0.04$		ADLER	87	MRK3	e^+e^- 3.77 GeV
$0.51\ \pm0.22$	21	SUMMERS	84	E691	Photoproduction

$\Gamma(\overline{K}^*(892)^0\pi^0, \overline{K}^*(892)^0 \to \overline{K}^0\pi^0)/\Gamma(\overline{K}^0\pi^0)$ — Γ_{48}/Γ_{25}

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

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.59^{+0.14}_{-0.11}$	PROCARIO	93B	CLE2	Dalitz plot fit, 122 evts

$\Gamma(\overline{K}^0\pi^0\pi^0 \text{ nonresonant})/\Gamma(\overline{K}^0\pi^0)$ — Γ_{49}/Γ_{25}

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

$\Gamma(K^-\pi^+\pi^+\pi^-)/\Gamma_{\text{total}}$ — Γ_{50}/Γ

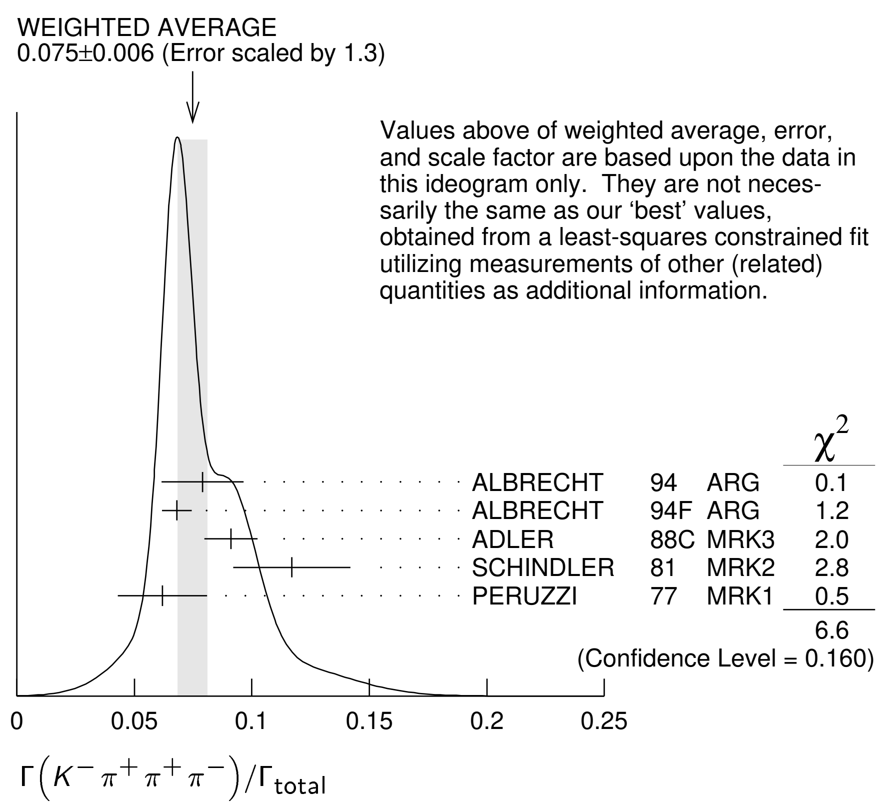
VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.0748±0.0030 OUR FIT					
0.075 ±0.006 OUR AVERAGE Error includes scale factor of 1.3. See the ideogram below.					
0.079 ±0.015 ±0.009		[57] ALBRECHT	94	ARG	$e^+e^- \approx \Upsilon(4S)$
0.0680±0.0027±0.0057	1430	[58] ALBRECHT	94F	ARG	$e^+e^- \approx \Upsilon(4S)$
0.091 ±0.008 ±0.008	992	ADLER	88C	MRK3	e^+e^- 3.77 GeV
0.117 ±0.025	185	[59] SCHINDLER	81	MRK2	e^+e^- 3.771 GeV
0.062 ±0.019	44	[60] PERUZZI	77	MRK1	e^+e^- 3.77 GeV

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

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

[59] SCHINDLER 81 (MARK-2) measures $\sigma(e^+e^- \to \psi(3770)) \times$ 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.

[60] PERUZZI 77 (MARK-1) measures $\sigma(e^+e^- \to \psi(3770)) \times$ 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.



$\Gamma(K^-\pi^+\pi^+\pi^-)/\Gamma(K^-\pi^+)$ Γ_{50}/Γ_{24}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.96±0.08 OUR FIT					
1.97±0.09 OUR AVERAGE					
$1.94\pm0.07^{+0.09}_{-0.11}$		JUN	00	SELX	Σ^- nucleus, 600 GeV
1.7 ±0.2 ±0.2	1745	ANJOS	92C	E691	γ Be 90–260 GeV
1.90±0.25±0.20	337	ALVAREZ	91B	NA14	Photoproduction
2.12±0.16±0.09		BORTOLETTO	88	CLEO	e^+e^- 10.55 GeV
2.0 ±0.9	48	BAILEY	86	ACCM	π^- Be fixed target
2.17±0.28±0.23		ALBRECHT	85F	ARG	e^+e^- 10 GeV
2.0 ±1.0	10	BAILEY	83B	SPEC	π^- Be $\to$ D^0
2.2 ±0.8	214	PICCOLO	77	MRK1	e^+e^- 4.03, 4.41 GeV

$\Gamma(K^-\pi^+\rho^0\,\text{total})/\Gamma(K^-\pi^+\pi^+\pi^-)$ Γ_{51}/Γ_{50}

This includes $K^-a_1(1260)^+$, $\overline{K}^*(892)^0\rho^0$, 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 ±0.03 ±0.05	ANJOS	92C	E691	γ Be 90–260 GeV
0.855±0.032±0.030	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.98 ±0.12 ±0.10	ALVAREZ	91B	NA14	Photoproduction

$\Gamma(K^-\pi^+\rho^0\,\text{3-body})/\Gamma(K^-\pi^+\pi^+\pi^-)$ Γ_{52}/Γ_{50}

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	EVTS	DOCUMENT ID		TECN	COMMENT
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		[61] ALVAREZ	91B	NA14	Photoproduction
$0.85\ {}^{+0.11}_{-0.22}$	180	PICCOLO	77	MRK1	e^+e^- 4.03, 4.41 GeV

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

$\Gamma(\overline{K}^*(892)^0\rho^0)/\Gamma(K^-\pi^+\pi^+\pi^-)$ Γ_{93}/Γ_{50}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.195±0.03±0.03		ANJOS	92C	E691	γ Be 90–260 GeV
• • • 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 $\to$ D^0
$0.15\ {}^{+0.16}_{-0.15}$	20	PICCOLO	77	MRK1	e^+e^- 4.03, 4.41 GeV

$\Gamma(\overline{K}^*(892)^0 \rho^0 \text{ transverse})/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ — Γ_{94}/Γ_{50}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.21 ±0.07 OUR FIT				
0.213±0.024±0.075	COFFMAN	92B	MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(\overline{K}^*(892)^0 \rho^0 \, S\text{-wave})/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ — Γ_{95}/Γ_{50}

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

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

$\Gamma(\overline{K}^*(892)^0 \rho^0 \, S\text{-wave long.})/\Gamma_{\text{total}}$ — Γ_{96}/Γ

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

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

$\Gamma(\overline{K}^*(892)^0 \rho^0 \, P\text{-wave})/\Gamma_{\text{total}}$ — Γ_{97}/Γ

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<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

$\Gamma(\overline{K}^*(892)^0 \rho^0 \, D\text{-wave})/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ — Γ_{98}/Γ_{50}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.255±0.045±0.06	ANJOS	92C	E691	γ Be 90–260 GeV

$\Gamma(K^- \pi^+ f_0(980))/\Gamma_{\text{total}}$ — Γ_{103}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.011	90	ANJOS	92C	E691	γ Be 90–260 GeV

$\Gamma(\overline{K}^*(892)^0 f_0(980))/\Gamma_{\text{total}}$ — Γ_{104}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • 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_{86}/Γ_{50}

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 $(\pi\pi)_{I=1}\,\pi$].

VALUE	DOCUMENT ID		TECN	COMMENT
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_{88}/Γ

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<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_{105}/Γ_{50}

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
0.15 ±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_{106}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.012	90	COFFMAN	92B	MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(K^*(1410)^- \pi^+)/\Gamma_{\text{total}}$ Γ_{108}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.012	90	COFFMAN	92B	MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(\overline{K}^*(892)^0 \pi^+ \pi^- \text{total})/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{89}/Γ_{50}

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

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

$\Gamma(\overline{K}^*(892)^0 \pi^+ \pi^- \text{3-body})/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{90}/Γ_{50}

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

$\Gamma(K^- \pi^+ \pi^+ \pi^- \text{nonresonant})/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{58}/Γ_{50}

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

$\Gamma(\overline{K}^0\pi^+\pi^-\pi^0)/\Gamma_{total}$ — Γ_{59}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.110±0.013 OUR FIT					
0.103±0.022±0.025	140	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.134^{+0.032}_{-0.033}$		[62] BARLAG	92C	ACCM	π^- Cu 230 GeV

[62] BARLAG 92C computes the branching fraction using topological normalization.

$\Gamma(\overline{K}^0\pi^+\pi^-\pi^0)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{59}/Γ_{26}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.88±0.21 OUR FIT					
1.86±0.23 OUR AVERAGE					
1.80±0.20±0.21	190	[63] ALBRECHT	92P	ARG	$e^+e^- \approx$ 10 GeV
2.8 ±0.8 ±0.8	46	ANJOS	92C	E691	γBe 90–260 GeV
1.85±0.26±0.30	158	KINOSHITA	91	CLEO	$e^+e^- \sim$ 10.7 GeV

[63] This value is calculated from numbers in Table 1 of ALBRECHT 92P.

$\Gamma(\overline{K}^0\eta)/\Gamma(K^-\pi^+)$ — Γ_{83}/Γ_{24}

Unseen decay modes of the η are included.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.64	90	ALBRECHT	89D	ARG	e^+e^- 10 GeV

$\Gamma(\overline{K}^0\eta)/\Gamma(\overline{K}^0\pi^0)$ — Γ_{83}/Γ_{25}

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	PROCARIO	93B	CLE2	$\eta \to \gamma\gamma$

$\Gamma(\overline{K}^0\eta)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{83}/Γ_{26}

Unseen decay modes of the η are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.131±0.018 OUR FIT					
0.14 ±0.02 ±0.02	80	PROCARIO	93B	CLE2	$\eta \to \pi^+\pi^-\pi^0$

$\Gamma(\overline{K}^0\omega)/\Gamma(K^-\pi^+)$ — Γ_{84}/Γ_{24}

Unseen decay modes of the ω are included.

VALUE	DOCUMENT ID		TECN	COMMENT
0.67±0.15 OUR FIT				
1.00±0.36±0.20	ALBRECHT	89D	ARG	e^+e^- 10 GeV

$\Gamma(\overline{K}^0\omega)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{84}/Γ_{26}

Unseen decay modes of the ω are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.33±0.09 OUR AVERAGE Error includes scale factor of 1.1.					
0.29±0.08±0.05	16	[64] ALBRECHT	92P	ARG	$e^+e^- \approx$ 10 GeV
0.54±0.14±0.16	40	KINOSHITA	91	CLEO	$e^+e^- \sim$ 10.7 GeV

[64] This value is calculated from numbers in Table 1 of ALBRECHT 92P.

$\Gamma(\overline{K}^0\omega)/\Gamma(\overline{K}^0\pi^+\pi^-\pi^0)$ Γ_{84}/Γ_{59}

Unseen decay modes of the ω are included.

VALUE	DOCUMENT ID		TECN	COMMENT
0.23 ±0.05 OUR FIT				
0.220±0.048±0.0116	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(\overline{K}^0\eta'(958))/\Gamma(\overline{K}^0\pi^+\pi^-)$ Γ_{85}/Γ_{26}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.32±0.04 OUR AVERAGE					
0.31±0.02±0.04	594	PROCARIO	93B	CLE2	$\eta' \to \eta\pi^+\pi^-$, $\rho^0\gamma$
0.37±0.13±0.06	18	[65] ALBRECHT	92P	ARG	$e^+e^- \approx$ 10 GeV

[65] This value is calculated from numbers in Table 1 of ALBRECHT 92P.

$\Gamma(K^*(892)^-\rho^+)/\Gamma(\overline{K}^0\pi^+\pi^-\pi^0)$ Γ_{99}/Γ_{59}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.606±0.188±0.126	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^*(892)^-\rho^+ \text{ longitudinal})/\Gamma(\overline{K}^0\pi^+\pi^-\pi^0)$ Γ_{100}/Γ_{59}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.290±0.111	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^*(892)^-\rho^+ \text{ transverse})/\Gamma(\overline{K}^0\pi^+\pi^-\pi^0)$ Γ_{101}/Γ_{59}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.317±0.180	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^*(892)^-\rho^+ \text{ P-wave})/\Gamma_{\text{total}}$ Γ_{102}/Γ

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.015	90	[66] COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

[66] Obtained using other $\overline{K}^*(892)\rho$ P-wave limits and isospin relations.

$\Gamma(\overline{K}^*(892)^0\rho^0 \text{ transverse})/\Gamma(\overline{K}^0\pi^+\pi^-\pi^0)$ Γ_{94}/Γ_{59}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.14 ±0.05 OUR FIT				
0.126±0.111	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(\overline{K}^0 a_1(1260)^0)/\Gamma_{\text{total}}$ Γ_{87}/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 $(\pi\pi)_{I=1}\,\pi$].

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

$\Gamma(K_1(1270)^- \pi^+)/\Gamma(\overline{K}^0 \pi^+ \pi^- \pi^0)$ — Γ_{105}/Γ_{59}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.105±0.028 OUR FIT				
0.10 ±0.03	COFFMAN	92B	MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(\overline{K}_1(1400)^0 \pi^0)/\Gamma_{total}$ — Γ_{107}/Γ

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

$\Gamma(\overline{K}^*(892)^0 \pi^+ \pi^-$ 3-body$)/\Gamma(\overline{K}^0 \pi^+ \pi^- \pi^0)$ — Γ_{90}/Γ_{59}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.129±0.034 OUR FIT Error includes scale factor of 1.1.				
0.191±0.105	COFFMAN	92B	MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(\overline{K}^0 \pi^+ \pi^- \pi^0$ nonresonant$)/\Gamma(\overline{K}^0 \pi^+ \pi^- \pi^0)$ — Γ_{66}/Γ_{59}

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

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.177±0.029		[67] BARLAG	92C	ACCM	π^- Cu 230 GeV
0.149±0.037±0.030	24	[68] ADLER	88C	MRK3	$e^+ e^-$ 3.77 GeV
$0.209^{+0.074}_{-0.043}\pm0.012$	9	[67] AGUILAR-...	87F	HYBR	πp, $p p$ 360, 400 GeV

[67] 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.

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

$\Gamma(K^- \pi^+ \pi^+ \pi^- \pi^0)/\Gamma(K^- \pi^+)$ — Γ_{68}/Γ_{24}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.05±0.10 OUR FIT					
0.98±0.11±0.11	225	[69] ALBRECHT	92P	ARG	$e^+ e^- \approx$ 10 GeV

[69] This value is calculated from numbers in Table 1 of ALBRECHT 92P.

$\Gamma(K^- \pi^+ \pi^+ \pi^- \pi^0)/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ — Γ_{68}/Γ_{50}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.54±0.05 OUR FIT					
0.56±0.07 OUR AVERAGE					
$0.55\pm0.07^{+0.12}_{-0.09}$	167	KINOSHITA	91	CLEO	$e^+ e^- \sim$ 10.7 GeV
0.57±0.06±0.05	180	ANJOS	90D	E691	Photoproduction

$\Gamma(\overline{K}^*(892)^0 \pi^+ \pi^- \pi^0)/\Gamma(K^- \pi^+ \pi^+ \pi^- \pi^0)$ — Γ_{109}/Γ_{68}

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

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

$\Gamma(\overline{K}^*(892)^0\eta)/\Gamma(K^-\pi^+)$ — Γ_{110}/Γ_{24}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.58\pm0.19^{+0.24}_{-0.28}$	46	KINOSHITA	91	CLEO	$e^+e^- \sim 10.7$ GeV

$\Gamma(\overline{K}^*(892)^0\eta)/\Gamma(K^-\pi^+\pi^0)$ — Γ_{110}/Γ_{38}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.13\pm0.02\pm0.03$	214	PROCARIO	93B	CLE2	$\overline{K}^{*0}\eta \to K^-\pi^+/\gamma\gamma$

$\Gamma(K^0_S\eta\pi^0)/\Gamma(\overline{K}^0\pi^0)$ — Γ_{73}/Γ_{25}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$0.230\pm0.035\pm0.030$	155 ± 22	RUBIN	04	CLEO	$e^+e^- \approx 10$ GeV

$\Gamma(K^0_S a_0(980), a_0(980)\to\eta\pi^0)/\Gamma(K^0_S\eta\pi^0)$ — Γ_{74}/Γ_{73}

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

VALUE	DOCUMENT ID		TECN	COMMENT
$1.19\pm0.09\pm0.26$	[70] RUBIN	04	CLEO	$e^+e^- \approx 10$ GeV

[70] In addition to $K^0_S a_0(980)$ and $\overline{K}^*(892)^0\eta$ modes, RUBIN 04 finds a fit fraction of $0.246\pm0.092\pm0.091$ for other, undetermined modes.

$\Gamma(\overline{K}^*(892)^0\eta, \overline{K}^*(892)^0\to K^0_S\pi^0)/\Gamma(K^0_S\eta\pi^0)$ — Γ_{75}/Γ_{73}

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

VALUE	DOCUMENT ID		TECN	COMMENT
$0.293\pm0.062\pm0.035$	[71] RUBIN	04	CLEO	$e^+e^- \approx 10$ GeV

[71] See the note on RUBIN 04 in the preceding data block.

$\Gamma(K^-\pi^+\omega)/\Gamma(K^-\pi^+)$ — Γ_{111}/Γ_{24}

Unseen decay modes of the ω are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$0.78\pm0.12\pm0.10$	99	[72] ALBRECHT	92P	ARG	$e^+e^- \approx 10$ GeV

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

$\Gamma(\overline{K}^*(892)^0\omega)/\Gamma(K^-\pi^+)$ — Γ_{112}/Γ_{24}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$0.28\pm0.11\pm0.04$	17	[73] ALBRECHT	92P	ARG	$e^+e^- \approx 10$ GeV

[73] This value is calculated from numbers in Table 1 of ALBRECHT 92P.

$\Gamma(\overline{K}^*(892)^0\omega)/\Gamma(K^-\pi^+\pi^+\pi^-\pi^0)$ — Γ_{112}/Γ_{68}

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.44	90	[74] ANJOS	90D	E691	Photoproduction

[74] Recovered from the published limit, $\Gamma(\overline{K}^*(892)^0\omega)/\Gamma_{total}$, in order to make our normalization consistent.

$\Gamma(K^-\pi^+\eta'(958))/\Gamma(K^-\pi^+\pi^+\pi^-)$ — Γ_{113}/Γ_{50}

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	$\eta' \to \eta\pi^+\pi^-$, $\rho^0\gamma$

$\Gamma(\overline{K}^*(892)^0\eta'(958))/\Gamma(K^-\pi^+\eta'(958))$ — $\Gamma_{114}/\Gamma_{113}$

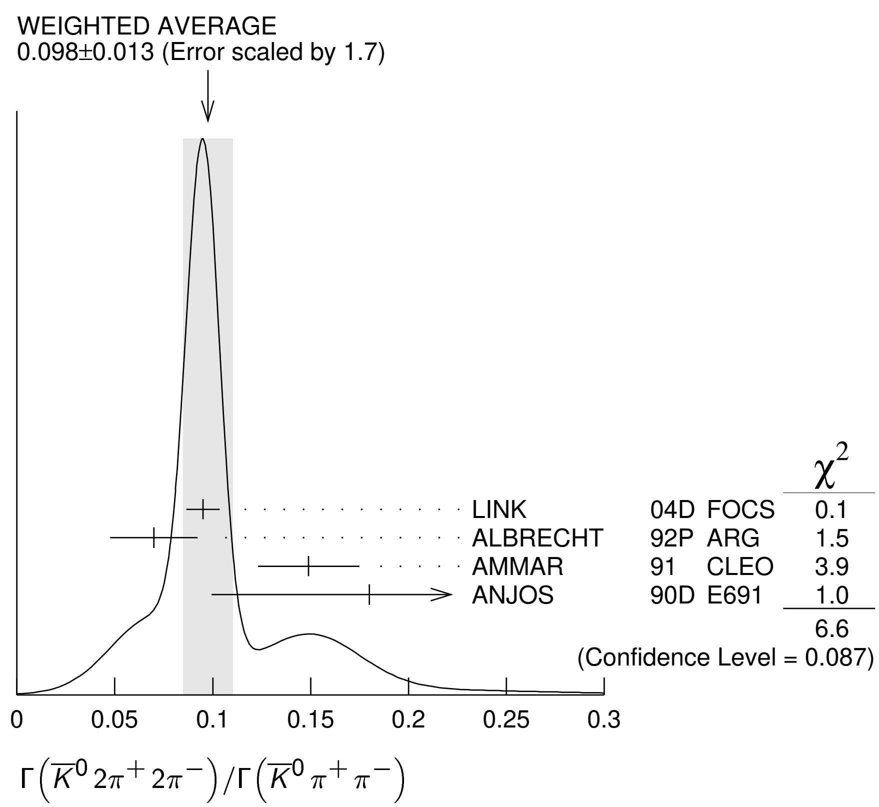
Unseen decay modes of the $\overline{K}^*(892)^0$ are included.

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

$\Gamma(\overline{K}^0 2\pi^+ 2\pi^-)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{76}/Γ_{26}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.098±0.013 OUR AVERAGE	Error includes scale factor of 1.7. See the ideogram below.				
0.095±0.005±0.007	1283 ± 57	LINK	04D	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
0.07 ±0.02 ±0.01	11	[75] 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

[75] This value is calculated from numbers in Table 1 of ALBRECHT 92P.



$\Gamma(\overline{K}^0\rho^0\pi^+\pi^-$, no $K^*(892)^-)/\Gamma(\overline{K}^0 2\pi^+ 2\pi^-)$ — Γ_{77}/Γ_{76}

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

$\Gamma\big(K^*(892)^-\pi^+\pi^+\pi^-,\ K^*(892)^-\to\overline{K}^0\pi^-,\ \text{no}\ \rho^0\big)/\Gamma\big(\overline{K}^0 2\pi^+ 2\pi^-\big)$ — Γ_{78}/Γ_{76}

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

$\Gamma\big(K^*(892)^-\rho^0\pi^+,\ K^*(892)^-\to\overline{K}^0\pi^-\big)/\Gamma\big(\overline{K}^0 2\pi^+ 2\pi^-\big)$ — Γ_{79}/Γ_{76}

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

$\Gamma\big(\overline{K}^0 2\pi^+ 2\pi^-\ \text{nonresonant}\big)/\Gamma\big(\overline{K}^0 2\pi^+ 2\pi^-\big)$ — Γ_{80}/Γ_{76}

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

$\Gamma\big(\overline{K}^0\pi^+\pi^-\pi^0\pi^0(\pi^0)\big)/\Gamma_{\text{total}}$ — Γ_{81}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.106^{+0.073}_{-0.029}\pm0.006$	4	[76] AGUILAR-...	87F	HYBR	πp, $p p$ 360, 400 GeV

[76] AGUILAR-BENITEZ 87F computes the branching fraction using topological normalization, and does not distinguish the presence of a third π^0.

$\Gamma\big(K^- 3\pi^+ 2\pi^-\big)/\Gamma\big(K^-\pi^+\pi^+\pi^-\big)$ — Γ_{82}/Γ_{50}

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

Hadronic modes with three K's

$\Gamma\big(\overline{K}^0 K^+ K^-\big)/\Gamma\big(\overline{K}^0\pi^+\pi^-\big)$ — $\Gamma_{115}/\Gamma_{26} = (\Gamma_{117}+\frac{1}{2}\Gamma_{126})/\Gamma_{26}$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.172±0.014 OUR FIT					
0.178±0.019 OUR AVERAGE					
0.20 ±0.05 ±0.04	47	FRABETTI	92B	E687	γ Be, $\overline{E}_\gamma$= 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

$\Gamma\big(\overline{K}^0\phi\big)/\Gamma\big(\overline{K}^0\pi^+\pi^-\big)$ — Γ_{126}/Γ_{26}

Unseen decay modes of the ϕ are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.158±0.016 OUR FIT					
0.156±0.017 OUR AVERAGE					
0.13 ±0.06 ±0.02	13	FRABETTI	92B	E687	γ Be, $\overline{E}_\gamma$= 221 GeV
0.163±0.023	63	AMMAR	91	CLEO	$e^+e^- \approx$ 10.5 GeV
0.155±0.033	56	ALBRECHT	87E	ARG	e^+e^- 10 GeV
0.14 ±0.05	29	BEBEK	86	CLEO	e^+e^- near $\Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.186±0.052	26	ALBRECHT	85B	ARG	See ALBRECHT 87E

$\Gamma(\overline{K}^0 K^+ K^- \text{ non-}\phi)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ — Γ_{117}/Γ_{26}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.093±0.014 OUR FIT					
0.088±0.019 OUR AVERAGE					
0.11 ±0.04 ±0.03	20	FRABETTI	92B	E687	γ Be, $\overline{E}_\gamma$= 221 GeV
0.084±0.020		ALBRECHT	87E	ARG	$e^+ e^-$ 10 GeV

$\Gamma(K^0_S K^0_S K^0_S)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ — Γ_{118}/Γ_{26}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0161±0.0021 OUR AVERAGE					
0.0179±0.0027±0.0026	170 ± 26	LINK	05A	FOCS	γBe, $\overline{E}_\gamma \approx$ 180 GeV
0.0139±0.0019±0.0024	61	ASNER	96B	CLE2	$e^+ e^- \approx \Upsilon(4S)$
0.035 ±0.012 ±0.006	10	FRABETTI	94J	E687	γBe, $\overline{E}_\gamma$=220 GeV
0.016 ±0.005	22	AMMAR	91	CLEO	$e^+ e^- \approx$ 10.5 GeV
0.017 ±0.007 ±0.005	5	ALBRECHT	90C	ARG	$e^+ e^- \approx$ 10 GeV

$\Gamma(K^+ K^- K^- \pi^+)/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ — Γ_{119}/Γ_{50}

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, $\overline{E}_\gamma \approx$ 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, $\overline{E}_\gamma \approx$ 200 GeV

$\Gamma(\phi \overline{K}^*(892)^0)/\Gamma(K^+ K^- K^- \pi^+)$ — $\Gamma_{129}/\Gamma_{119}$

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

VALUE	DOCUMENT ID		TECN	COMMENT
1.46±0.18±0.03	LINK	03G	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV

$\Gamma(K^- \pi^+ \phi)/\Gamma(K^+ K^- K^- \pi^+)$ — $\Gamma_{127}/\Gamma_{119}$

Unseen decay modes of the ϕ are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.37±0.12±0.08		LINK	03G	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.4 ±0.6	13	[77] AITALA	01D	E791	π^- nucleus, 500 GeV

[77] This AITALA 01D result is from a projection fit, not a full amplitude analysis.

$\Gamma(K^+ K^- \overline{K}^*(892)^0)/\Gamma(K^+ K^- K^- \pi^+)$ — $\Gamma_{128}/\Gamma_{119}$

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.30±0.11±0.03	LINK	03G	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV

$\Gamma(K^+ K^- K^- \pi^+ \text{ nonresonant})/\Gamma(K^+ K^- K^- \pi^+)$ — $\Gamma_{123}/\Gamma_{119}$

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

$\Gamma(K^+ K^- \overline{K}^0 \pi^0)/\Gamma_{total}$ Γ_{124}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.0072^{+0.0048}_{-0.0035}$	[78] BARLAG	92C	ACCM	π^- Cu 230 GeV

[78] BARLAG 92C computes the branching fraction using topological normalization.

$\Gamma(K^0_S K^0_S K^\pm \pi^\mp)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ Γ_{125}/Γ_{26}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0106±0.0019±0.0010	57 ± 10	LINK	05A	FOCS	γ Be, $\overline{E}_\gamma \approx$ 180 GeV

Pionic modes

$\Gamma(\pi^+ \pi^-)/\Gamma(K^- \pi^+)$ Γ_{130}/Γ_{24}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0362±0.0010 OUR AVERAGE					
0.0353±0.0012±0.0006	3453	LINK	03	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV
0.0351±0.0016±0.0017	710	CSORNA	02	CLE2	$e^+ e^- \approx \Upsilon(4S)$
0.040 ±0.002 ±0.003	2043	AITALA	98C	E791	π^- nucleus, 500 GeV
0.043 ±0.007 ±0.003	177	FRABETTI	94C	E687	γBe $\overline{E}_\gamma$= 220 GeV
0.0348±0.0030±0.0023	227	SELEN	93	CLE2	$e^+ e^- \approx \Upsilon(4S)$
0.055 ±0.008 ±0.005	120	ANJOS	91D	E691	Photoproduction
0.050 ±0.007 ±0.005	110	ALEXANDER	90	CLEO	$e^+ e^-$ 10.5–11 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.048 ±0.013 ±0.008	51	ADAMOVICH	92	OMEG	π^- 340 GeV
0.040 ±0.007 ±0.006	57	ALBRECHT	90C	ARG	$e^+ e^- \approx$ 10 GeV
0.033 ±0.010 ±0.006	39	BALTRUSAIT...	85E	MRK3	$e^+ e^-$ 3.77 GeV
0.033 ±0.015		ABRAMS	79D	MRK2	$e^+ e^-$ 3.77 GeV

$\Gamma(\pi^0 \pi^0)/\Gamma(K^- \pi^+)$ Γ_{131}/Γ_{24}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.022±0.004±0.004	40	SELEN	93	CLE2	$e^+ e^- \approx \Upsilon(4S)$

$\Gamma(\pi^+ \pi^- \pi^0)/\Gamma_{total}$ Γ_{132}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.011 ±0.004 ±0.002	10	[79] BALTRUSAIT...	85E	MRK3	$e^+ e^-$ 3.77 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.0390^{+0.0100}_{-0.0095}$		[80] BARLAG	92C	ACCM	π^- Cu 230 GeV

[79] All the BALTRUSAITIS 85E events are consistent with $\rho^0 \pi^0$.

[80] BARLAG 92C computes the branching fraction using topological normalization. Possible contamination by extra π^0's may partly explain the unexpectedly large value.

$\Gamma(2\pi^+2\pi^-)/\Gamma(K^-\pi^+\pi^+\pi^-)$ Γ_{133}/Γ_{50}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.098±0.006 OUR AVERAGE					
0.095±0.007±0.002	814	FRABETTI	95C	E687	γBe, $\overline{E}_\gamma \approx$ 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	[81] AMMAR	91	CLEO	$e^+e^- \approx$ 10.5 GeV
0.096±0.018±0.007	66	ANJOS	91	E691	γBe 80–240 GeV

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

$\Gamma(2\pi^+2\pi^-\pi^0)/\Gamma_{total}$ Γ_{134}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.0192^{+0.0041}_{-0.0038}$	[82] BARLAG	92C	ACCM	π^- Cu 230 GeV

[82] BARLAG 92C computes the branching fraction using topological normalization.

$\Gamma(3\pi^+3\pi^-)/\Gamma_{total}$ Γ_{135}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.0004±0.0003	[83] BARLAG	92C	ACCM	π^- Cu 230 GeV

[83] BARLAG 92C computes the branching fraction using topological normalization.

$\Gamma(3\pi^+3\pi^-)/\Gamma(K^-\pi^+\pi^+\pi^-)$ Γ_{135}/Γ_{50}

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

$\Gamma(3\pi^+3\pi^-)/\Gamma(K^-3\pi^+2\pi^-)$ Γ_{135}/Γ_{82}

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.93±047±0.48	[84] LINK	04B	FOCS	γA, $\overline{E}_\gamma \approx$ 180 GeV

[84] This LINK 04B result is not independent of other results in these Listings.

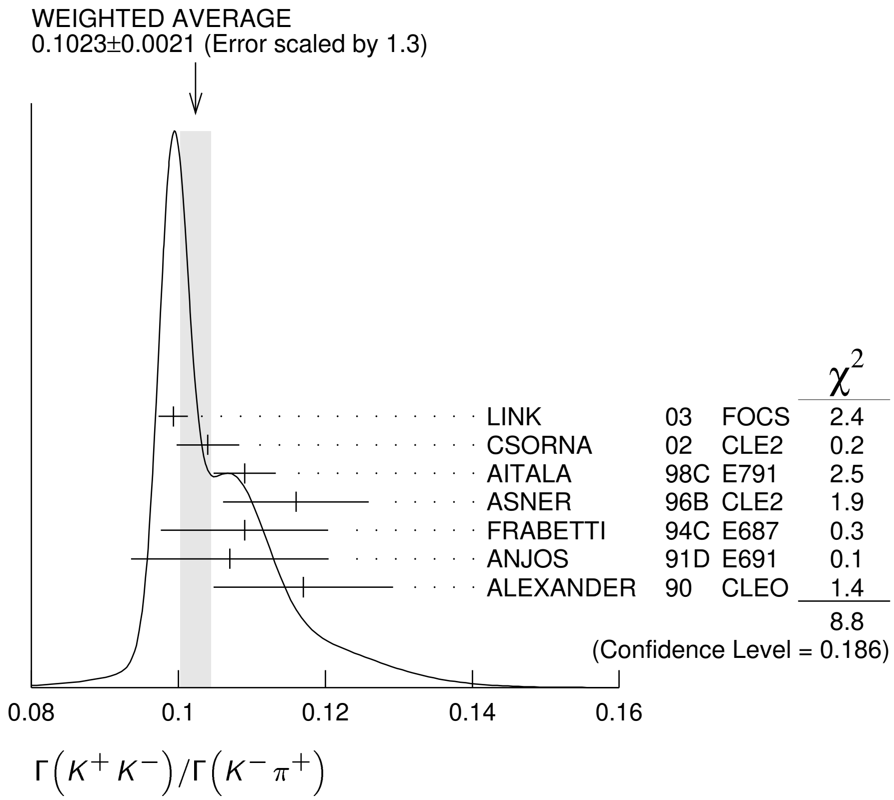
—— Hadronic modes with a $K\overline{K}$ pair ——

$\Gamma(K^+K^-)/\Gamma(K^-\pi^+)$ Γ_{136}/Γ_{24}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.1023±0.0021 OUR AVERAGE Error includes scale factor of 1.3. See the ideogram below.					
0.0993±0.0014±0.0014	11k	LINK	03	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 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	γBe $\overline{E}_\gamma$= 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	π^- 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



$\Gamma(K^+K^-)/\Gamma(\pi^+\pi^-)$ — $\Gamma_{136}/\Gamma_{130}$

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. • • •					
2.81±0.10±0.06		LINK	03	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV
2.96±0.16±0.15	710	CSORNA	02	CLE2	$e^+e^- \approx \Upsilon(4S)$
2.75±0.15±0.16		AITALA	98C	E791	π^- nucleus, 500 GeV
2.53±0.46±0.19		FRABETTI	94C	E687	γBe $\overline{E}_\gamma$= 220 GeV
2.23±0.81±0.46		ADAMOVICH	92	OMEG	π^- 340 GeV
1.95±0.34±0.22		ANJOS	91D	E691	Photoproduction
2.5 ±0.7		ALBRECHT	90C	ARG	$e^+e^- \approx$ 10 GeV
2.35±0.37±0.28		ALEXANDER	90	CLEO	e^+e^- 10.5–11 GeV

$\Gamma(K^0\overline{K}^0)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{137}/Γ_{26}

This is the same as $\Gamma(K^0_S K^0_S)$ / $\Gamma(K^0_S\pi^+\pi^-)$ because $D^0 \to K^0_S K^0_L$ is forbidden by CP conservation.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0126±0.0022 OUR AVERAGE					
$0.0144\pm0.0032\pm0.0016$	79 ± 17	LINK	05A	FOCS	γ Be, $\overline{E}_\gamma\approx$ 180 GeV
$0.0101\pm0.0022\pm0.0016$	26	ASNER	96B	CLE2	$e^+e^-\approx\ \Upsilon(4S)$
$0.039\ \pm0.013\ \pm0.013$	20	FRABETTI	94J	E687	γ Be $\overline{E}_\gamma$=220 GeV
$0.021\ ^{+0.011}_{-0.008}\ \pm0.002$	5	ALEXANDER	90	CLEO	e^+e^- 10.5–11 GeV

$\Gamma(K^0\overline{K}^0)/\Gamma(K^+K^-)$ — $\Gamma_{137}/\Gamma_{136}$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.24 ± 0.16	4	[85] CUMALAT	88	SPEC	nN 0–800 GeV

[85] Includes a correction communicated to us by the authors of CUMALAT 88.

$\Gamma(K^0K^-\pi^+)/\Gamma(K^-\pi^+)$ — Γ_{138}/Γ_{24}

VALUE	DOCUMENT ID		TECN	COMMENT
0.179±0.027 OUR FIT Error includes scale factor of 1.1.				
0.16 ±0.06	[86] ANJOS	91	E691	γ Be 80–240 GeV

[86] The factor 100 at the top of column 2 of Table I of ANJOS 91 should be omitted.

$\Gamma(K^0K^-\pi^+)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{138}/Γ_{26}

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
$0.16\ \pm0.03\ \pm0.02$	39	ALBRECHT	90C	ARG	$e^+e^-\approx$ 10 GeV

$\Gamma(\overline{K}^*(892)^0K^0)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{159}/Γ_{26}

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

$\Gamma(K^*(892)^+K^-)/\Gamma(K^-\pi^+)$ — Γ_{160}/Γ_{24}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.098±0.021 OUR FIT				
$\mathbf{0.16\ ^{+0.08}_{-0.06}}$	[87] ANJOS	91	E691	γ Be 80–240 GeV

[87] The factor 100 at the top of column 2 of Table I of ANJOS 91 should be omitted.

$\Gamma(K^*(892)^+ K^-)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ Γ_{160}/Γ_{26}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.064±0.014 OUR FIT					
0.058±0.014 OUR AVERAGE					
0.064±0.018	23	AMMAR	91	CLEO	$e^+ e^- \approx$ 10.5 GeV
0.05 ±0.02 ±0.01	15	ALBRECHT	90C	ARG	$e^+ e^- \approx$ 10 GeV

$\Gamma(K^0 K^- \pi^+ \text{nonresonant})/\Gamma(K^- \pi^+)$ Γ_{141}/Γ_{24}

VALUE	DOCUMENT ID		TECN	COMMENT
0.06±0.06	[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.

$\Gamma(\overline{K}^0 K^+ \pi^-)/\Gamma(K^- \pi^+)$ Γ_{142}/Γ_{24}

VALUE	DOCUMENT ID		TECN	COMMENT
0.136±0.026 OUR FIT				
0.10 ±0.05	[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.

$\Gamma(\overline{K}^0 K^+ \pi^-)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ Γ_{142}/Γ_{26}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.089±0.017 OUR FIT					
0.098±0.020	55	AMMAR	91	CLEO	$e^+ e^- \approx$ 10.5 GeV

$\Gamma(K^*(892)^0 \overline{K}^0)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ Γ_{161}/Γ_{26}

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

$\Gamma(K^*(892)^- K^+)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ Γ_{162}/Γ_{26}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.034±0.019	12	AMMAR	91	CLEO	$e^+ e^- \approx$ 10.5 GeV

$\Gamma(\overline{K}^0 K^+ \pi^- \text{nonresonant})/\Gamma(K^- \pi^+)$ Γ_{145}/Γ_{24}

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.10^{+0.06}_{-0.05}}$	[90] ANJOS	91	E691	γ Be 80–240 GeV

[90] The factor 100 at the top of column 2 of Table I of ANJOS 91 should be omitted.

$\Gamma(K^+ K^- \pi^0)/\Gamma(K^- \pi^+ \pi^0)$ Γ_{146}/Γ_{38}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0095±0.0026	151	ASNER	96B	CLE2	$e^+ e^- \approx \Upsilon(4S)$

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

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

$\Gamma(\phi\pi^0)/\Gamma_{total}$ — Γ_{163}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0014	90	ALBRECHT	94I	ARG	$e^+e^- \approx 10$ GeV

$\Gamma(\phi\pi^0)/\Gamma(K^+K^-)$ — $\Gamma_{163}/\Gamma_{136}$

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

$\Gamma(\phi\eta)/\Gamma_{total}$ — Γ_{164}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0028	90	ALBRECHT	94I	ARG	$e^+e^- \approx 10$ GeV

$\Gamma(\phi\eta)/\Gamma(K^+K^-)$ — $\Gamma_{164}/\Gamma_{136}$

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

$\Gamma(\phi\omega)/\Gamma_{total}$ — Γ_{165}/Γ

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

$\Gamma(K^+K^-\pi^+\pi^-)/\Gamma(K^-\pi^+\pi^+\pi^-)$ — Γ_{148}/Γ_{50}

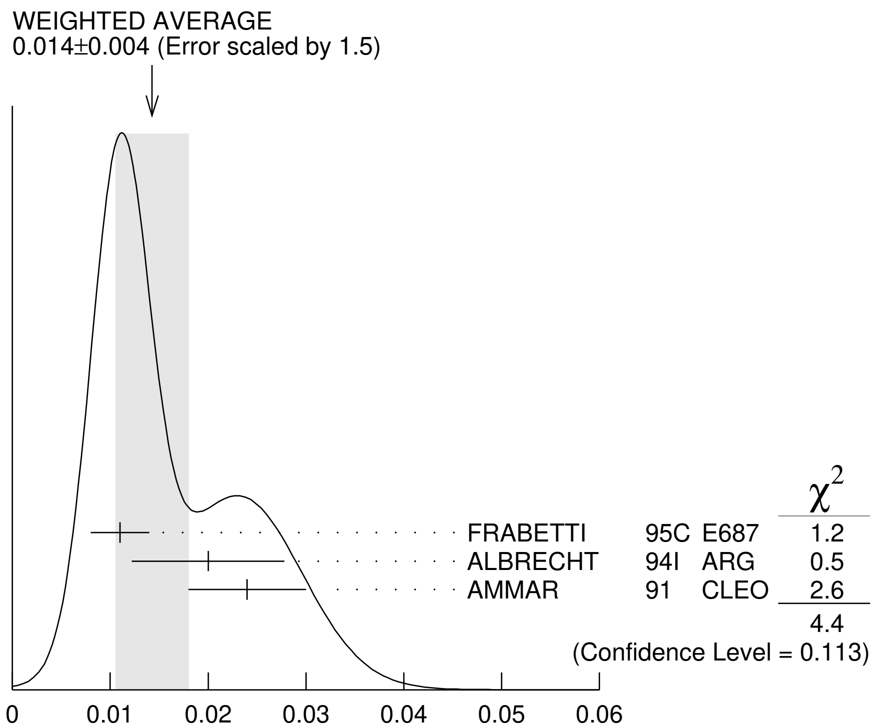
VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0334±0.0028 OUR AVERAGE					
0.0313±0.0037±0.0036	136	AITALA	98D	E791	π^- nucleus, 500 GeV
0.035 ±0.004 ±0.002	244	FRABETTI	95C	E687	γ Be, $\overline{E}_\gamma \approx 200$ GeV
0.041 ±0.007 ±0.005	114	ALBRECHT	94I	ARG	$e^+e^- \approx 10$ GeV
0.0314±0.010	89	AMMAR	91	CLEO	$e^+e^- \approx 10.5$ GeV
$0.028\ ^{+0.008}_{-0.007}$		ANJOS	91	E691	γ Be 80–240 GeV

$\Gamma(\phi\pi^+\pi^-)/\Gamma(K^-\pi^+\pi^+\pi^-)$ — Γ_{166}/Γ_{50}

Unseen decay modes of the ϕ are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.014 ±0.004 OUR AVERAGE Error includes scale factor of 1.5. See the ideogram below.					
0.011 ±0.003		FRABETTI	95C	E687	γ Be, $\overline{E}_\gamma \approx 200$ GeV
0.020 ±0.006 ±0.005	28	ALBRECHT	94I	ARG	$e^+e^- \approx 10$ GeV
0.024 ±0.006	34	[91] AMMAR	91	CLEO	$e^+e^- \approx 10.5$ GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.0076^{+0.0066}_{-0.0049}$	3	ANJOS	91	E691	γ Be 80–240 GeV

[91] AMMAR 91 measures $\phi\rho^0$, but notes that $\phi\rho^0$ dominates $\phi\pi^+\pi^-$. We put the measurement here to keep from having more $\phi\rho^0$ than $\phi\pi^+\pi^-$.

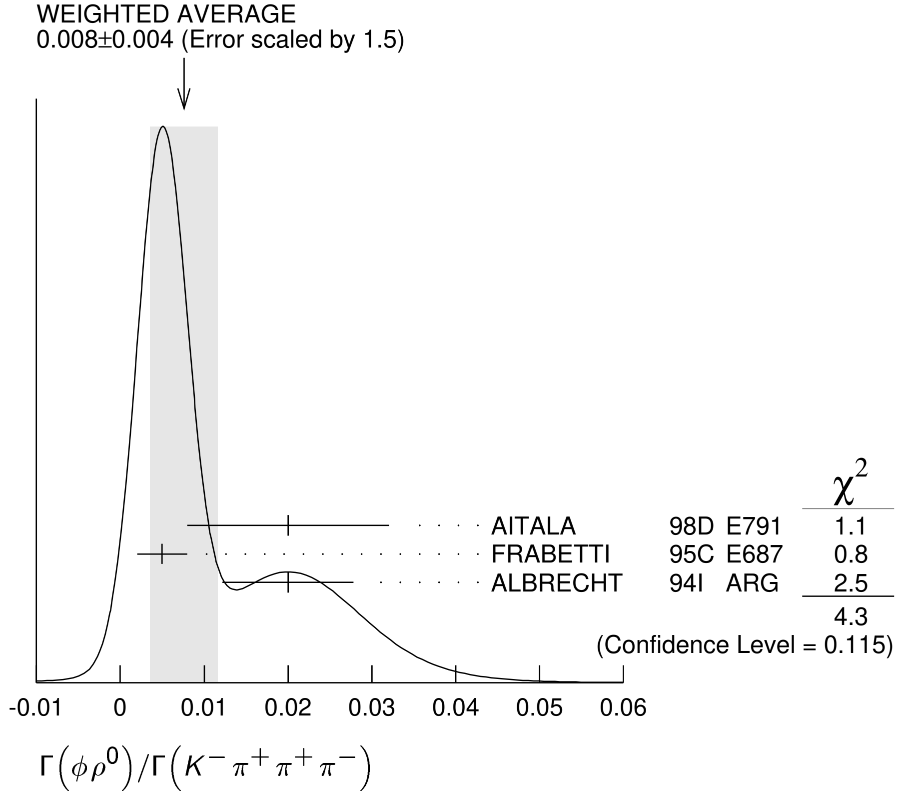


$\Gamma\left(\phi\pi^+\pi^-\right)/\Gamma\left(K^-\pi^+\pi^+\pi^-\right)$

$\Gamma\left(\phi\rho^0\right)/\Gamma\left(K^-\pi^+\pi^+\pi^-\right)$ Γ_{167}/Γ_{50}

Unseen decay modes of the ϕ are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.008±0.004 OUR AVERAGE		Error includes scale factor of 1.5. See the ideogram below.			
0.02 ±0.009±0.008		AITALA	98D	E791	π^- nucleus, 500 GeV
0.005±0.003		FRABETTI	95C	E687	γ Be, $\overline{E}_\gamma \approx$ 200 GeV
0.020±0.006±0.005	28	ALBRECHT	94I	ARG	$e^+e^- \approx$ 10 GeV



$\Gamma(\phi\pi^+\pi^-$ 3-body$)/\Gamma(K^-\pi^+\pi^+\pi^-)$ Γ_{168}/Γ_{50}

Unseen decay modes of the ϕ are included.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
0.009±0.004±0.005		AITALA	98D	E791	π^- nucleus, 500 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.006	90	FRABETTI	95C	E687	γ Be, $\overline{E}_\gamma \approx$ 200 GeV

$\Gamma(K^+K^-\rho^0$ 3-body$)/\Gamma(K^-\pi^+\pi^+\pi^-)$ Γ_{151}/Γ_{50}

VALUE	DOCUMENT ID		TECN	COMMENT
0.012 ±0.003	FRABETTI	95C	E687	γ Be, $\overline{E}_\gamma \approx$ 200 GeV

$\Gamma(K^*(892)^0K^-\pi^+ +$ c.c.$)/\Gamma(K^-\pi^+\pi^+\pi^-)$ Γ_{169}/Γ_{50}

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.01	90	[92] AITALA	98D	E791	π^- nucleus, 500 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.017	90	[92] FRABETTI	95C	E687	γ Be, $\overline{E}_\gamma \approx$ 200 GeV
$0.010^{+0.016}_{-0.010}$		ANJOS	91	E691	γ Be 80–240 GeV

[92] These upper limits are in conflict with values in the next two data blocks.

$\Gamma\big(K^*(892)^0 K^- \pi^+\big)/\Gamma\big(K^- \pi^+ \pi^+ \pi^-\big)$ — Γ_{170}/Γ_{50}

The $K^{*0} K^- \pi^+$ and $\overline{K}^{*0} K^+ \pi^-$ modes are distinguished by the charge of the pion in $D^*(2010)^\pm \to D^0 \pi^\pm$ decays. Unseen decay modes of the $K^*(892)^0$ are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.043 \pm 0.014 \pm 0.009$	55	[93] ALBRECHT	94I	ARG	$e^+ e^- \approx 10$ GeV

[93] This ALBRECHT 94I value is in conflict with upper limits given above.

$\Gamma\big(\overline{K}^*(892)^0 K^+ \pi^-\big)/\Gamma\big(K^- \pi^+ \pi^+ \pi^-\big)$ — Γ_{171}/Γ_{50}

The $K^{*0} K^- \pi^+$ and $\overline{K}^{*0} K^+ \pi^-$ modes are distinguished by the charge of the pion in $D^*(2010)^\pm \to D^0 \pi^\pm$ decays. Unseen decay modes of the $\overline{K}^*(892)^0$ are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.023 \pm 0.013 \pm 0.009$	30	[94] ALBRECHT	94I	ARG	$e^+ e^- \approx 10$ GeV

[94] This ALBRECHT 94I value is in conflict with upper limits given above.

$\Gamma\big(K^*(892)^0 \overline{K}^*(892)^0\big)/\Gamma\big(K^- \pi^+ \pi^+ \pi^-\big)$ — Γ_{172}/Γ_{50}

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

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
0.018±0.007 OUR AVERAGE			Error includes scale factor of 1.2.			
0.016 ± 0.006			FRABETTI	95C	E687	γ Be, $\overline{E}_\gamma \approx 200$ GeV
$0.036^{+0.020}_{-0.016}$		11	ANJOS	91	E691	γ Be 80–240 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.02	90		AITALA	98D	E791	π^- nucleus, 500 GeV
<0.033	90		[95] AMMAR	91	CLEO	$e^+ e^- \approx 10.5$ GeV

[95] A corrected value (G. Moneti, private communication).

$\Gamma\big(K^+ K^- \pi^+ \pi^- \text{ non-}\phi\big)/\Gamma_{\text{total}}$ — Γ_{154}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.0017 ± 0.0005	[96] BARLAG	92C	ACCM	π^- Cu 230 GeV

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

$\Gamma\big(K^+ K^- \pi^+ \pi^- \text{ nonresonant}\big)/\Gamma\big(K^- \pi^+ \pi^+ \pi^-\big)$ — Γ_{155}/Γ_{50}

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.011	90	FRABETTI	95C	E687	γ Be, $\overline{E}_\gamma \approx 200$ GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.001^{+0.011}_{-0.001}$		ANJOS	91	E691	γ Be 80–240 GeV

$\Gamma\big(K^0_S K^0_S \pi^+ \pi^-\big)/\Gamma\big(\overline{K}^0 \pi^+ \pi^-\big)$ — Γ_{156}/Γ_{26}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.022 ±0.004 OUR AVERAGE					
$0.0208 \pm 0.0035 \pm 0.0021$	113 ± 21	LINK	05A	FOCS	γ Be, $\overline{E}_\gamma \approx 180$ GeV
$0.031 \pm 0.010 \pm 0.008$	25	ALBRECHT	94I	ARG	$e^+ e^- \approx 10$ GeV

$\Gamma(K^0 K^- \pi^+ \pi^+ \pi^-)/\Gamma(\overline{K}^0 2\pi^+ 2\pi^-)$ — Γ_{157}/Γ_{76}

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.054	90	LINK	04D	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV

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

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.0031±0.0020	[97] BARLAG	92C	ACCM	π^- Cu 230 GeV

[97] BARLAG 92C computes the branching fraction using topological normalization.

Radiative modes

$\Gamma(\rho^0 \gamma)/\Gamma_{\text{total}}$ — Γ_{173}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*
$<2.4 \times 10^{-4}$	90	ASNER	98	CLE2

$\Gamma(\omega \gamma)/\Gamma_{\text{total}}$ — Γ_{174}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*
$<2.4 \times 10^{-4}$	90	ASNER	98	CLE2

$\Gamma(\phi \gamma)/\Gamma_{\text{total}}$ — Γ_{175}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$<1.9 \times 10^{-4}$	90	ASNER	98	CLE2

$\Gamma(\phi \gamma)/\Gamma(K^+ K^-)$ — $\Gamma_{175}/\Gamma_{136}$

VALUE (units 10^{-3})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
$6.31^{+1.70}_{-1.48}{}^{+0.30}_{-0.36}$	28	TAJIMA	04	BELL	$e^+ e^-$ at $\Upsilon(4S)$

$\Gamma(\overline{K}^*(892)^0 \gamma)/\Gamma_{\text{total}}$ — Γ_{176}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*
$<7.6 \times 10^{-4}$	90	ASNER	98	CLE2

Doubly Cabibbo-suppressed / Mixing modes

$\Gamma(K^+ \ell^- \overline{\nu}_\ell (\text{via } \overline{D}^0))/\Gamma(K^- \ell^+ \nu_\ell)$ — Γ_{177}/Γ_8

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*
<0.005	90	[98] AITALA	96C	E791	π^- nucleus, 500 GeV

[98] 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.

$\Gamma\big(K^+ \text{or} K^*(892)^+ e^- \overline{\nu}_e (\text{via} \overline{D}^0)\big)/\big[\Gamma\big(K^- e^+ \nu_e\big) + \Gamma\big(K^*(892)^- e^+ \nu_e\big)\big]$ $\Gamma_{178}/(\Gamma_9+\Gamma_{22})$

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
<0.0042	90	[99] AUBERT,B	04Q	BABR	$e^+ e^- \approx \Upsilon(4S)$

[99] AUBERT,B 04Q uses $D^{*+} \rightarrow D^0 \pi^+$ (and charge conjugate) decays to identify the charm at production and the charge of the e to identify the charm at decay.

$\Gamma\big(K^+ \pi^-\big)/\Gamma\big(K^- \pi^+\big)$ Γ_{179}/Γ_{24}

This is R_D in the note on "D^0-$\overline{D}^0$ Mixing," near the start of the D^0 Listings. The experiments here use the charge of the pion in $D^*(2010)^\pm \rightarrow (D^0 \text{ or } \overline{D}^0)\, \pi^\pm$ decay to tell whether a D^0 or a $\overline{D}^0$ was born. The $D^0 \rightarrow K^+ \pi^-$ decay can occur directly by doubly Cabibbo-suppressed (DCS) decay, or indirectly by $D^0 \rightarrow \overline{D}^0$ mixing followed by $\overline{D}^0 \rightarrow K^+ \pi^-$ 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-$\overline{D}^0$ Mixing" for limits on x' and y'.

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

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
0.00362±0.00029 OUR AVERAGE						
$0.00359 \pm 0.00020 \pm 0.00027$			[100] AUBERT	03Z	BABR	$e^+ e^-$, 10.6 GeV
$0.00404 \pm 0.00085 \pm 0.00025$		149	[101] LINK	01	FOCS	γ nucleus
$0.00332 {}^{+0.00063}_{-0.00065} \pm 0.00040$		45	[102] GODANG	00	CLE2	$e^+ e^-$
$0.0068 {}^{+0.0034}_{-0.0033} \pm 0.0007$		34	[103] AITALA	98	E791	π^- nucleus, 500 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$0.0184 \pm 0.0059 \pm 0.0034$		19	[104] BARATE	98W	ALEP	$e^+ e^-$ at Z^0
$0.0077 \pm 0.0025 \pm 0.0025$		19	[105] CINABRO	94	CLE2	$e^+ e^- \approx \Upsilon(4S)$
<0.011	90		[105] AMMAR	91	CLEO	$e^+ e^- \approx$ 10.5 GeV
<0.015	90	1 ± 6	[106] ANJOS	88C	E691	Photoproduction
<0.014	90		[105] ALBRECHT	87K	ARG	$e^+ e^-$ 10 GeV

[100] This AUBERT 03Z result is for no mixing or CP violation. If CP violation but no mixing is allowed, R_D=0.00357 ± 0.00022 ± 0.00027. If only mixing is allowed, the 95% confidence-level interval is $(2.4 < R_D < 4.9)\times10^{-3}$. If both mixing and CP violation are allowed, this interval becomes $(2.3 < R_D < 5.2)\times10^{-3}$.

[101] 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-$\overline{D}^0$ Mixing" near the start of the D^0 Listings for results on x' and y' from FOCUS and other experiments.

[102] This GODANG 00 result assumes no D^0-$\overline{D}^0$ mixing (R_M=0 in the note on "D^0-$\overline{D}^0$ Mixing" near the start of the D^0 Listings) but allows CP violation. The DCS ratio becomes 0.0048 ± 0.0012 ± 0.0004 when mixing is allowed.

[103] This AITALA 98 result assumes no CP violation or mixing (R_M=0 in the note on "D^0-$\overline{D}^0$ Mixing" near the start of the D^0 Listings). The DCS ratio becomes $0.0090^{+0.0120}_{-0.0109}$ ± 0.0044 when mixing is allowed.

[104] BARATE 98W gets $0.0177^{+0.0060}_{-0.0056}$ ± 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-$\overline{D}^0$ Mixing" near the start of the D^0 Listings).

[105] CINABRO 94, AMMAR 91, and ALBRECHT 87K cannot distinguish between doubly Cabibbo-suppressed decay and D^0-$\overline{D}^0$ mixing.

[106] ANJOS 88C allows mixing but assumes no interference between the DCS and mixing amplitudes ($y' = 0$ in the note on "D^0-$\overline{D}^0$ Mixing" near the start of the D^0 Listings). When interference is allowed, the limit degrades to 0.049.

$\Gamma(K^+\pi^-(\text{via } \overline{D}^0))/\Gamma(K^-\pi^+)$ — Γ_{180}/Γ_{24}

This is R_M in the note on "D^0-$\overline{D}^0$ Mixing" near the start of the D^0 Listings. The experiments here (1) use the charge of the pion in $D^*(2010)^\pm \to (D^0 \text{ or } \overline{D}^0)\ \pi^\pm$ decay to tell whether a D^0 or a $\overline{D}^0$ 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*
<0.00041	95		[107] GODANG	00	CLE2	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.0013	95		[108] AUBERT	03Z	BABR	e^+e^-, 10.6 GeV
<0.0092	95		[109] BARATE	98W	ALEP	e^+e^- at Z^0
<0.005	90	1 ± 4	[110] ANJOS	88C	E691	Photoproduction

[107] This GODANG 00 result allows CP violation and assumes that the strong phase between $D^0 \to K^+\pi^-$ and $\overline{D}^0 \to K^+\pi^-$ is small, and limits only $D^0 \to \overline{D}^0$ transitions via off-shell intermediate states. The limit on transitions via on-shell intermediate states is 0.0017.

[108] This AUBERT 03Z result allows CP violation and assumes that the strong phase between $D^0 \to K^+\pi^-$ and $\overline{D}^0 \to K^+\pi^-$ is small, and limits only $D^0 \to \overline{D}^0$ transitions via off-shell intermediate states. The limit on transitions via on-shell intermediate states is 0.0016.

[109] This BARATE 98W result assumes no interference between the DCS and mixing amplitudes ($y' = 0$ in the note on "D^0-$\overline{D}^0$ Mixing" near the start of the D^0 Listings). When interference is allowed, the limit degrades to 0.036 (95%CL).

[110] This ANJOS 88C result assumes no interference between the DCS and mixing amplitudes ($y' = 0$ in the note on "D^0-$\overline{D}^0$ Mixing" near the start of the D^0 Listings). When interference is allowed, the limit degrades to 0.019.

$\Gamma(K^*(892)^+\pi^-, K^*(892)^+ \to K^0\pi^+)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{181}/Γ_{26}

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

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.0034 \pm 0.0013^{+0.0041}_{-0.0004}}$	MURAMATSU	02	CLE2	Dalitz fit, 5299 evts
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.0034 \pm 0.0013^{+0.0036}_{-0.0005}$	ASNER	04A	CLEO	See MURAMATSU 02

$\Gamma(K^+\pi^-\pi^0)/\Gamma(K^-\pi^+\pi^0)$ — Γ_{182}/Γ_{38}

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

VALUE	*EVTS*	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.0043^{+0.0011}_{-0.0010}\pm0.0007$	38	[111] BRANDENB... 01	CLE2	$e^+e^- \approx \Upsilon(4S)$

[111] BRANDENBURG 01 does not distinguish between doubly Cabbibbo-suppressed decay and D^0-$\overline{D}^0$ mixing.

$\Gamma(K^+\pi^-\pi^+\pi^-)/\Gamma(K^-\pi^+\pi^+\pi^-)$ — Γ_{183}/Γ_{50}

The experiments here use the charge of the pion in $D^*(2010)^\pm \rightarrow (D^0 \text{ or } \overline{D}^0)\,\pi^\pm$ decay to tell whether a D^0 or a $\overline{D}^0$ was born. The $D^0 \rightarrow K^+\pi^-\pi^+\pi^-$ decay can occur directly by doubly Cabibbo-suppressed (DCS) decay, or indirectly by $D^0 \rightarrow \overline{D}^0$ mixing followed by $\overline{D}^0 \rightarrow K^+\pi^-\pi^+\pi^-$ 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	*CL%*	*EVTS*	*DOCUMENT ID*	*TECN*	*COMMENT*
0.0042 ± 0.0013 OUR AVERAGE					
$0.0044^{+0.0013}_{-0.0012}\pm0.0006$		54	[112] DYTMAN 01	CLE2	$e^+e^- \approx \Upsilon(4S)$
$0.0025^{+0.0036}_{-0.0034}\pm0.0003$			[113] AITALA 98	E791	π^- nucleus, 500 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.018	90		[112] AMMAR 91	CLEO	$e^+e^- \approx$ 10.5 GeV
<0.018	90	5 ± 12	[114] ANJOS 88C	E691	Photoproduction

[112] AMMAR 91 cannot and DYTMAN 01 does not distinguish between doubly Cabibbo-suppressed decay and D^0-$\overline{D}^0$ mixing.

[113] This AITALA 98 result assumes no D^0-$\overline{D}^0$ mixing (R_M in the note on "D^0-$\overline{D}^0$ Mixing"). It becomes $-0.0020^{+0.0117}_{-0.0106}\pm0.0035$ when mixing is allowed and decay-time information is used to distinguish doubly Cabibbo-suppressed decays from mixing.

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

$\Gamma(K^+\pi^-\pi^+\pi^-\,(\text{via } \overline{D}^0))/\Gamma(K^-\pi^+\pi^+\pi^-)$ — Γ_{184}/Γ_{50}

This is a D^0-$\overline{D}^0$ mixing limit. The experiments here (1) use the charge of the pion in $D^*(2010)^\pm \rightarrow (D^0 \text{ or } \overline{D}^0)\,\pi^\pm$ decay to tell whether a D^0 or a $\overline{D}^0$ was born; and (2) use the decay-time distribution to disentangle doubly Cabibbo-suppressed decay and mixing. For the limits on $\left|m_{D_1^0} - m_{D_2^0}\right|$ 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	[115] ANJOS	88C	E691	Photoproduction

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

$\Gamma(K^+\pi^- \text{ or } K^+\pi^-\pi^+\pi^- (\text{via } \overline{D}^0))/\Gamma(K^-\pi^+ \text{ or } K^-\pi^+\pi^+\pi^-)$ — Γ_{185}/Γ_0

This is a D^0-$\overline{D}^0$ 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
<0.0085	90	[116] AITALA	98	E791	π^- nucleus, 500 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0037	90	[117] ANJOS	88C	E691	Photoproduction

[116] AITALA 98 uses decay-time information to distinguish doubly Cabibbo-suppressed decays from D^0-$\overline{D}^0$ 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 $0.0021 \pm 0.0009 \pm 0.0002$.

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

$\Gamma(\mu^- \text{ anything (via } \overline{D}^0))/\Gamma(\mu^+ \text{ anything})$ — Γ_{186}/Γ_2

This is a D^0-$\overline{D}^0$ 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

$\Gamma(\gamma\gamma)/\Gamma(\pi^0\pi^0)$ — $\Gamma_{187}/\Gamma_{131}$

$D^0 \rightarrow \gamma\gamma$ 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_{188}/Γ

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

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$<1.2 \times 10^{-6}$	90	3	AUBERT,B	04Y	BABR	$e^+e^- \approx \Upsilon(4S)$
• • • 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	$e^+e^- \approx \Upsilon(4S)$
$<1.3 \times 10^{-4}$	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

$\Gamma(\mu^+\mu^-)/\Gamma_{total}$ — Γ_{189}/Γ

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

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<1.3 × 10⁻⁶	90	1	AUBERT,B	04Y	BABR	$e^+e^- \approx \Upsilon(4S)$
• • • 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	$p\overline{p}$, $\sqrt{s} = 1.96$ 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	$e^+e^- \approx \Upsilon(4S)$
$<7.6 \times 10^{-6}$	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		[118] 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. $\mu^- N$

[118] 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.

$\Gamma(\pi^0 e^+e^-)/\Gamma_{total}$ — Γ_{190}/Γ

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

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<4.5 × 10⁻⁵	90	0	FREYBERGER	96	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\pi^0 \mu^+\mu^-)/\Gamma_{total}$ — Γ_{191}/Γ

A test for the ΔC=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<1.8 × 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	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\eta e^+e^-)/\Gamma_{total}$ — Γ_{192}/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 × 10⁻⁴	90	0	FREYBERGER	96	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\eta \mu^+\mu^-)/\Gamma_{total}$ — Γ_{193}/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 × 10⁻⁴	90	0	FREYBERGER	96	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\pi^+\pi^- e^+ e^-)/\Gamma_{total}$ — Γ_{194}/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 × 10^−4	90	9	AITALA	01C	E791	π^- nucleus, 500 GeV

$\Gamma(\rho^0 e^+ e^-)/\Gamma_{total}$ — Γ_{195}/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 × 10^−4	90	2	[119] FREYBERGER	96	CLE2	$e^+e^- \approx \Upsilon(4S)$
• • • 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

[119] 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.

$\Gamma(\pi^+\pi^- \mu^+ \mu^-)/\Gamma_{total}$ — Γ_{196}/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 × 10^−5	90	2	AITALA	01C	E791	π^- nucleus, 500 GeV

$\Gamma(\rho^0 \mu^+ \mu^-)/\Gamma_{total}$ — Γ_{197}/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 × 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	[120] FREYBERGER	96	CLE2	$e^+e^- \approx \Upsilon(4S)$
$<2.3 \times 10^{-4}$	90	0	KODAMA	95	E653	π^- emulsion 600 GeV
$<8.1 \times 10^{-4}$	90	5	HAAS	88	CLEO	e^+e^- 10 GeV

[120] 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.

$\Gamma(\omega e^+ e^-)/\Gamma_{total}$ — Γ_{198}/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 × 10^−4	90	1	[121] FREYBERGER	96	CLE2	$e^+e^- \approx \Upsilon(4S)$

[121] 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.

$\Gamma(\omega \mu^+ \mu^-)/\Gamma_{total}$ — Γ_{199}/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 × 10^−4	90	0	[122] FREYBERGER	96	CLE2	$e^+e^- \approx \Upsilon(4S)$

[122] 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.

$\Gamma(K^- K^+ e^+ e^-)/\Gamma_{total}$ Γ_{200}/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 × 10^{-4}	90	9	AITALA 01C	E791	π^- nucleus, 500 GeV

$\Gamma(\phi e^+ e^-)/\Gamma_{total}$ Γ_{201}/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 × 10^{-5}	90	2	[123] FREYBERGER 96	CLE2	$e^+e^- \approx \Upsilon(4S)$
• • • 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

[123] 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.

$\Gamma(K^- K^+ \mu^+ \mu^-)/\Gamma_{total}$ Γ_{202}/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 × 10^{-5}	90	0	AITALA 01C	E791	π^- nucleus, 500 GeV

$\Gamma(\phi \mu^+ \mu^-)/\Gamma_{total}$ 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
<3.1 × 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	[124] FREYBERGER 96	CLE2	$e^+e^- \approx \Upsilon(4S)$

[124] 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.

$\Gamma(\overline{K}^0 e^+ e^-)/\Gamma_{total}$ Γ_{204}/Γ

Not a useful test for ΔC =1 weak neutral current because both quarks must change flavor.

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

$\Gamma(\overline{K}^0 \mu^+ \mu^-)/\Gamma_{total}$ Γ_{205}/Γ

Not a useful test for ΔC =1 weak neutral current because both quarks must change flavor.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<2.6 × 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	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(K^- \pi^+ e^+ e^-)/\Gamma_{total}$ **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
<3.85 × 10^{-4}	90	6		AITALA	01C	E791	π^- nucleus, 500 GeV

$\Gamma(\overline{K}^*(892)^0 e^+ e^-)/\Gamma_{total}$ **Γ_{207}/Γ**

Not a useful test for ΔC =1 weak neutral current because both quarks must change flavor.

VALUE	CL%	EVTS		DOCUMENT ID		TECN	COMMENT
<4.7 × 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	[125]	FREYBERGER	96	CLE2	$e^+ e^- \approx \Upsilon(4S)$

[125] This 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.

$\Gamma(K^- \pi^+ \mu^+ \mu^-)/\Gamma_{total}$ **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
<3.59 × 10^{-4}	90	12		AITALA	01C	E791	π^- nucleus, 500 GeV

$\Gamma(\overline{K}^*(892)^0 \mu^+ \mu^-)/\Gamma_{total}$ **Γ_{209}/Γ**

Not a useful test for ΔC =1 weak neutral current because both quarks must change flavor.

VALUE	CL%	EVTS		DOCUMENT ID		TECN	COMMENT
<2.4 × 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	[126]	FREYBERGER	96	CLE2	$e^+ e^- \approx \Upsilon(4S)$

[126] This 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.

$\Gamma(\pi^+ \pi^- \pi^0 \mu^+ \mu^-)/\Gamma_{total}$ **Γ_{210}/Γ**

A test for the ΔC=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS		DOCUMENT ID		TECN	COMMENT
<8.1 × 10^{-4}	90	1		KODAMA	95	E653	π^- emulsion 600 GeV

$\Gamma(\mu^\pm e^\mp)/\Gamma_{total}$ **Γ_{211}/Γ**

A test of lepton family number conservation.

VALUE	CL%	EVTS		DOCUMENT ID		TECN	COMMENT
< 8.1 × 10^{-7}	90	0		AUBERT,B	04Y	BABR	$e^+ e^- \approx \Upsilon(4S)$
• • • 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	[127]	FREYBERGER	96	CLE2	$e^+ e^- \approx \Upsilon(4S)$
$< 1.0 \times 10^{-4}$	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	[128]	RILES	87	MRK2	$e^+ e^-$ 29 GeV

[127] This is the corrected result given in the erratum to FREYBERGER 96.
[128] RILES 87 assumes B($D \to K\pi$) = 3.0% and has production model dependency.

$\Gamma(\pi^0 e^\pm \mu^\mp)/\Gamma_{total}$ — Γ_{212}/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	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\eta e^\pm \mu^\mp)/\Gamma_{total}$ — Γ_{213}/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	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\pi^+\pi^- e^\pm \mu^\mp)/\Gamma_{total}$ — Γ_{214}/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

$\Gamma(\rho^0 e^\pm \mu^\mp)/\Gamma_{total}$ — Γ_{215}/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	[129] FREYBERGER 96	CLE2	$e^+e^- \approx \Upsilon(4S)$
• • • 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

[129] 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.

$\Gamma(\omega e^\pm \mu^\mp)/\Gamma_{total}$ — Γ_{216}/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	[130] FREYBERGER 96	CLE2	$e^+e^- \approx \Upsilon(4S)$

[130] This FREYBERGER 96 limit is obtained using a phase-space model. The same limit is obtained using a photon pole amplitude model.

$\Gamma(K^- K^+ e^\pm \mu^\mp)/\Gamma_{total}$ — Γ_{217}/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

$\Gamma(\phi e^{\pm}\mu^{\mp})/\Gamma_{total}$ — Γ_{218}/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
$<3.4\times10^{-5}$	90	0	[131] FREYBERGER 96	CLE2	$e^+e^-\approx\Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<4.7\times10^{-5}$	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 $<3.3\times10^{-5}$ using a photon pole amplitude model.

$\Gamma(\overline{K}^0 e^{\pm}\mu^{\mp})/\Gamma_{total}$ — Γ_{219}/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
$<1.0\times10^{-4}$	90	0	FREYBERGER 96	CLE2	$e^+e^-\approx\Upsilon(4S)$

$\Gamma(K^-\pi^+ e^{\pm}\mu^{\mp})/\Gamma_{total}$ — Γ_{220}/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
$<5.53\times10^{-4}$	90	15	AITALA 01C	E791	π^- nucleus, 500 GeV

$\Gamma(\overline{K}^*(892)^0 e^{\pm}\mu^{\mp})/\Gamma_{total}$ — Γ_{221}/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
$<8.3\times10^{-5}$	90	9	AITALA 01C	E791	π^- nucleus, 500 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.0\times10^{-4}$	90	0	[132] FREYBERGER 96	CLE2	$e^+e^-\approx\Upsilon(4S)$

[132] This FREYBERGER 96 limit is obtained using a phase-space model. The same limit is obtained using a photon pole amplitude model.

$\Gamma(\pi^-\pi^- e^+ e^+ + \text{c.c.})/\Gamma_{total}$ — Γ_{222}/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
$<1.12\times10^{-4}$	90	1	AITALA 01C	E791	π^- nucleus, 500 GeV

$\Gamma(\pi^-\pi^-\mu^+\mu^+ + \text{c.c.})/\Gamma_{total}$ — Γ_{223}/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
$<2.9\times10^{-5}$	90	1	AITALA 01C	E791	π^- nucleus, 500 GeV

$\Gamma(K^-\pi^- e^+ e^+ + \text{c.c.})/\Gamma_{total}$ — Γ_{224}/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
$<2.06\times10^{-4}$	90	2	AITALA 01C	E791	π^- nucleus, 500 GeV

$\Gamma(K^- \pi^- \mu^+ \mu^+ + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{225}/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
$<3.9 \times 10^{-4}$	90	14	AITALA	01C	E791	π^- nucleus, 500 GeV

$\Gamma(K^- K^- e^+ e^+ + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{226}/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
$<1.52 \times 10^{-4}$	90	2	AITALA	01C	E791	π^- nucleus, 500 GeV

$\Gamma(K^- K^- \mu^+ \mu^+ + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{227}/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
$<9.4 \times 10^{-5}$	90	1	AITALA	01C	E791	π^- nucleus, 500 GeV

$\Gamma(\pi^- \pi^- e^+ \mu^+ + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{228}/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
$<7.9 \times 10^{-5}$	90	4	AITALA	01C	E791	π^- nucleus, 500 GeV

$\Gamma(K^- \pi^- e^+ \mu^+ + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{229}/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
$<2.18 \times 10^{-4}$	90	7	AITALA	01C	E791	π^- nucleus, 500 GeV

$\Gamma(K^- K^- e^+ \mu^+ + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{230}/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
$<5.7 \times 10^{-5}$	90	0	AITALA	01C	E791	π^- nucleus, 500 GeV

D^0 CP-VIOLATING DECAY-RATE ASYMMETRIES

$A_{CP}(K^+ K^-)$ in $D^0, \overline{D}^0 \to K^+ K^-$

This is the difference between D^0 and $\overline{D}^0$ partial widths for these modes divided by the sum of the widths. The D^0 and $\overline{D}^0$ are distinguished by the charge of the parent D^*: $D^{*+} \to D^0 \pi^+$ and $D^{*-} \to \overline{D}^0 \pi^-$.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.005 ± 0.016 OUR AVERAGE					
$0.000 \pm 0.022 \pm 0.008$	3023	[133] CSORNA	02	CLE2	$e^+ e^- \approx \Upsilon(4S)$
$-0.001 \pm 0.022 \pm 0.015$	3330	[133] LINK	00B	FOCS	
$-0.010 \pm 0.049 \pm 0.012$	609	[133] AITALA	98C	E791	$-0.093 < A_{CP} < +0.073$ (90% CL)
$+0.080 \pm 0.061$		BARTELT	95	CLE2	$-0.022 < A_{CP} < +0.18$ (90%CL)
$+0.024 \pm 0.084$		[133] FRABETTI	94I	E687	$-0.11 < A_{CP} < +0.16$ (90% CL)

[133] FRABETTI 94I, AITALA 98C, LINK 00B, and CSORNA 02 measure $N(D^0 \to K^+K^-)/N(D^0 \to K^-\pi^+)$, the ratio of numbers of events observed, and similarly for the $\overline{D}^0$.

$A_{CP}(K^0_S K^0_S)$ in D^0, $\overline{D}^0 \to K^0_S K^0_S$

This is the difference between D^0 and $\overline{D}^0$ partial widths for these modes divided by the sum of the widths. The D^0 and $\overline{D}^0$ are distinguished by the charge of the parent D^*: $D^{*+} \to D^0\pi^+$ and $D^{*-} \to \overline{D}^0\pi^-$.

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, $\overline{D}^0 \to \pi^+\pi^-$

This is the difference between D^0 and $\overline{D}^0$ partial widths for these modes divided by the sum of the widths. The D^0 and $\overline{D}^0$ are distinguished by the charge of the parent D^*: $D^{*+} \to D^0\pi^+$ and $D^{*-} \to \overline{D}^0\pi^-$.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.021±0.026 OUR AVERAGE					
0.019±0.032±0.008	1136	[134] CSORNA	02	CLE2	$e^+e^- \approx \Upsilon(4S)$
+0.048±0.039±0.025	1177	[134] LINK	00B	FOCS	
−0.049±0.078±0.030	343	[134] AITALA	98C	E791	$-0.186 < A_{CP} < +0.088$ (90% CL)

[134] AITALA 98C, LINK 00B, and CSORNA 02 measure $N(D^0 \to \pi^+\pi^-)/N(D^0 \to K^-\pi^+)$, the ratio of numbers of events observed, and similarly for the $\overline{D}^0$.

$A_{CP}(\pi^0\pi^0)$ in D^0, $\overline{D}^0 \to \pi^0\pi^0$

This is the difference between D^0 and $\overline{D}^0$ partial widths for these modes divided by the sum of the widths. The D^0 and $\overline{D}^0$ are distinguished by the charge of the parent D^*: $D^{*+} \to D^0\pi^+$ and $D^{*-} \to \overline{D}^0\pi^-$.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
+0.001±0.048	810	BONVICINI	01	CLE2	$e^+e^- \approx$ 10.6 GeV

$A_{CP}(K^0_S\phi)$ in D^0, $\overline{D}^0 \to K^0_S\phi$

This is the difference between D^0 and $\overline{D}^0$ partial widths for these modes divided by the sum of the widths. The D^0 and $\overline{D}^0$ are distinguished by the charge of the parent D^*: $D^{*+} \to D^0\pi^+$ and $D^{*-} \to \overline{D}^0\pi^-$.

VALUE	DOCUMENT ID		TECN	COMMENT
−0.028±0.094	BARTELT	95	CLE2	$-0.182 < A_{CP} < +0.126$ (90%CL)

$A_{CP}(K^0_S\pi^0)$ in D^0, $\overline{D}^0 \to K^0_S\pi^0$

This is the difference between D^0 and $\overline{D}^0$ partial widths for these modes divided by the sum of the widths. The D^0 and $\overline{D}^0$ are distinguished by the charge of the parent D^*: $D^{*+} \to D^0\pi^+$ and $D^{*-} \to \overline{D}^0\pi^-$.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
+0.001±0.013	9099	BONVICINI	01	CLE2	$e^+e^- \approx$ 10.6 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
−0.018±0.030		BARTELT	95	CLE2	See BONVICINI 01

$A_{CP}(K^{\pm}\pi^{\mp})$ in $D^0 \to K^+\pi^-$, $\overline{D}^0 \to K^-\pi^+$

This is the difference between D^0 and $\overline{D}^0$ partial widths for these modes divided by the sum of the widths. The D^0 and $\overline{D}^0$ are distinguished by the charge of the parent D^*: $D^{*+} \to D^0\pi^+$ and $D^{*-} \to \overline{D}^0\pi^-$.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.08 ±0.09 OUR AVERAGE					
$+0.095\pm0.061\pm0.083$		[135] AUBERT	03Z	BABR	e^+e^-, 10.6 GeV
$+0.02\ ^{+0.19}_{-0.20}\ \pm0.01$	45	[136] GODANG	00	CLE2	$-0.43 < A_{CP} < +0.34$ (95%CL)

[135] This AUBERT 03Z limit assumes no mixing. If mixing is allowed, the 95% confidence-level interval is $(-2.8 < A_D < 4.9)\times10^{-3}$.

[136] This GODANG 00 result assumes no D^0-$\overline{D}^0$ mixing; it becomes $-0.01^{+0.16}_{-0.17} \pm 0.01$ when mixing is allowed.

$A_{CP}(K^{\mp}\pi^{\pm}\pi^0)$ in $D^0 \to K^-\pi^+\pi^0$, $\overline{D}^0 \to K^+\pi^-\pi^0$

This is the difference between D^0 and $\overline{D}^0$ partial widths for these modes divided by the sum of the widths. The D^0 and $\overline{D}^0$ are distinguished by the charge of the parent D^*: $D^{*+} \to D^0\pi^+$ and $D^{*-} \to \overline{D}^0\pi^-$.

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{-0.031\pm0.086}$	[137] KOPP	01	CLE2	$e^+e^- \approx$ 10.6 GeV

[137] KOPP 01 fits separately the D^0 and $\overline{D}^0$ 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 $D^0 \to K^+\pi^-\pi^0$, $\overline{D}^0 \to K^-\pi^+\pi^0$

This is the difference between D^0 and $\overline{D}^0$ partial widths for these modes divided by the sum of the widths. The D^0 and $\overline{D}^0$ are distinguished by the charge of the parent D^*: $D^{*+} \to D^0\pi^+$ and $D^{*-} \to \overline{D}^0\pi^-$.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{+0.09^{+0.25}_{-0.22}}$	38	BRANDENB...	01	CLE2	$e^+e^- \approx \Upsilon(4S)$

$A_{CP}(K^0_S\pi^+\pi^-)$ in D^0, $\overline{D}^0 \to K^0_S\pi^+\pi^-$

This is the difference between D^0 and $\overline{D}^0$ partial widths for these modes divided by the sum of the widths. The D^0 and $\overline{D}^0$ are distinguished by the charge of the parent D^*: $D^{*+} \to D^0\pi^+$ and $D^{*-} \to \overline{D}^0\pi^-$.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$-0.009\pm0.021^{+0.016}_{-0.057}$	4854	[138] ASNER	04A	CLEO	$e^+e^- \approx$ 10 GeV

[138] This is the overall result of ASNER 04A; *CP*-violating limits are also given for each of the 10 resonant submodes found in an amplitude analysis of the D^0 and $\overline{D}^0 \to K^0_S\pi^+\pi^-$ Dalitz plots.

D^0 *CPT*-VIOLATING DECAY-RATE ASYMMETRIES

$A_{CPT}(K^{\mp}\pi^{\pm})$ in $D^0 \to K^-\pi^+$, $\overline{D}^0 \to K^+\pi^-$

A_{CPT}(t) is defined in terms of the time-dependent decay probabilities $P(D^0 \to K^-\pi^+)$ and $\overline{P}(\overline{D}^0 \to K^+\pi^-)$ by $A_{CPT}(t) = (\overline{P}-P)/(\overline{P}+P)$. 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 $Re\,\xi$ - x $Im\,\xi$] Γt, where ξ is the *CPT*-violating parameter.

The following is actually y $Re\,\xi$ - x $Im\,\xi$.

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.0083±0.0065±0.0041	LINK	03B	FOCS	γ nucleus, $\overline{E}_{\gamma} \approx$ 180 GeV

D^0 PRODUCTION CROSS SECTION AT $\psi(3770)$

A compilation of the cross sections for the direct production of D^0 mesons at or near the $\psi(3770)$ peak in e^+e^- production.

VALUE (nanobarns)	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5.8 ±0.5 ±0.6	[139] ADLER	88C	MRK3	e^+e^- 3.768 GeV
7.3 ±1.3	[140] PARTRIDGE	84	CBAL	e^+e^- 3.771 GeV
8.00±0.95±1.21	[141] SCHINDLER	80	MRK2	e^+e^- 3.771 GeV
11.5 ±2.5	[142] PERUZZI	77	MRK1	e^+e^- 3.774 GeV

[139] This measurement compares events with one detected D to those with two detected D mesons, to determine the the absolute cross section. ADLER 88C find the ratio of cross sections (neutral to charged) to be 1.36 ± 0.23 ± 0.14.

[140] This measurement comes from a scan of the $\psi(3770)$ resonance and a fit to the cross section. PARTRIDGE 84 measures 6.4 ± 1.15 nb for the cross section. We take the phase space division of neutral and charged D mesons in $\psi(3770)$ decay to be 1.33, and we assume that the $\psi(3770)$ is an isosinglet to evaluate the cross sections. The noncharm decays (e.g. radiative) of the $\psi(3770)$ are included in this measurement and may amount to a few percent correction.

[141] This measurement comes from a scan of the $\psi(3770)$ resonance and a fit to the cross section. SCHINDLER 80 assume the phase space division of neutral and charged D mesons in $\psi(3770)$ decay to be 1.33, and that the $\psi(3770)$ is an isosinglet. The noncharm decays (e.g. radiative) of the $\psi(3770)$ are included in this measurement and may amount to a few percent correction.

[142] This measurement comes from a scan of the $\psi(3770)$ resonance and a fit to the cross section. The phase space division of neutral and charged D mesons in $\psi(3770)$ decay is taken to be 1.33, and $\psi(3770)$ is assumed to be an isosinglet. The noncharm decays (e.g. radiative) of the $\psi(3770)$ are included in this measurement and may amount to a few percent correction. We exclude this measurement from the average because of uncertainties in the contamination from τ lepton pairs. Also see RAPIDIS 77.

$D^0 \to K^*(892)^-\ell^+\nu_{\ell}$ FORM FACTORS

$r_V \equiv V(0)/A_1(0)$ in $D^0 \to K^*(892)^-\ell^+\nu_{\ell}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
1.71±0.68±0.34	LINK	05B	FOCS	$K^*(892)^-\mu^+\nu_{\mu}$

$r_2 \equiv A_2(0)/A_1(0)$ in $D^0 \to K^*(892)^- \ell^+ \nu_\ell$

VALUE	DOCUMENT ID		TECN	COMMENT
0.91±0.37±0.10	LINK	05B	FOCS	$K^*(892)^- \mu^+ \nu_\mu$

D^0 REFERENCES

HUANG	05	PRL 94 011802	G.S. Huang *et al.*	(CLEO Collab.)
LINK	05	PL B607 51	J.M. Link *et al.*	(FNAL FOCUS Collab.)
LINK	05A	PL B607 59	J.M. Link *et al.*	(FNAL FOCUS Collab.)
LINK	05B	PL B607 67	J.M. Link *et al.*	(FNAL FOCUS Collab.)
PDG	05	Unofficial 2005 WWW edition		
ABLIKIM	04C	PL B597 39	M. Ablikim *et al.*	(BEPC BES Collab.)
ABT	04	PL B596 173	I. Abt *et al.*	(HERA B Collab.)
ASNER	04A	PR D70 091101R	D.M. Asner *et al.*	(CLEO Collab.)
AUBERT,B	04Q	PR D70 091102R	B. Aubert *et al.*	(BaBar Collab.)
AUBERT,B	04Y	PRL 93 191801	B. Aubert *et al.*	(BaBar Collab)
LINK	04B	PL B586 21	J.M. Link *et al.*	(FNAL FOCUS Collab.)
LINK	04D	PL B586 191	J.M. Link *et al.*	(FNAL FOCUS Collab.)
RUBIN	04	PRL 93 111801	P. Rubin *et al.*	(CLEO Collab.)
TAJIMA	04	PRL 92 101803	O. Tajima *et al.*	(BELLE Collab.)
ACOSTA	03F	PR D68 091101R	D. Acosta *et al.*	(CDF Collab.)
AUBERT	03P	PRL 91 121801	B. Aubert *et al.*	(BaBar Collab.)
AUBERT	03Z	PRL 91 171801	B. Aubert *et al.*	(BaBar Collab.)
COAN	03	PRL 90 101801	T.E. Coan *et al.*	(CLEO Collab.)
LINK	03	PL B555 167	J.M. Link *et al.*	(FNAL FOCUS Collab.)
LINK	03B	PL B556 7	J.M. Link *et al.*	(FNAL FOCUS Collab.)
LINK	03G	PL B575 190	J.M. Link *et al.*	(FNAL FOCUS Collab.)
ABE	02I	PRL 88 162001	K. Abe *et al.*	(KEK BELLE Collab.)
CSORNA	02	PR D65 092001	S.E. Csorna *et al.*	(CLEO Collab.)
LINK	02F	PL B537 192	J.M. Link *et al.*	(FNAL FOCUS Collab.)
MURAMATSU	02	PRL 89 251802	H. Muramatsu *et al.*	(CLEO Collab.)
Also	03	PRL 90 059901 (erratum)	H. Muramatsu *et al.*	(CLEO Collab.)
AITALA	01C	PRL 86 3969	E.M. Aitala *et al.*	(FNAL E791 Collab.)
AITALA	01D	PR D64 112003	E.M. Aitala *et al.*	(FNAL E791 Collab.)
BONVICINI	01	PR D63 071101R	G. Bonvicini *et al.*	(CLEO Collab.)
BRANDENB...	01	PRL 87 071802	G. Brandenburg *et al.*	(CLEO Collab.)
DYTMAN	01	PR D64 111101 (R)	S.A. Dytman *et al.*	(CLEO Collab.)
KOPP	01	PR D63 092001	S. Kopp *et al.*	(CLEO Collab.)
KUSHNIR...	01	PRL 86 5243	A. Kushnirenko *et al.*	(FNAL SELEX Collab.)
LINK	01	PRL 86 2955	J.M. Link *et al.*	(FNAL FOCUS Collab.)
BAI	00C	PR D62 052001	J.Z. Bai *et al.*	(BEPC BES Collab.)
GODANG	00	PRL 84 5038	R. Godang *et al.*	(CLEO Collab.)
JUN	00	PRL 84 1857	S.Y. Jun *et al.*	(FNAL SELEX Collab.)
LINK	00	PL B485 62	J.M. Link *et al.*	(FNAL FOCUS Collab.)
LINK	00B	PL B491 232	J.M. Link *et al.*	(FNAL FOCUS Collab.)
Also	00D	PL B495 443 (errata)	J.M. Link *et al.*	(FNAL FOCUS Collab.)
PRIPSTEIN	00	PR D61 032005	D. Pripstein *et al.*	(FNAL E789 Collab.)
AITALA	99E	PRL 83 32	E.M. Aitala *et al.*	(FNAL E791 Collab.)
AITALA	99G	PL B462 401	E.M. Aitala *et al.*	(FNAL E791 Collab.)
BONVICINI	99	PRL 82 4586	G. Bonvicini *et al.*	(CLEO Collab.)
AITALA	98	PR D57 13	E.M. Aitala *et al.*	(FNAL E791 Collab.)
AITALA	98C	PL B421 405	E.M. Aitala *et al.*	(FNAL E791 Collab.)
AITALA	98D	PL B423 185	E.M. Aitala *et al.*	(FNAL E791 Collab.)
ARTUSO	98	PRL 80 3193	M. Artuso *et al.*	(CLEO Collab.)
ASNER	98	PR D58 092001	D.M. Asner *et al.*	(CLEO Collab.)
BARATE	98W	PL B436 211	R. Barate *et al.*	(ALEPH Collab.)
COAN	98	PRL 80 1150	T.E. Coan *et al.*	(CLEO Collab.)
ADAMOVICH	97	PL B408 469	M.I. Adamovich *et al.*	(CERN BEATRICE Collab.)
BARATE	97C	PL B403 367	R. Barate *et al.*	(ALEPH Collab.)
AITALA	96C	PRL 77 2384	E.M. Aitala *et al.*	(FNAL E791 Collab.)
ALBRECHT	96C	PL B374 249	H. Albrecht *et al.*	(ARGUS Collab.)
ALEXOPOU...	96	PRL 77 2380	T. Alexopoulos *et al.*	(FNAL E771 Collab.)
ASNER	96B	PR D54 4211	D.M. Asner *et al.*	(CLEO Collab.)
BARISH	96	PL B373 334	B.C. Barish *et al.*	(CLEO Collab.)
FRABETTI	96B	PL B382 312	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FREYBERGER	96	PRL 76 3065	A. Freyberger *et al.*	(CLEO Collab.)
Also	96B	PRL 77 2147 (errata)	A. Freyberger *et al.*	(CLEO Collab.)
KUBOTA	96B	PR D54 2994	Y. Kubota *et al.*	(CLEO Collab.)

ADAMOVICH	95	PL B353 563	M.I. Adamovich *et al.*	(CERN BEATRICE Collab.)
BARTELT	95	PR D52 4860	J.E. Bartelt *et al.*	(CLEO Collab.)
BUTLER	95	PR D52 2656	F. Butler *et al.*	(CLEO Collab.)
FRABETTI	95C	PL B354 486	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FRABETTI	95G	PL B364 127	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
KODAMA	95	PL B345 85	K. Kodama *et al.*	(FNAL E653 Collab.)
ALBRECHT	94	PL B324 249	H. Albrecht *et al.*	(ARGUS Collab.)
ALBRECHT	94F	PL B340 125	H. Albrecht *et al.*	(ARGUS Collab.)
ALBRECHT	94I	ZPHY C64 375	H. Albrecht *et al.*	(ARGUS Collab.)
CINABRO	94	PRL 72 1406	D. Cinabro *et al.*	(CLEO Collab.)
FRABETTI	94C	PL B321 295	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FRABETTI	94D	PL B323 459	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FRABETTI	94G	PL B331 217	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FRABETTI	94I	PR D50 R2953	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FRABETTI	94J	PL B340 254	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
KODAMA	94	PL B336 605	K. Kodama *et al.*	(FNAL E653 Collab.)
MISHRA	94	PR D50 R9	C.S. Mishra *et al.*	(FNAL E789 Collab.)
AKERIB	93	PRL 71 3070	D.S. Akerib *et al.*	(CLEO Collab.)
ALBRECHT	93D	PL B308 435	H. Albrecht *et al.*	(ARGUS Collab.)
ANJOS	93	PR D48 56	J.C. Anjos *et al.*	(FNAL E691 Collab.)
BEAN	93C	PL B317 647	A. Bean *et al.*	(CLEO Collab.)
FRABETTI	93I	PL B315 203	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
KODAMA	93B	PL B313 260	K. Kodama *et al.*	(FNAL E653 Collab.)
PROCARIO	93B	PR D48 4007	M. Procario *et al.*	(CLEO Collab.)
SELEN	93	PRL 71 1973	M.A. Selen *et al.*	(CLEO Collab.)
ADAMOVICH	92	PL B280 163	M.I. Adamovich *et al.*	(CERN WA82 Collab.)
ALBRECHT	92P	ZPHY C56 7	H. Albrecht *et al.*	(ARGUS Collab.)
ANJOS	92B	PR D46 R1	J.C. Anjos *et al.*	(FNAL E691 Collab.)
ANJOS	92C	PR D46 1941	J.C. Anjos *et al.*	(FNAL E691 Collab.)
BARLAG	92C	ZPHY C55 383	S. Barlag *et al.*	(ACCMOR Collab.)
Also	90D	ZPHY C48 29	S. Barlag *et al.*	(ACCMOR Collab.)
COFFMAN	92B	PR D45 2196	D.M. Coffman *et al.*	(Mark III Collab.)
Also	90	PRL 64 2615	J. Adler *et al.*	(Mark III Collab.)
FRABETTI	92	PL B281 167	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FRABETTI	92B	PL B286 195	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
ALVAREZ	91B	ZPHY C50 11	M.P. Alvarez *et al.*	(CERN NA14/2 Collab.)
AMMAR	91	PR D44 3383	R. Ammar *et al.*	(CLEO Collab.)
ANJOS	91	PR D43 R635	J.C. Anjos *et al.*	(FNAL-TPS Collab.)
ANJOS	91D	PR D44 R3371	J.C. Anjos *et al.*	(FNAL-TPS Collab.)
BAI	91	PRL 66 1011	Z. Bai *et al.*	(Mark III Collab.)
COFFMAN	91	PL B263 135	D.M. Coffman *et al.*	(Mark III Collab.)
CRAWFORD	91B	PR D44 3394	G. Crawford *et al.*	(CLEO Collab.)
DECAMP	91J	PL B266 218	D. Decamp *et al.*	(ALEPH Collab.)
FRABETTI	91	PL B263 584	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
KINOSHITA	91	PR D43 2836	K. Kinoshita *et al.*	(CLEO Collab.)
KODAMA	91	PRL 66 1819	K. Kodama *et al.*	(FNAL E653 Collab.)
ALBRECHT	90C	ZPHY C46 9	H. Albrecht *et al.*	(ARGUS Collab.)
ALEXANDER	90	PRL 65 1184	J. Alexander *et al.*	(CLEO Collab.)
ALEXANDER	90B	PRL 65 1531	J. Alexander *et al.*	(CLEO Collab.)
ALVAREZ	90	ZPHY C47 539	M.P. Alvarez *et al.*	(CERN NA14/2 Collab.)
ANJOS	90D	PR D42 2414	J.C. Anjos *et al.*	(FNAL E691 Collab.)
BARLAG	90C	ZPHY C46 563	S. Barlag *et al.*	(ACCMOR Collab.)
ADLER	89	PRL 62 1821	J. Adler *et al.*	(Mark III Collab.)
ADLER	89C	PR D40 906	J. Adler *et al.*	(Mark III Collab.)
ALBRECHT	89D	ZPHY C43 181	H. Albrecht *et al.*	(ARGUS Collab.)
ANJOS	89F	PRL 62 1587	J.C. Anjos *et al.*	(FNAL E691 Collab.)
ABACHI	88	PL B205 411	S. Abachi *et al.*	(HRS Collab.)
ADLER	88	PR D37 2023	J. Adler *et al.*	(Mark III Collab.)
ADLER	88C	PRL 60 89	J. Adler *et al.*	(Mark III Collab.)
ALBRECHT	88G	PL B209 380	H. Albrecht *et al.*	(ARGUS Collab.)
ALBRECHT	88I	PL B210 267	H. Albrecht *et al.*	(ARGUS Collab.)
ANJOS	88C	PRL 60 1239	J.C. Anjos *et al.*	(FNAL E691 Collab.)
BORTOLETTO	88	PR D37 1719	D. Bortoletto *et al.*	(CLEO Collab.)
Also	89D	PR D39 1471 erratum	D. Bortoletto *et al.*	(CLEO Collab.)
CUMALAT	88	PL B210 253	J.P. Cumalat *et al.*	(E-400 Collab.)
HAAS	88	PRL 60 1614	P. Haas *et al.*	(CLEO Collab.)
RAAB	88	PR D37 2391	J.R. Raab *et al.*	(FNAL E691 Collab.)
ADAMOVICH	87	EPL 4 887	M.I. Adamovich *et al.*	(Photon Emulsion Collab.)
ADLER	87	PL B196 107	J. Adler *et al.*	(Mark III Collab.)
AGUILAR-...	87E	ZPHY C36 551	M. Aguilar-Benitez *et al.*	(LEBC-EHS Collab.)
Also	88B	ZPHY C40 321	M. Aguilar-Benitez *et al.*	(LEBC-EHS Collab.)

AGUILAR-...	87F	ZPHY C36 559	M. Aguilar-Benitez *et al.*	(LEBC-EHS Collab.)
Also	88	ZPHY C38 520 erratum	M. Aguilar-Benitez *et al.*	(LEBC-EHS Collab.)
ALBRECHT	87E	ZPHY C33 359	H. Albrecht *et al.*	(ARGUS Collab.)
ALBRECHT	87K	PL B199 447	H. Albrecht *et al.*	(ARGUS Collab.)
BARLAG	87B	ZPHY C37 17	S. Barlag *et al.*	(ACCMOR Collab.)
BECKER	87C	PL B193 147	J.J. Becker *et al.*	(Mark III Collab.)
Also	87D	PL B198 590 erratum	J.J. Becker *et al.*	(Mark III Collab.)
PALKA	87	PL B189 238	H. Palka *et al.*	(ACCMOR Collab.)
RILES	87	PR D35 2914	K. Riles *et al.*	(Mark II Collab.)
BAILEY	86	ZPHY C30 51	R. Bailey *et al.*	(ACCMOR Collab.)
BEBEK	86	PRL 56 1893	C. Bebek *et al.*	(CLEO Collab.)
LOUIS	86	PRL 56 1027	W.C. Louis *et al.*	(PRIN, CHIC, ISU)
ALBRECHT	85B	PL 158B 525	H. Albrecht *et al.*	(ARGUS Collab.)
ALBRECHT	85F	PL 150B 235	H. Albrecht *et al.*	(ARGUS Collab.)
AUBERT	85	PL 155B 461	J.J. Aubert *et al.*	(EMC Collab.)
BALTRUSAIT...	85B	PRL 54 1976	R.M. Baltrusaitis *et al.*	(Mark III Collab.)
BALTRUSAIT...	85E	PRL 55 150	R.M. Baltrusaitis *et al.*	(Mark III Collab.)
BENVENUTI	85	PL 158B 531	A.C. Benvenuti *et al.*	(BCDMS Collab.)
ADAMOVICH	84B	PL 140B 123	M.I. Adamovich *et al.*	(CERN WA58 Collab.)
DERRICK	84	PRL 53 1971	M. Derrick *et al.*	(HRS Collab.)
PARTRIDGE	84	Thesis CALT-68-1150	R.A. Partridge	(Crystal Ball Collab.)
SUMMERS	84	PRL 52 410	D.J. Summers *et al.*	(UCSB, CARL, COLO+)
BAILEY	83B	PL 132B 237	R. Bailey *et al.*	(ACCMOR Collab.)
BODEK	82	PL 113B 82	A. Bodek *et al.*	(ROCH, CIT, CHIC, FNAL+)
FIORINO	81	LNC 30 166	A. Fiorino *et al.*	
SCHINDLER	81	PR D24 78	R.H. Schindler *et al.*	(Mark II Collab.)
TRILLING	81	PRPL 75 57	G.H. Trilling	(LBL, UCB) J
ASTON	80E	PL 94B 113	D. Aston *et al.*	(BONN, CERN, EPOL, GLAS+)
AVERY	80	PRL 44 1309	P. Avery *et al.*	(ILL, FNAL, COLU)
SCHINDLER	80	PR D21 2716	R.H. Schindler *et al.*	(Mark II Collab.)
ZHOLENTZ	80	PL 96B 214	A.A. Zholents *et al.*	(NOVO)
Also	81	SJNP 34 814	A.A. Zholents *et al.*	(NOVO)
		Translated from YAF 34 1471.		
ABRAMS	79D	PRL 43 481	G.S. Abrams *et al.*	(Mark II Collab.)
ATIYA	79	PRL 43 414	M.S. Atiya *et al.*	(COLU, ILL, FNAL)
BALTAY	78C	PRL 41 73	C. Baltay *et al.*	(COLU, BNL)
VUILLEMIN	78	PRL 41 1149	V. Vuillemin *et al.*	(Mark I Collab.)
GOLDHABER	77	PL 69B 503	G. Goldhaber *et al.*	(Mark I Collab.)
PERUZZI	77	PRL 39 1301	I. Peruzzi *et al.*	(Mark I Collab.)
PICCOLO	77	PL 70B 260	M. Piccolo *et al.*	(Mark I Collab.)
RAPIDIS	77	PRL 39 526	P.A. Rapidis *et al.*	(Mark I Collab.)
GOLDHABER	76	PRL 37 255	G. Goldhaber *et al.*	(Mark I Collab.)

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