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± 0.5 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*
4.79±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 $> 0.05 \times 10^{-12}$ s are omitted from the average, and those with an error $> 0.1 \times 10^{-12}$ s or that have been superseded by later results have been removed from the Listings.

VALUE (10^{-12} s)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.4126±0.0028 OUR AVERAGE					
0.413 ±0.003 ±0.004	35k	AITALA	99E	E791	$K^- \pi^+$
0.4085±0.0041$^{+0.0035}_{-0.0034}$	25k	BONVICINI	99	CLE2	$e^+ e^- \approx \Upsilon(4S)$
0.413 ±0.004 ±0.003	16k	FRABETTI	94D	E687	$K^- \pi^+$, $K^- \pi^+ \pi^+ \pi^-$
0.424 ±0.011 ±0.007	5118	FRABETTI	91	E687	$K^- \pi^+$, $K^- \pi^+ \pi^+ \pi^-$
0.417 ±0.018 ±0.015	890	ALVAREZ	90	NA14	$K^- \pi^+$, $K^- \pi^+ \pi^+ \pi^-$
0.388 $^{+0.023}_{-0.021}$	641	[4] BARLAG	90C	ACCM	π^- Cu 230 GeV
0.48 ±0.04 ±0.03	776	ALBRECHT	88I	ARG	$e^+ e^-$ 10 GeV
0.422 ±0.008 ±0.010	4212	RAAB	88	E691	Photoproduction
0.42 ±0.05	90	BARLAG	87B	ACCM	K^- and π^- 200 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.34 $^{+0.06}_{-0.05}$ ±0.03	58	AMENDOLIA	88	SPEC	Photoproduction
0.46 $^{+0.06}_{-0.05}$	145	AGUILAR-...	87D	HYBR	$\pi^- p$ and $p p$
0.50 ±0.07 ±0.04	317	CSORNA	87	CLEO	$e^+ e^-$ 10 GeV
0.61 ±0.09 ±0.03	50	ABE	86	HYBR	γp 20 GeV
0.47 $^{+0.09}_{-0.08}$ ±0.05	74	GLADNEY	86	MRK2	$e^+ e^-$ 29 GeV
0.43 $^{+0.07}_{-0.05}$ $^{+0.01}_{-0.02}$	58	USHIDA	86B	EMUL	ν wideband
0.37 $^{+0.10}_{-0.07}$	26	BAILEY	85	SILI	π^- Be 200 GeV

[4] BARLAG 90C estimate systematic error to be negligible.

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

The D_1^0 and D_2^0 are the mass eigenstates of the D^0 meson. To calculate the following limits, we use $\Delta m = [2r/(1-r)]^{1/2}\,\hbar/4.126\times10^{-13}$ s, where r is the experimental D^0-$\overline{D}^0$ mixing ratio.

VALUE (10^{10} $\hbar$ s^{-1})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
< 7 (CL = 95%)					
< 7	95	[5] GODANG	00	CLE2	$e^+ e^-$

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

<32	90	[6,7] AITALA	98	E791	π^- nucleus, 500 GeV
<24	90	[8] AITALA	96C	E791	π^- nucleus, 500 GeV
<21	90	[7,9] 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 $D^0 \rightarrow K^+\pi^-$ and $\overline{D}^0 \rightarrow K^+\pi^-$ is assumed to be small.

[6] AITALA 98 allows interference between the doubly Cabibbo-suppressed and mixing amplitudes, and also allows *CP* violation in this term.

[7] This limit is inferred from the D^0-$\overline{D}^0$ mixing ratio $\Gamma(K^+\pi^-$ or $K^+\pi^-\pi^+\pi^-$ (via $\overline{D}^0))/\Gamma(K^-\pi^+$ or $K^-\pi^+\pi^+\pi^-)$ near the end of the D^0 Listings. Decay-time information is used to distinguish doubly Cabibbo-suppressed decays from D^0-$\overline{D}^0$ mixing.

[8] This limit is inferred from the D^0-$\overline{D}^0$ mixing ratio $\Gamma(K^+\ell^-\overline{\nu}_\ell(\text{via } \overline{D}^0))/\Gamma(K^-\ell^+\nu_\ell)$ given near the end of the D^0 Listings.

[9] ANJOS 88C assumes no interference between doubly Cabibbo-suppressed and mixing amplitudes. When interference is allowed, the limit degrades by about a factor of two.

$(\Gamma_{D^0_1} - \Gamma_{D^0_2})/\Gamma_{D^0}$

The D^0_1 and D^0_2 are the mass eigenstates of the D^0 meson. AITALA 99E uses a difference in directly measured decay rates to obtain its limit. The other experiments infer the limits here from limits on mixing, using $\Delta\Gamma/\Gamma = [8r/(1+r)]^{1/2}$, where r is the experimental D^0-$\overline{D}^0$ mixing ratio. See the footnotes to the entries below.

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{-0.116 < \Delta\Gamma/\Gamma < 0.020}$	95	[10] GODANG	00	CLE2	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$-0.08 < \Delta\Gamma/\Gamma < 0.12$	90	[11] AITALA	99E	E791	$K^-\pi^+$, K^+K^-
$\lvert\Delta\Gamma\rvert/\Gamma < 0.26$	90	[12,13] AITALA	98	E791	π^- nucleus, 500 GeV
$\lvert\Delta\Gamma\rvert/\Gamma < 0.20$	90	[14] AITALA	96C	E791	π^- nucleus, 500 GeV
$\lvert\Delta\Gamma\rvert/\Gamma < 0.17$	90	[13,15] ANJOS	88C	E691	Photoproduction

[10] 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 phase between $D^0 \rightarrow K^+\pi^-$ and $\overline{D}^0 \rightarrow K^+\pi^-$ is assumed to be small.

[11] AITALA 99E measures $\Delta\Gamma = 2[\Gamma(D^0 \rightarrow K^+K^-) - \Gamma(D^0 \rightarrow K^-\pi^+)] = +0.04 \pm 0.14 \pm 0.05\ \text{ps}^{-1}$ and thus gets 90%-confidence-level limits $-0.20 < \Delta\Gamma < +0.28\ \text{ps}^{-1}$.

[12] AITALA 98 allows interference between the doubly Cabibbo-suppressed and mixing amplitudes, and also allows *CP* violation in this term.

[13] This limit is inferred from the D^0-$\overline{D}^0$ mixing ratio $\Gamma(K^+\pi^-$ or $K^+\pi^-\pi^+\pi^-$ (via $\overline{D}^0))/\Gamma(K^-\pi^+$ or $K^-\pi^+\pi^+\pi^-)$ near the end of the D^0 Listings. Decay-time information is used to distinguish doubly Cabibbo-suppressed decays from D^0-$\overline{D}^0$ mixing.

[14] This limit is inferred from the D^0-$\overline{D}^0$ mixing ratio $\Gamma(K^+\ell^-\overline{\nu}_\ell(\text{via } \overline{D}^0))/\Gamma(K^-\ell^+\nu_\ell)$ given near the end of the D^0 Listings.

[15] ANJOS 88C assumes no interference between doubly Cabibbo-suppressed and mixing amplitudes. When interference is allowed, 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		(6.75 ± 0.29) %	
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	[a]	< 13 %	CL=90%
	Semileptonic modes			
Γ_7	$K^- \ell^+ \nu_\ell$	[b]	(3.47 ± 0.17) %	S=1.3
Γ_8	$K^- e^+ \nu_e$		(3.64 ± 0.18) %	
Γ_9	$K^- \mu^+ \nu_\mu$		(3.22 ± 0.17) %	
Γ_{10}	$K^- \pi^0 e^+ \nu_e$		$(1.6 {}^{+1.3}_{-0.5})$ %	
Γ_{11}	$\overline{K}^0 \pi^- e^+ \nu_e$		$(2.8 {}^{+1.7}_{-0.9})$ %	
Γ_{12}	$\overline{K}^*(892)^- e^+ \nu_e \times B(K^{*-} \to \overline{K}^0 \pi^-)$		(1.35 ± 0.22) %	
Γ_{13}	$K^*(892)^- \ell^+ \nu_\ell$			
Γ_{14}	$\overline{K}^*(892)^0 \pi^- e^+ \nu_e$			
Γ_{15}	$K^- \pi^+ \pi^- \mu^+ \nu_\mu$		$< 1.2 \times 10^{-3}$	CL=90%
Γ_{16}	$(\overline{K}^*(892)\pi)^- \mu^+ \nu_\mu$		$< 1.4 \times 10^{-3}$	CL=90%
Γ_{17}	$\pi^- e^+ \nu_e$		$(3.7 \pm 0.6) \times 10^{-3}$	

A fraction of the following resonance mode has already appeared above as a submode of a charged-particle mode.

	Mode		Fraction (Γ_i/Γ)	Scale factor/ Confidence level
Γ_{18}	$K^*(892)^- e^+ \nu_e$		(2.02 ± 0.33) %	
	Hadronic modes with a $\overline{K}$ or $\overline{K}K\overline{K}$			
Γ_{19}	$K^- \pi^+$		(3.83 ± 0.09) %	
Γ_{20}	$\overline{K}^0 \pi^0$		(2.11 ± 0.21) %	S=1.1
Γ_{21}	$\overline{K}^0 \pi^+ \pi^-$	[c]	(5.4 ± 0.4) %	S=1.2
Γ_{22}	$\overline{K}^0 \rho^0$		(1.21 ± 0.17) %	
Γ_{23}	$\overline{K}^0 f_0(980) \times B(f_0 \to \pi^+ \pi^-)$		$(3.0 \pm 0.8) \times 10^{-3}$	
Γ_{24}	$\overline{K}^0 f_2(1270) \times B(f_2 \to \pi^+ \pi^-)$		$(2.4 \pm 0.9) \times 10^{-3}$	
Γ_{25}	$\overline{K}^0 f_0(1370) \times B(f_0 \to \pi^+ \pi^-)$		$(4.3 \pm 1.3) \times 10^{-3}$	

Γ_{26}	$K^*(892)^- \pi^+$ $\times$ B($K^{*-} \to \overline{K}^0 \pi^-$)		(3.4 $\pm$0.3) %	
Γ_{27}	$K_0^*(1430)^- \pi^+$ $\times$ B($K_0^*(1430)^- \to \overline{K}^0 \pi^-$)		(6.4 $\pm$1.6) $\times 10^{-3}$	
Γ_{28}	$\overline{K}^0 \pi^+ \pi^-$ nonresonant		(1.47$\pm$0.24) %	
Γ_{29}	$K^- \pi^+ \pi^0$	[c]	(13.9 $\pm$0.9) %	S=1.3
Γ_{30}	$K^- \rho^+$		(10.8 $\pm$1.0) %	
Γ_{31}	$K^*(892)^- \pi^+$ $\times$ B($K^{*-} \to K^- \pi^0$)		(1.7 $\pm$0.2) %	
Γ_{32}	$\overline{K}^*(892)^0 \pi^0$ $\times$ B($\overline{K}^{*0} \to K^- \pi^+$)		(2.1 $\pm$0.3) %	
Γ_{33}	$K^- \pi^+ \pi^0$ nonresonant		(6.9 $\pm$2.5) $\times 10^{-3}$	
Γ_{34}	$\overline{K}^0 \pi^0 \pi^0$		—	
Γ_{35}	$\overline{K}^*(892)^0 \pi^0$ $\times$ B($\overline{K}^{*0} \to \overline{K}^0 \pi^0$)		(1.1 $\pm$0.2) %	
Γ_{36}	$\overline{K}^0 \pi^0 \pi^0$ nonresonant		(7.8 $\pm$2.0) $\times 10^{-3}$	
Γ_{37}	$K^- \pi^+ \pi^+ \pi^-$	[c]	(7.49$\pm$0.31) %	
Γ_{38}	$K^- \pi^+ \rho^0$ total		(6.3 $\pm$0.4) %	
Γ_{39}	$K^- \pi^+ \rho^0$ 3-body		(4.7 $\pm$2.1) $\times 10^{-3}$	
Γ_{40}	$\overline{K}^*(892)^0 \rho^0$ $\times$ B($\overline{K}^{*0} \to K^- \pi^+$)		(9.8 $\pm$2.2) $\times 10^{-3}$	
Γ_{41}	$K^- a_1(1260)^+$ $\times$ B($a_1(1260)^+ \to \pi^+ \pi^+ \pi^-$)		(3.6 $\pm$0.6) %	
Γ_{42}	$\overline{K}^*(892)^0 \pi^+ \pi^-$ total $\times$ B($\overline{K}^{*0} \to K^- \pi^+$)		(1.5 $\pm$0.4) %	
Γ_{43}	$\overline{K}^*(892)^0 \pi^+ \pi^-$ 3-body $\times$ B($\overline{K}^{*0} \to K^- \pi^+$)		(9.5 $\pm$2.1) $\times 10^{-3}$	
Γ_{44}	$K_1(1270)^- \pi^+$ $\times$ B($K_1(1270)^- \to K^- \pi^+ \pi^-$)	[d]	(3.6 $\pm$1.0) $\times 10^{-3}$	
Γ_{45}	$K^- \pi^+ \pi^+ \pi^-$ nonresonant		(1.74$\pm$0.25) %	
Γ_{46}	$\overline{K}^0 \pi^+ \pi^- \pi^0$	[c]	(10.0 $\pm$1.2) %	
Γ_{47}	$\overline{K}^0 \eta$ $\times$ B($\eta \to \pi^+ \pi^- \pi^0$)		(1.6 $\pm$0.3) $\times 10^{-3}$	
Γ_{48}	$\overline{K}^0 \omega$ $\times$ B($\omega \to \pi^+ \pi^- \pi^0$)		(1.9 $\pm$0.4) %	
Γ_{49}	$K^*(892)^- \rho^+$ $\times$ B($K^{*-} \to \overline{K}^0 \pi^-$)		(4.1 $\pm$1.6) %	
Γ_{50}	$\overline{K}^*(892)^0 \rho^0$ $\times$ B($\overline{K}^{*0} \to \overline{K}^0 \pi^0$)		(4.9 $\pm$1.1) $\times 10^{-3}$	
Γ_{51}	$K_1(1270)^- \pi^+$ $\times$ B($K_1(1270)^- \to \overline{K}^0 \pi^- \pi^0$)	[d]	(5.1 $\pm$1.4) $\times 10^{-3}$	
Γ_{52}	$\overline{K}^*(892)^0 \pi^+ \pi^-$ 3-body $\times$ B($\overline{K}^{*0} \to \overline{K}^0 \pi^0$)		(4.8 $\pm$1.1) $\times 10^{-3}$	
Γ_{53}	$\overline{K}^0 \pi^+ \pi^- \pi^0$ nonresonant		(2.1 $\pm$2.1) %	

Γ_{54}	$K^- \pi^+ \pi^0 \pi^0$	(15 ± 5) %	
Γ_{55}	$K^- \pi^+ \pi^+ \pi^- \pi^0$	(4.0 ± 0.4) %	
Γ_{56}	$\overline{K}^*(892)^0 \pi^+ \pi^- \pi^0 \times B(\overline{K}^{*0} \to K^- \pi^+)$	(1.2 ± 0.6) %	
Γ_{57}	$\overline{K}^*(892)^0 \eta \times B(\overline{K}^{*0} \to K^- \pi^+) \times B(\eta \to \pi^+ \pi^- \pi^0)$	$(2.9 \pm 0.8) \times 10^{-3}$	
Γ_{58}	$K^- \pi^+ \omega \times B(\omega \to \pi^+ \pi^- \pi^0)$	(2.7 ± 0.5) %	
Γ_{59}	$\overline{K}^*(892)^0 \omega \times B(\overline{K}^{*0} \to K^- \pi^+) \times B(\omega \to \pi^+ \pi^- \pi^0)$	$(7 \pm 3) \times 10^{-3}$	
Γ_{60}	$\overline{K}^0 \pi^+ \pi^+ \pi^- \pi^-$	$(5.8 \pm 1.6) \times 10^{-3}$	
Γ_{61}	$\overline{K}^0 \pi^+ \pi^- \pi^0 \pi^0 (\pi^0)$	$(10.6 {}^{+7.3}_{-3.0})$ %	
Γ_{62}	$\overline{K}^0 K^+ K^-$	$(9.4 \pm 1.0) \times 10^{-3}$	
	In the fit as $\frac{1}{2}\Gamma_{74} + \Gamma_{64}$, where $\frac{1}{2}\Gamma_{74} = \Gamma_{63}$.		
Γ_{63}	$\overline{K}^0 \phi \times B(\phi \to K^+ K^-)$	$(4.3 \pm 0.5) \times 10^{-3}$	
Γ_{64}	$\overline{K}^0 K^+ K^-$ non-ϕ	$(5.1 \pm 0.8) \times 10^{-3}$	
Γ_{65}	$K^0_S K^0_S K^0_S$	$(8.3 \pm 1.5) \times 10^{-4}$	
Γ_{66}	$K^+ K^- K^- \pi^+$	$(2.1 \pm 0.5) \times 10^{-4}$	
Γ_{67}	$K^+ K^- \overline{K}^0 \pi^0$	$(7.2 {}^{+4.8}_{-3.5}) \times 10^{-3}$	

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_{68}	$\overline{K}^0 \eta$	$(7.0 \pm 1.0) \times 10^{-3}$	
Γ_{69}	$\overline{K}^0 \rho^0$	(1.21 ± 0.17) %	
Γ_{70}	$K^- \rho^+$	(10.8 ± 0.9) %	S=1.2
Γ_{71}	$\overline{K}^0 \omega$	(2.1 ± 0.4) %	
Γ_{72}	$\overline{K}^0 \eta'(958)$	(1.71 ± 0.26) %	
Γ_{73}	$\overline{K}^0 f_0(980)$	$(5.7 \pm 1.6) \times 10^{-3}$	
Γ_{74}	$\overline{K}^0 \phi$	$(8.6 \pm 1.0) \times 10^{-3}$	
Γ_{75}	$K^- a_1(1260)^+$	(7.3 ± 1.1) %	
Γ_{76}	$\overline{K}^0 a_1(1260)^0$	< 1.9 %	CL=90%
Γ_{77}	$\overline{K}^0 f_2(1270)$	$(4.1 \pm 1.5) \times 10^{-3}$	
Γ_{78}	$K^- a_2(1320)^+$	$< 2 \times 10^{-3}$	CL=90%
Γ_{79}	$\overline{K}^0 f_0(1370)$	$(6.9 \pm 2.1) \times 10^{-3}$	
Γ_{80}	$K^*(892)^- \pi^+$	(5.0 ± 0.4) %	S=1.2
Γ_{81}	$\overline{K}^*(892)^0 \pi^0$	(3.1 ± 0.4) %	
Γ_{82}	$\overline{K}^*(892)^0 \pi^+ \pi^-$ total	(2.2 ± 0.5) %	
Γ_{83}	$\overline{K}^*(892)^0 \pi^+ \pi^-$ 3-body	(1.42 ± 0.32) %	
Γ_{84}	$K^- \pi^+ \rho^0$ total	(6.3 ± 0.4) %	
Γ_{85}	$K^- \pi^+ \rho^0$ 3-body	$(4.7 \pm 2.1) \times 10^{-3}$	

Γ_{86}	$\overline{K}^*(892)^0 \rho^0$		(1.46 ± 0.32) %	
Γ_{87}	$\overline{K}^*(892)^0 \rho^0$ transverse		(1.5 ± 0.5) %	
Γ_{88}	$\overline{K}^*(892)^0 \rho^0$ S-wave		(2.8 ± 0.6) %	
Γ_{89}	$\overline{K}^*(892)^0 \rho^0$ S-wave long.		$< 3 \times 10^{-3}$	CL=90%
Γ_{90}	$\overline{K}^*(892)^0 \rho^0$ P-wave		$< 3 \times 10^{-3}$	CL=90%
Γ_{91}	$\overline{K}^*(892)^0 \rho^0$ D-wave		(1.9 ± 0.6) %	
Γ_{92}	$K^*(892)^- \rho^+$		(6.1 ± 2.4) %	
Γ_{93}	$K^*(892)^- \rho^+$ longitudinal		(2.9 ± 1.2) %	
Γ_{94}	$K^*(892)^- \rho^+$ transverse		(3.2 ± 1.8) %	
Γ_{95}	$K^*(892)^- \rho^+$ P-wave		< 1.5 %	CL=90%
Γ_{96}	$K^- \pi^+ f_0(980)$		< 1.1 %	CL=90%
Γ_{97}	$\overline{K}^*(892)^0 f_0(980)$		$< 7 \times 10^{-3}$	CL=90%
Γ_{98}	$K_1(1270)^- \pi^+$	[d]	(1.06 ± 0.29) %	
Γ_{99}	$K_1(1400)^- \pi^+$		< 1.2 %	CL=90%
Γ_{100}	$\overline{K}_1(1400)^0 \pi^0$		< 3.7 %	CL=90%
Γ_{101}	$K^*(1410)^- \pi^+$		< 1.2 %	CL=90%
Γ_{102}	$K_0^*(1430)^- \pi^+$		(1.04 ± 0.26) %	
Γ_{103}	$K_2^*(1430)^- \pi^+$		$< 8 \times 10^{-3}$	CL=90%
Γ_{104}	$\overline{K}_2^*(1430)^0 \pi^0$		$< 4 \times 10^{-3}$	CL=90%
Γ_{105}	$\overline{K}^*(892)^0 \pi^+ \pi^- \pi^0$		(1.8 ± 0.9) %	
Γ_{106}	$\overline{K}^*(892)^0 \eta$		(1.9 ± 0.5) %	
Γ_{107}	$K^- \pi^+ \omega$		(3.0 ± 0.6) %	
Γ_{108}	$\overline{K}^*(892)^0 \omega$		(1.1 ± 0.4) %	
Γ_{109}	$K^- \pi^+ \eta'(958)$		$(7.0 \pm1.8) \times 10^{-3}$	
Γ_{110}	$\overline{K}^*(892)^0 \eta'(958)$		$< 1.0 \times 10^{-3}$	CL=90%

Pionic modes

Γ_{111}	$\pi^+ \pi^-$		$(1.52\pm0.09) \times 10^{-3}$	
Γ_{112}	$\pi^0 \pi^0$		$(8.4 \pm2.2) \times 10^{-4}$	
Γ_{113}	$\pi^+ \pi^- \pi^0$		(1.6 ± 1.1) %	S=2.7
Γ_{114}	$\pi^+ \pi^+ \pi^- \pi^-$		$(7.3 \pm0.5) \times 10^{-3}$	
Γ_{115}	$\pi^+ \pi^+ \pi^- \pi^- \pi^0$		(1.9 ± 0.4) %	
Γ_{116}	$\pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^-$		$(4.0 \pm3.0) \times 10^{-4}$	

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

Γ_{117}	$K^+ K^-$		$(4.25\pm0.16) \times 10^{-3}$	
Γ_{118}	$K^0 \overline{K}^0$		$(6.5 \pm1.8) \times 10^{-4}$	S=1.2
Γ_{119}	$K^0 K^- \pi^+$		$(6.4 \pm1.0) \times 10^{-3}$	S=1.1
Γ_{120}	$\overline{K}^*(892)^0 K^0 \times \mathrm{B}(\overline{K}^{*0} \to K^- \pi^+)$		$< 1.1 \times 10^{-3}$	CL=90%
Γ_{121}	$K^*(892)^+ K^- \times \mathrm{B}(K^{*+} \to K^0 \pi^+)$		$(2.3 \pm0.5) \times 10^{-3}$	
Γ_{122}	$K^0 K^- \pi^+$ nonresonant		$(2.3 \pm2.3) \times 10^{-3}$	
Γ_{123}	$\overline{K}^0 K^+ \pi^-$		$(5.0 \pm1.0) \times 10^{-3}$	

Γ_{124}	$K^*(892)^0 \overline{K}^0 \times B(K^{*0} \to K^+\pi^-)$		$<$ 5	$\times 10^{-4}$	CL=90%
Γ_{125}	$K^*(892)^- K^+ \times B(K^{*-} \to \overline{K}^0\pi^-)$		(1.2 ±0.7)	$\times 10^{-3}$	
Γ_{126}	$\overline{K}^0 K^+ \pi^-$ nonresonant		(3.8 $^{+2.3}_{-1.9}$)	$\times 10^{-3}$	
Γ_{127}	$K^+ K^- \pi^0$		(1.3 ±0.4)	$\times 10^{-3}$	
Γ_{128}	$K^0_S K^0_S \pi^0$		$<$ 5.9	$\times 10^{-4}$	
Γ_{129}	$K^+ K^- \pi^+ \pi^-$	[e]	(2.50±0.23)	$\times 10^{-3}$	
Γ_{130}	$\phi\pi^+\pi^- \times B(\phi \to K^+K^-)$		(5.3 ±1.4)	$\times 10^{-4}$	
Γ_{131}	$\phi\rho^0 \times B(\phi \to K^+K^-)$		(3.0 ±1.6)	$\times 10^{-4}$	
Γ_{132}	$K^+ K^- \rho^0$ 3-body		(9.0 ±2.3)	$\times 10^{-4}$	
Γ_{133}	$K^*(892)^0 K^- \pi^+$ +c.c. $\times B(K^{*0} \to K^+\pi^-)$	[f]	$<$ 5	$\times 10^{-4}$	
Γ_{134}	$K^*(892)^0 \overline{K}^*(892)^0 \times B^2(K^{*0} \to K^+\pi^-)$		(6 ±2)	$\times 10^{-4}$	
Γ_{135}	$K^+ K^- \pi^+ \pi^-$ non-ϕ		—		
Γ_{136}	$K^+ K^- \pi^+ \pi^-$ nonresonant		$<$ 8	$\times 10^{-4}$	CL=90%
Γ_{137}	$K^0 \overline{K}^0 \pi^+ \pi^-$		(6.8 ±2.7)	$\times 10^{-3}$	
Γ_{138}	$K^+ K^- \pi^+ \pi^- \pi^0$		(3.1 ±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_{139}	$\overline{K}^*(892)^0 K^0$		$<$ 1.6	$\times 10^{-3}$	CL=90%
Γ_{140}	$K^*(892)^+ K^-$		(3.5 ±0.8)	$\times 10^{-3}$	
Γ_{141}	$K^*(892)^0 \overline{K}^0$		$<$ 8	$\times 10^{-4}$	CL=90%
Γ_{142}	$K^*(892)^- K^+$		(1.8 ±1.0)	$\times 10^{-3}$	
Γ_{143}	$\phi\pi^0$		$<$ 1.4	$\times 10^{-3}$	CL=90%
Γ_{144}	$\phi\eta$		$<$ 2.8	$\times 10^{-3}$	CL=90%
Γ_{145}	$\phi\omega$		$<$ 2.1	$\times 10^{-3}$	CL=90%
Γ_{146}	$\phi\pi^+\pi^-$		(1.07±0.28)	$\times 10^{-3}$	
Γ_{147}	$\phi\rho^0$		(6 ±3)	$\times 10^{-4}$	
Γ_{148}	$\phi\pi^+\pi^-$ 3-body		(7 ±5)	$\times 10^{-4}$	
Γ_{149}	$K^*(892)^0 K^- \pi^+$ + c.c.	[f]	$<$ 7	$\times 10^{-4}$	CL=90%
Γ_{150}	$K^*(892)^0 K^- \pi^+$				
Γ_{151}	$\overline{K}^*(892)^0 K^+ \pi^-$				
Γ_{152}	$K^*(892)^0 \overline{K}^*(892)^0$		(1.4 ±0.5)	$\times 10^{-3}$	

Radiative modes

Γ_{153}	$\rho^0\gamma$		$<$ 2.4	$\times 10^{-4}$	CL=90%
Γ_{154}	$\omega\gamma$		$<$ 2.4	$\times 10^{-4}$	CL=90%
Γ_{155}	$\phi\gamma$		$<$ 1.9	$\times 10^{-4}$	CL=90%
Γ_{156}	$\overline{K}^*(892)^0\gamma$		$<$ 7.6	$\times 10^{-4}$	CL=90%

Doubly Cabibbo suppressed (*DC*) modes, $\Delta C = 2$ forbidden via mixing (*C2M*) modes, $\Delta C = 1$ weak neutral current (*C1*) modes, or Lepton Family number (*LF*) violating modes

Γ_{157}	$K^+ \ell^- \overline{\nu}_\ell$ (via $\overline{D}^0$)	*C2M*		$<$ 1.7	$\times 10^{-4}$	CL=90%
Γ_{158}	$K^+ \pi^-$	*DC*		(1.46±0.30)	$\times 10^{-4}$	
Γ_{159}	$K^+ \pi^-$ (via $\overline{D}^0$)	*C2M*		$<$ 1.6	$\times 10^{-5}$	CL=95%
Γ_{160}	$K^+ \pi^- \pi^+ \pi^-$	*DC*		(1.9 ±2.6)	$\times 10^{-4}$	
Γ_{161}	$K^+ \pi^- \pi^+ \pi^-$ (via $\overline{D}^0$)	*C2M*		$<$ 4	$\times 10^{-4}$	CL=90%
Γ_{162}	$K^+ \pi^-$ or $K^+ \pi^- \pi^+ \pi^-$ (via $\overline{D}^0$)			$<$ 1.0	$\times 10^{-3}$	CL=90%
Γ_{163}	μ^- anything (via $\overline{D}^0$)	*C2M*		$<$ 4	$\times 10^{-4}$	CL=90%
Γ_{164}	$e^+ e^-$	*C1*		$<$ 6.2	$\times 10^{-6}$	CL=90%
Γ_{165}	$\mu^+ \mu^-$	*C1*		$<$ 4.1	$\times 10^{-6}$	CL=90%
Γ_{166}	$\pi^0 e^+ e^-$	*C1*		$<$ 4.5	$\times 10^{-5}$	CL=90%
Γ_{167}	$\pi^0 \mu^+ \mu^-$	*C1*		$<$ 1.8	$\times 10^{-4}$	CL=90%
Γ_{168}	$\eta e^+ e^-$	*C1*		$<$ 1.1	$\times 10^{-4}$	CL=90%
Γ_{169}	$\eta \mu^+ \mu^-$	*C1*		$<$ 5.3	$\times 10^{-4}$	CL=90%
Γ_{170}	$\rho^0 e^+ e^-$	*C1*		$<$ 1.0	$\times 10^{-4}$	CL=90%
Γ_{171}	$\rho^0 \mu^+ \mu^-$	*C1*		$<$ 2.3	$\times 10^{-4}$	CL=90%
Γ_{172}	$\omega e^+ e^-$	*C1*		$<$ 1.8	$\times 10^{-4}$	CL=90%
Γ_{173}	$\omega \mu^+ \mu^-$	*C1*		$<$ 8.3	$\times 10^{-4}$	CL=90%
Γ_{174}	$\phi e^+ e^-$	*C1*		$<$ 5.2	$\times 10^{-5}$	CL=90%
Γ_{175}	$\phi \mu^+ \mu^-$	*C1*		$<$ 4.1	$\times 10^{-4}$	CL=90%
Γ_{176}	$\overline{K}^0 e^+ e^-$		[g]	$<$ 1.1	$\times 10^{-4}$	CL=90%
Γ_{177}	$\overline{K}^0 \mu^+ \mu^-$		[g]	$<$ 2.6	$\times 10^{-4}$	CL=90%
Γ_{178}	$\overline{K}^*(892)^0 e^+ e^-$		[g]	$<$ 1.4	$\times 10^{-4}$	CL=90%
Γ_{179}	$\overline{K}^*(892)^0 \mu^+ \mu^-$		[g]	$<$ 1.18	$\times 10^{-3}$	CL=90%
Γ_{180}	$\pi^+ \pi^- \pi^0 \mu^+ \mu^-$	*C1*		$<$ 8.1	$\times 10^{-4}$	CL=90%
Γ_{181}	$\mu^\pm e^\mp$	*LF*	[h]	$<$ 8.1	$\times 10^{-6}$	CL=90%
Γ_{182}	$\pi^0 e^\pm \mu^\mp$	*LF*	[h]	$<$ 8.6	$\times 10^{-5}$	CL=90%
Γ_{183}	$\eta e^\pm \mu^\mp$	*LF*	[h]	$<$ 1.0	$\times 10^{-4}$	CL=90%
Γ_{184}	$\rho^0 e^\pm \mu^\mp$	*LF*	[h]	$<$ 4.9	$\times 10^{-5}$	CL=90%
Γ_{185}	$\omega e^\pm \mu^\mp$	*LF*	[h]	$<$ 1.2	$\times 10^{-4}$	CL=90%
Γ_{186}	$\phi e^\pm \mu^\mp$	*LF*	[h]	$<$ 3.4	$\times 10^{-5}$	CL=90%
Γ_{187}	$\overline{K}^0 e^\pm \mu^\mp$	*LF*	[h]	$<$ 1.0	$\times 10^{-4}$	CL=90%
Γ_{188}	$\overline{K}^*(892)^0 e^\pm \mu^\mp$	*LF*	[h]	$<$ 1.0	$\times 10^{-4}$	CL=90%

Γ_{189}	A dummy mode used by the fit.	(17.2 ±3.4) %	S=1.1

[*a*] 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.

[*b*] 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^+.

[*c*] 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.

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

[*e*] 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.

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

[*g*] This mode is not a useful test for a $\Delta C=1$ weak neutral current because both quarks must change flavor in this decay.

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

CONSTRAINED FIT INFORMATION

An overall fit to 51 branching ratios uses 122 measurements and one constraint to determine 28 parameters. The overall fit has a $\chi^2 = 64.5$ for 95 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, $x_i \equiv \Gamma_i/\Gamma_{\rm total}$. The fit constrains the x_i whose labels appear in this array to sum to one.

	x_2	x_8	x_9	x_{17}	x_{18}	x_{19}	x_{20}	x_{21}	x_{29}	x_{37}
x_8	6									
x_9	32	19								
x_{17}	1	24	5							
x_{18}	1	8	3	2						
x_{19}	13	46	42	11	6					
x_{20}	1	5	3	1	24	8				
x_{21}	1	6	4	2	36	10	66			
x_{29}	3	11	9	3	7	23	16	18		
x_{37}	5	18	17	4	3	40	4	5	9	
x_{46}	1	3	2	1	18	6	33	51	9	4
x_{55}	3	9	8	2	1	19	2	2	4	28
x_{64}	1	3	2	1	16	5	30	46	8	2
x_{68}	1	3	2	1	17	5	58	47	11	2
x_{71}	1	2	2	1	13	4	24	37	6	2
x_{74}	1	4	3	1	21	6	39	60	10	3
x_{80}	1	6	4	1	30	9	56	84	18	4
x_{81}	1	5	4	1	7	10	24	18	43	4
x_{83}	1	3	3	1	0	7	1	1	2	18
x_{87}	1	2	2	0	2	4	3	5	2	9
x_{98}	0	2	1	0	7	3	13	20	4	3
x_{106}	1	3	3	1	2	6	4	4	23	3
x_{117}	8	28	25	7	4	60	5	6	14	24
x_{118}	0	2	1	0	9	3	17	25	4	1
x_{119}	1	4	3	1	14	6	26	39	7	3
x_{123}	1	3	2	1	11	6	20	30	6	2
x_{140}	0	2	1	0	11	3	20	30	5	1
x_{189}	−28	−21	−23	−7	−34	−32	−53	−70	−50	−26

	x_{46}	x_{55}	x_{64}	x_{68}	x_{71}	x_{74}	x_{80}	x_{81}	x_{83}	x_{87}
x_{55}	1									
x_{64}	23	1								
x_{68}	24	1	21							
x_{71}	43	1	17	17						
x_{74}	30	1	7	28	22					
x_{80}	43	2	38	40	31	50				
x_{81}	9	2	8	14	7	11	17			
x_{83}	1	5	0	0	0	0	1	1		
x_{87}	9	3	2	2	4	3	4	1	2	
x_{98}	40	1	9	9	17	12	17	4	1	4
x_{106}	2	1	2	2	2	2	4	10	0	0
x_{117}	3	12	3	3	2	4	6	6	4	2
x_{118}	13	1	11	12	9	15	21	5	0	1
x_{119}	20	1	18	18	14	23	33	7	0	2
x_{123}	15	1	13	14	11	18	25	6	0	2
x_{140}	15	1	14	14	11	18	25	6	0	1
x_{189}	−68	−20	−33	−38	−45	−43	−64	−39	−14	−23

	x_{98}	x_{106}	x_{117}	x_{118}	x_{119}	x_{123}	x_{140}
x_{106}	1						
x_{117}	2	4					
x_{118}	5	1	2				
x_{119}	8	2	4	10			
x_{123}	6	1	3	7	12		
x_{140}	6	1	2	8	12	9	
x_{189}	−34	−25	−20	−18	−30	−24	−23

D^0 BRANCHING RATIOS

See the “Note on D Mesons” in the $D^{\pm}$ Listings.

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

Inclusive modes

$\Gamma(e^+ \text{anything})/\Gamma_{\text{total}}$ **Γ_1/Γ**

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
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	[16] 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

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

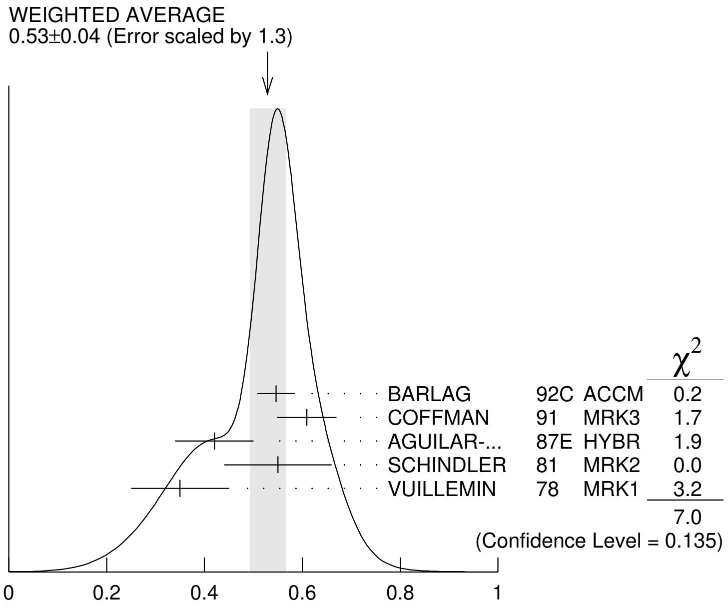
$\Gamma(\mu^+ \text{anything})/\Gamma_{\text{total}}$ Γ_2/Γ

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.				
$0.546^{+0.039}_{-0.038}$		[17] 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, $p p$ 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

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



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

$\left[\Gamma(\overline{K}^0 \text{anything}) + \Gamma(K^0 \text{anything})\right]/\Gamma_{\text{total}}$ 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
$0.034^{+0.006}_{-0.004}$ OUR AVERAGE					
$0.034^{+0.007}_{-0.005}$		[18] 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, pp 360, 400 GeV
0.08 ±0.03	25	SCHINDLER	81	MRK2	e^+e^- 3.771 GeV

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

——— Semileptonic modes ———

$\Gamma(K^-\ell^+\nu_\ell)/\Gamma_{\text{total}}$ Γ_7/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±0.0017 OUR AVERAGE	Error includes scale factor of 1.3.		
0.0364±0.0018	PDG	00	Our $\Gamma(K^- e^+ \nu_e)/\Gamma_{\text{total}}$
0.0331±0.0018	PDG	00	1.03 × our $\Gamma(K^- \mu^+ \nu_\mu)/\Gamma_{\text{total}}$

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0364±0.0018 OUR FIT					
0.034 ±0.005 ±0.004	55	ADLER	89	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^- e^+ \nu_e)/\Gamma(K^-\pi^+)$ Γ_8/Γ_{19}

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	[19] BEAN	93C	CLE2	$e^+e^- \approx \Upsilon(4S)$
0.90 ±0.06 ±0.06	584	[20] CRAWFORD	91B	CLEO	$e^+e^- \approx$ 10.5 GeV
0.91 ±0.07 ±0.11	250	[21] ANJOS	89F	E691	Photoproduction

[19] 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.

[20] 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.

[21] 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_9/Γ_{19}

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	[22] FRABETTI 95G	E687	γ Be $\overline{E}_\gamma$= 220 GeV
0.82 ±0.13 ±0.13	338	[23] FRABETTI 93I	E687	γ Be $\overline{E}_\gamma$= 221 GeV
0.79 ±0.08 ±0.09	231	[24] CRAWFORD 91B	CLEO	$e^+ e^- \approx$ 10.5 GeV

[22] 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.

[23] 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.

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

$\Gamma(K^- \mu^+ \nu_\mu)/\Gamma(\mu^+ \text{anything})$ — Γ_9/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_{10}/Γ

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
$\mathbf{0.016^{+0.013}_{-0.005}\pm0.002}$	4	[25] BAI 91	MRK3	$e^+ e^- \approx$ 3.77 GeV

[25] 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 $1.8 \pm 0.3 \pm 0.2$ GeV/c^2 from the q^2 dependence of the decay rate.

$\Gamma(\overline{K}^0 \pi^- e^+ \nu_e)/\Gamma_{\text{total}}$ — Γ_{11}/Γ

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
$\mathbf{0.028^{+0.017}_{-0.008}\pm0.003}$	6	[26] BAI 91	MRK3	$e^+ e^- \approx$ 3.77 GeV

[26] 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_{18}/Γ_8

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

VALUE	DOCUMENT ID	TECN	COMMENT
0.55±0.09 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_{18}/Γ_{21}

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

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.37±0.06 OUR FIT				
0.38±0.06±0.03	152	[27] BEAN 93C	CLE2	$e^+ e^- \approx \Upsilon(4S)$

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

$\Gamma(K^*(892)^- \ell^+ \nu_\ell)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ — Γ_{13}/Γ_{21}

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. • • •					
$0.24 \pm 0.07 \pm 0.06$	137	[28] ALEXANDER	90B	CLEO	$e^+ e^-$ 10.5–11 GeV

[28] ALEXANDER 90B cannot exclude extra π^0's in the final state. See nearby data blocks for more detailed results.

$\Gamma(\overline{K}^*(892)^0 \pi^- e^+ \nu_e)/\Gamma(K^*(892)^- e^+ \nu_e)$ — Γ_{14}/Γ_{18}

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	[29] CRAWFORD	91B	CLEO	$e^+ e^- \approx$ 10.5 GeV

[29] 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_{15}/Γ_9

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_{16}/Γ_9

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.043	90	[30] KODAMA	93B	E653	π^- emulsion 600 GeV

[30] 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_{17}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0037±0.0006 OUR FIT					
$\mathbf{0.0039^{+0.0023}_{-0.0011} \pm 0.0004}$	7	[31] ADLER	89	MRK3	$e^+ e^-$ 3.77 GeV

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

$\Gamma(\pi^- e^+ \nu_e)/\Gamma(K^- e^+ \nu_e)$ — Γ_{17}/Γ_8

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.102±0.017 OUR FIT					
0.101±0.018 OUR AVERAGE					
$0.101 \pm 0.020 \pm 0.003$	91	[32] FRABETTI	96B	E687	γ Be, $\overline{E}_\gamma \approx$ 200 GeV
$0.103 \pm 0.039 \pm 0.013$	87	[33] BUTLER	95	CLE2	< 0.156 (90% CL)

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

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

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

$\Gamma(K^-\pi^+)/\Gamma_{total}$ — Γ_{19}/Γ

We list measurements *before* radiative corrections are made.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0383±0.0009 OUR FIT					
0.0385±0.0009 OUR AVERAGE					
0.0382±0.0007±0.0012		[34] ARTUSO	98	CLE2	CLEO average
0.0390±0.0009±0.0012	5392	[35] BARATE	97C	ALEP	From Z decays
0.045 ±0.006 ±0.004		[36] ALBRECHT	94	ARG	$e^+e^- \approx \Upsilon(4S)$
0.0341±0.0012±0.0028	1173	[35] ALBRECHT	94F	ARG	$e^+e^- \approx \Upsilon(4S)$
0.0362±0.0034±0.0044		[35] DECAMP	91J	ALEP	From Z decays
0.045 ±0.008 ±0.005	56	[35] 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	[37] SCHINDLER	81	MRK2	e^+e^- 3.771 GeV
0.043 ±0.010	130	[38] 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	[39] ARTUSO	98	CLE2	e^+e^- at $\Upsilon(4S)$
0.0369±0.0011±0.0016		[40] COAN	98	CLE2	
0.0391±0.0008±0.0017	4208	[35,41] AKERIB	93	CLE2	$e^+e^- \approx \Upsilon(4S)$

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

[35] ABACHI 88, DECAMP 91J, AKERIB 93, ALBRECHT 94F, and BARATE 97C use $D^*(2010)^+ \to D^0\pi^+$ 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 $D^*(2010)^+ \to D^0\pi^+$ events, and the fraction with $D^0 \to K^-\pi^+$ gives the $D^0 \to K^-\pi^+$ branching fraction.

[36] 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.

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

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

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

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

[41] 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_{20}/Γ_{19}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.55±0.06 OUR FIT	Error includes scale factor of 1.1.				
1.36±0.23±0.22	119	ANJOS	92B	E691	γBe 80–240 GeV

$\Gamma(\overline{K}^0\pi^0)/\Gamma(\overline{K}^0\pi^+\pi^-)$ — Γ_{20}/Γ_{21}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.390±0.031 OUR FIT					
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	[42] ALBRECHT	92P	ARG	$e^+e^- \approx$ 10 GeV
0.36 ±0.04 ±0.08	104	KINOSHITA	91	CLEO	$e^+e^- \sim$ 10.7 GeV

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

$\Gamma(\overline{K}^0\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{21}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.054 ±0.004 OUR FIT Error includes scale factor of 1.2.					
0.055 ±0.005 OUR AVERAGE					
0.0503±0.0039±0.0049	284	[43] 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	[44] SCHINDLER	81	MRK2	e^+e^- 3.771 GeV
0.079 ±0.023	28	[45] PERUZZI	77	MRK1	e^+e^- 3.77 GeV

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

[44] 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.

[45] 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_{21}/Γ_{19}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.42±0.10 OUR FIT Error includes scale factor of 1.2.					
1.65±0.17 OUR AVERAGE					
1.61±0.10±0.15	856	FRABETTI	94J	E687	γBe $\overline{E}_\gamma$=220 GeV
1.7 ±0.8	35	AVERY	80	SPEC	$\gamma N \rightarrow D^{*+}$
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_{22}/Γ_{21}

VALUE	DOCUMENT ID		TECN	COMMENT
0.223±0.027 OUR AVERAGE Error includes scale factor of 1.2.				
0.350±0.028±0.067	FRABETTI	94G	E687	γBe, $\overline{E}_\gamma \approx$ 220 GeV
0.227±0.032±0.009	ALBRECHT	93D	ARG	$e^+e^- \approx$ 10 GeV
0.215±0.051±0.037	ANJOS	93	E691	γBe 90–260 GeV
0.20 ±0.06 ±0.03	FRABETTI	92B	E687	γBe $\overline{E}_\gamma$= 221 GeV
0.12 ±0.01 ±0.07	ADLER	87	MRK3	e^+e^- 3.77 GeV

$\Gamma(\overline{K}^0 f_0(980))/\Gamma(\overline{K}^0\pi^+\pi^-)$ Γ_{73}/Γ_{21}

Unseen decay modes of the $f_0(980)$ are included.

VALUE	DOCUMENT ID		TECN	COMMENT
0.105±0.029 OUR AVERAGE				
0.131±0.031±0.034	FRABETTI	94G	E687	γBe, $\overline{E}_\gamma \approx$ 220 GeV
0.088±0.035±0.012	ALBRECHT	93D	ARG	$e^+e^- \approx$ 10 GeV

$\Gamma(\overline{K}^0 f_2(1270))/\Gamma(\overline{K}^0\pi^+\pi^-)$ Γ_{77}/Γ_{21}

Unseen decay modes of the $f_2(1270)$ are included.

VALUE	DOCUMENT ID		TECN	COMMENT
0.076±0.028 OUR AVERAGE				
0.065±0.025±0.030	FRABETTI	94G	E687	γBe, $\overline{E}_\gamma \approx$ 220 GeV
0.088±0.037±0.014	ALBRECHT	93D	ARG	$e^+e^- \approx$ 10 GeV

$\Gamma(\overline{K}^0 f_0(1370))/\Gamma(\overline{K}^0\pi^+\pi^-)$ Γ_{79}/Γ_{21}

Unseen decay modes of the $f_0(1370)$ are included.

VALUE	DOCUMENT ID		TECN	COMMENT
0.13 ±0.04 OUR AVERAGE				
0.123±0.035±0.049	FRABETTI	94G	E687	γBe, $\overline{E}_\gamma \approx$ 220 GeV
0.131±0.045±0.021	ALBRECHT	93D	ARG	$e^+e^- \approx$ 10 GeV

$\Gamma(K^*(892)^- \pi^+)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ — Γ_{80}/Γ_{21}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.93 ±0.04 OUR FIT Error includes scale factor of 1.1.					
0.96 ±0.04 OUR AVERAGE					
0.938±0.054±0.038		FRABETTI	94G	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
1.08 ±0.063±0.045		ALBRECHT	93D	ARG	$e^+ e^- \approx$ 10 GeV
0.720±0.145±0.185		ANJOS	93	E691	γ Be 90–260 GeV
0.96 ±0.12 ±0.075		FRABETTI	92B	E687	γ Be $\overline{E}_\gamma =$ 221 GeV
0.84 ±0.06 ±0.08		ADLER	87	MRK3	$e^+ e^-$ 3.77 GeV
1.05 $^{+0.23}_{-0.26}$ $^{+0.07}_{-0.09}$	25	SCHINDLER	81	MRK2	$e^+ e^-$ 3.771 GeV

$\Gamma(K_0^*(1430)^- \pi^+)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ — Γ_{102}/Γ_{21}

Unseen decay modes of the $\overline{K}_0^*(1430)^-$ are included.

VALUE	DOCUMENT ID		TECN	COMMENT
0.19 ±0.05 OUR AVERAGE				
0.176±0.044±0.047	FRABETTI	94G	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
0.208±0.055±0.034	ALBRECHT	93D	ARG	$e^+ e^- \approx$ 10 GeV

$\Gamma(K_2^*(1430)^- \pi^+)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ — Γ_{103}/Γ_{21}

Unseen decay modes of the $\overline{K}_2^*(1430)^-$ are included.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.15	90	ALBRECHT	93D	ARG	$e^+ e^- \approx$ 10 GeV

$\Gamma(\overline{K}^0 \pi^+ \pi^-$ nonresonant$)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ — Γ_{28}/Γ_{21}

VALUE	DOCUMENT ID		TECN	COMMENT
0.27 ±0.04 OUR AVERAGE				
0.263±0.024±0.041	ANJOS	93	E691	γ Be 90–260 GeV
0.26 ±0.08 ±0.05	FRABETTI	92B	E687	γ Be $\overline{E}_\gamma =$ 221 GeV
0.33 ±0.05 ±0.10	ADLER	87	MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(K^- \pi^+ \pi^0)/\Gamma_{total}$ — Γ_{29}/Γ

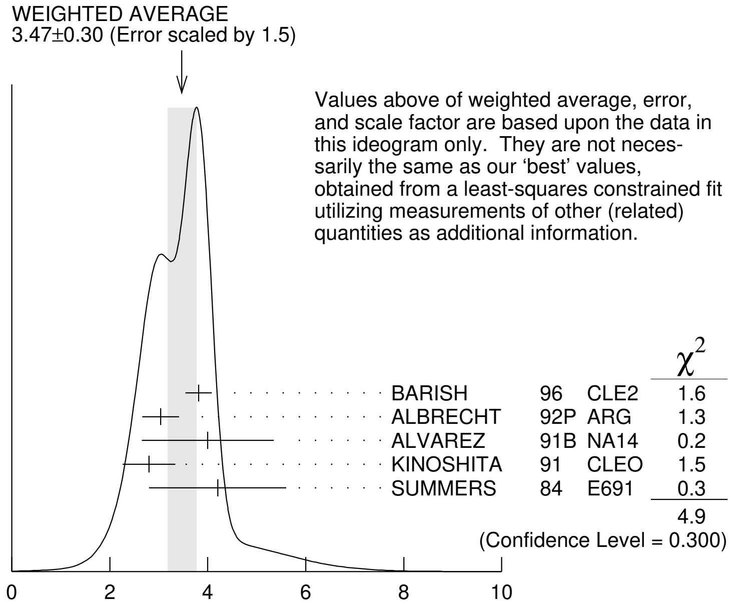
VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.139±0.009 OUR FIT Error includes scale factor of 1.3.					
0.131±0.016 OUR AVERAGE					
0.133±0.012±0.013	931	ADLER	88C	MRK3	$e^+ e^-$ 3.77 GeV
0.117±0.043	37	[46] SCHINDLER	81	MRK2	$e^+ e^-$ 3.771 GeV

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

$\Gamma(K^- \pi^+ \pi^0)/\Gamma(K^- \pi^+)$ — Γ_{29}/Γ_{19}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
3.63±0.23 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±0.07±0.26	10k	BARISH	96	CLE2	$e^+ e^- \approx \Upsilon(4S)$
3.04±0.16±0.34	931	[47] ALBRECHT	92P	ARG	$e^+ e^- \approx$ 10 GeV
4.0 ±0.9 ±1.0	69	ALVAREZ	91B	NA14	Photoproduction
2.8 ±0.14±0.52	1050	KINOSHITA	91	CLEO	$e^+ e^- \sim$ 10.7 GeV
4.2 ±1.4	41	SUMMERS	84	E691	Photoproduction

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



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

$\Gamma\big(K^- \rho^+\big)/\Gamma\big(K^- \pi^+ \pi^0\big)$ — Γ_{30}/Γ_{29}

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.78 ±0.05 OUR AVERAGE					
0.765±0.041±0.054		FRABETTI	94G	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
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
• • • We do not use the following data for averages, fits, limits, etc. • • •					
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

$\Gamma\big(K^*(892)^- \pi^+\big)/\Gamma\big(K^- \pi^+ \pi^0\big)$ — Γ_{80}/Γ_{29}

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

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.36 ±0.04 OUR FIT Error includes scale factor of 1.3.				
0.28 ±0.04 OUR AVERAGE				
0.444±0.084±0.147	FRABETTI	94G	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
0.252±0.033±0.035	ANJOS	93	E691	γ Be 90–260 GeV
0.36 ±0.06 ±0.09	ADLER	87	MRK3	$e^+ e^-$ 3.77 GeV

$\Gamma(\overline{K}^*(892)^0\pi^0)/\Gamma(K^-\pi^+\pi^0)$ — Γ_{81}/Γ_{29}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.227±0.027 OUR FIT				
0.221±0.029 OUR AVERAGE				
0.248±0.047±0.023	FRABETTI	94G	E687	γBe, $\overline{E}_\gamma \approx$ 220 GeV
0.213±0.027±0.035	ANJOS	93	E691	γBe 90–260 GeV
0.20 ±0.03 ±0.05	ADLER	87	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^-\pi^+\pi^0$ nonresonant$)/\Gamma(K^-\pi^+\pi^0)$ — Γ_{33}/Γ_{29}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.049±0.018 OUR AVERAGE Error includes scale factor of 1.1.					
0.101±0.033±0.040		FRABETTI	94G	E687	γBe, $\overline{E}_\gamma \approx$ 220 GeV
0.036±0.004±0.018		ANJOS	93	E691	γBe 90–260 GeV
0.09 ±0.02 ±0.04		ADLER	87	MRK3	e^+e^- 3.77 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.51 ±0.22	21	SUMMERS	84	E691	Photoproduction

$\Gamma(\overline{K}^*(892)^0\pi^0)/\Gamma(\overline{K}^0\pi^0)$ — Γ_{81}/Γ_{20}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.49±0.23 OUR FIT Error includes scale factor of 1.1.					
$\mathbf{1.65^{+0.39}_{-0.31}\pm0.20}$	122	PROCARIO	93B	CLE2	$\overline{K}^0\pi^0\pi^0$ Dalitz plot

$\Gamma(\overline{K}_2^*(1430)^0\pi^0)/\Gamma(\overline{K}^*(892)^0\pi^0)$ — Γ_{104}/Γ_{81}

Unseen decay modes of the $\overline{K}_2^*(1430)^0$ and $\overline{K}^*(892)^0$ are included.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.12	90	PROCARIO	93B	CLE2	$\overline{K}^0\pi^0\pi^0$ Dalitz plot

$\Gamma(\overline{K}^0\pi^0\pi^0$ nonresonant$)/\Gamma(\overline{K}^0\pi^0)$ — Γ_{36}/Γ_{20}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.37±0.08±0.04	76	PROCARIO	93B	CLE2	$\overline{K}^0\pi^0\pi^0$ Dalitz plot

$\Gamma(K^-\pi^+\pi^+\pi^-)/\Gamma_{\text{total}}$ — Γ_{37}/Γ

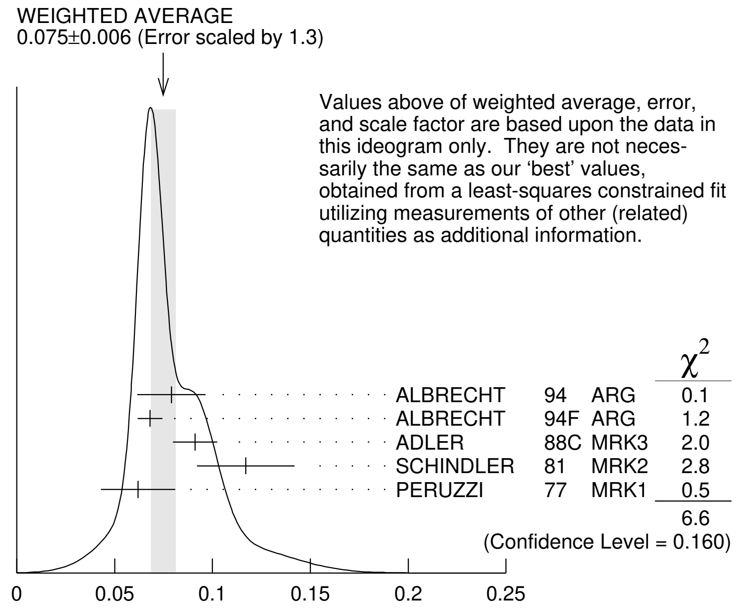
VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0749±0.0031 OUR FIT					
0.075 ±0.006 OUR AVERAGE Error includes scale factor of 1.3. See the ideogram below.					
0.079 ±0.015 ±0.009		[48] ALBRECHT	94	ARG	$e^+e^- \approx \Upsilon(4S)$
0.0680±0.0027±0.0057	1430	[49] ALBRECHT	94F	ARG	$e^+e^- \approx \Upsilon(4S)$
0.091 ±0.008 ±0.008	992	ADLER	88C	MRK3	e^+e^- 3.77 GeV
0.117 ±0.025	185	[50] SCHINDLER	81	MRK2	e^+e^- 3.771 GeV
0.062 ±0.019	44	[51] PERUZZI	77	MRK1	e^+e^- 3.77 GeV

[48] 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.

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

[50] 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.

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



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

$\Gamma(K^- \pi^+ \pi^+ \pi^-)/\Gamma(K^- \pi^+)$ Γ_{37}/Γ_{19}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.96±0.07 OUR FIT					
1.97±0.09 OUR AVERAGE					
$1.94 \pm 0.07 ^{+0.09}_{-0.11}$		JUN	00	SELX	Σ^- nucleus, 600 GeV
$1.7 \pm 0.2 \pm 0.2$	1745	ANJOS	92C	E691	γ Be 90–260 GeV
$1.90 \pm 0.25 \pm 0.20$	337	ALVAREZ	91B	NA14	Photoproduction
$2.12 \pm 0.16 \pm 0.09$		BORTOLETTO	88	CLEO	$e^+ e^-$ 10.55 GeV
2.0 ± 0.9	48	BAILEY	86	ACCM	π^- Be fixed target
$2.17 \pm 0.28 \pm 0.23$		ALBRECHT	85F	ARG	$e^+ e^-$ 10 GeV
2.0 ± 1.0	10	BAILEY	83B	SPEC	π^- Be $\rightarrow D^0$
2.2 ± 0.8	214	PICCOLO	77	MRK1	$e^+ e^-$ 4.03, 4.41 GeV

$\Gamma(K^- \pi^+ \rho^0 \text{total})/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{38}/Γ_{37}

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

$\Gamma(K^-\pi^+\rho^0\,\text{3-body})/\Gamma(K^-\pi^+\pi^+\pi^-)$ Γ_{39}/Γ_{37}

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		[52] ALVAREZ	91B	NA14	Photoproduction
0.85 $^{+0.11}_{-0.22}$	180	PICCOLO	77	MRK1	e^+e^- 4.03, 4.41 GeV

[52] 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_{86}/Γ_{37}

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 $\rightarrow$ 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_{87}/Γ_{37}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.20 ±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_{88}/Γ_{37}

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

$\Gamma(\overline{K}^*(892)^0\rho^0\,S\text{-wave long.})/\Gamma_{total}$ Γ_{89}/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

$\Gamma(\overline{K}^*(892)^0\rho^0\,P\text{-wave})/\Gamma_{total}$ Γ_{90}/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_{91}/Γ_{37}

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_{96}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.011	90	ANJOS	92C	E691	γ Be 90–260 GeV

$\Gamma(\overline{K}^*(892)^0 f_0(980))/\Gamma_{\text{total}}$ — Γ_{97}/Γ

Unseen decay modes of the $\overline{K}^*(892)^0$ and $f_0(980)$ are included.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.007	90	ANJOS	92C	E691	γ Be 90–260 GeV

$\Gamma(K^- a_1(1260)^+)/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ — Γ_{75}/Γ_{37}

Unseen decay modes of the $a_1(1260)^+$ are included.

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_{78}/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_{98}/Γ_{37}

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
0.14 ±0.04 OUR FIT					
0.194±0.056±0.088		COFFMAN	92B	MRK3	$e^+ e^-$ 3.77 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.013	90	ANJOS	92C	E691	γ Be 90–260 GeV

$\Gamma(K_1(1400)^- \pi^+)/\Gamma_{\text{total}}$ — Γ_{99}/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_{101}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<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_{82}/Γ_{37}

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_{83}/Γ_{37}

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_{45}/Γ_{37}

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

$\Gamma(\overline{K}^0 \pi^+ \pi^- \pi^0)/\Gamma_{\text{total}}$ — Γ_{46}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.100±0.012 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. • • •					
$0.134^{+0.032}_{-0.033}$		[53] BARLAG	92C	ACCM	π^- Cu 230 GeV

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

$\Gamma(\overline{K}^0 \pi^+ \pi^- \pi^0)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ — Γ_{46}/Γ_{21}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.84±0.20 OUR FIT					
1.86±0.23 OUR AVERAGE					
1.80±0.20±0.21	190	[54] ALBRECHT	92P	ARG	$e^+ e^- \approx$ 10 GeV
2.8 ±0.8 ±0.8	46	ANJOS	92C	E691	γ Be 90–260 GeV
1.85±0.26±0.30	158	KINOSHITA	91	CLEO	$e^+ e^- \sim$ 10.7 GeV

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

$\Gamma(\overline{K}^0 \eta)/\Gamma(K^- \pi^+)$ — Γ_{68}/Γ_{19}

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_{68}/Γ_{20}

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_{68}/Γ_{21}

Unseen decay modes of the η are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.130±0.017 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_{71}/Γ_{19}

Unseen decay modes of the ω are included.

VALUE	DOCUMENT ID		TECN	COMMENT
0.54±0.10 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_{71}/Γ_{21}

Unseen decay modes of the ω are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.38±0.07 OUR FIT					
0.33±0.09 OUR AVERAGE Error includes scale factor of 1.1.					
0.29±0.08±0.05	16	[55] ALBRECHT	92P	ARG	$e^+e^- \approx$ 10 GeV
0.54±0.14±0.16	40	KINOSHITA	91	CLEO	$e^+e^- \sim$ 10.7 GeV

[55] 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_{71}/Γ_{46}

Unseen decay modes of the ω are included.

VALUE	DOCUMENT ID		TECN	COMMENT
0.21 ±0.04 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_{72}/Γ_{21}

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	[56] ALBRECHT	92P	ARG	$e^+e^- \approx$ 10 GeV

[56] 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_{92}/Γ_{46}

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_{93}/Γ_{46}

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_{94}/Γ_{46}

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

$\Gamma(K^*(892)^-\rho^+ \, P\text{-wave})/\Gamma_{\text{total}}$ — Γ_{95}/Γ

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.015	90	[57] COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

[57] 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_{87}/Γ_{46}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.15 ±0.06 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_{76}/Γ

Unseen decay modes of the $a_1(1260)^0$ are included.

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_{98}/Γ_{46}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.106±0.028 OUR FIT				
0.10 ±0.03	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(\overline{K}_1(1400)^0 \pi^0)/\Gamma_{\text{total}}$ Γ_{100}/Γ

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

$\Gamma(\overline{K}^*(892)^0 \pi^+ \pi^- \text{3-body})/\Gamma(\overline{K}^0 \pi^+ \pi^- \pi^0)$ Γ_{83}/Γ_{46}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.14 ±0.04 OUR FIT Error includes scale factor of 1.1.				
0.191±0.105	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(\overline{K}^0 \pi^+ \pi^- \pi^0 \text{nonresonant})/\Gamma(\overline{K}^0 \pi^+ \pi^- \pi^0)$ Γ_{53}/Γ_{46}

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

$\Gamma(K^- \pi^+ \pi^0 \pi^0)/\Gamma_{\text{total}}$ Γ_{54}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.149±0.037±0.030	24	[58] ADLER	88C	MRK3	e^+e^- 3.77 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.177±0.029		[59] BARLAG	92C	ACCM	π^- Cu 230 GeV
$0.209^{+0.074}_{-0.043}$±0.012	9	[59] AGUILAR-...	87F	HYBR	πp, pp 360, 400 GeV

[58] 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.

[59] 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.

$\Gamma(K^- \pi^+ \pi^+ \pi^- \pi^0)/\Gamma(K^- \pi^+)$ Γ_{55}/Γ_{19}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.05±0.10 OUR FIT					
0.98±0.11±0.11	225	[60] ALBRECHT	92P	ARG	$e^+e^- \approx$ 10 GeV

[60] 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_{55}/Γ_{37}

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	$e^+e^-\sim10.7$ 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_{105}/Γ_{55}

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_{106}/Γ_{19}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.49±0.12 OUR FIT					
$\mathbf{0.58\pm0.19^{+0.24}_{-0.28}}$	46	KINOSHITA	91	CLEO	$e^+e^-\sim10.7$ GeV

$\Gamma(\overline{K}^*(892)^0\eta)/\Gamma(K^-\pi^+\pi^0)$ — Γ_{106}/Γ_{29}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.134±0.034 OUR FIT					
0.13 ±0.02 ±0.03	214	PROCARIO	93B	CLE2	$\overline{K}^{*0}\eta\to K^-\pi^+/\gamma\gamma$

$\Gamma(K^-\pi^+\omega)/\Gamma(K^-\pi^+)$ — Γ_{107}/Γ_{19}

Unseen decay modes of the ω are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.78±0.12±0.10	99	[61] ALBRECHT	92P	ARG	$e^+e^-\approx10$ GeV

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

$\Gamma(\overline{K}^*(892)^0\omega)/\Gamma(K^-\pi^+)$ — Γ_{108}/Γ_{19}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.28±0.11±0.04	17	[62] ALBRECHT	92P	ARG	$e^+e^-\approx10$ GeV

[62] 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_{108}/Γ_{55}

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	[63] ANJOS	90D	E691	Photoproduction

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

$\Gamma(K^-\pi^+\eta'(958))/\Gamma(K^-\pi^+\pi^+\pi^-)$ — Γ_{109}/Γ_{37}

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

$\Gamma\big(\overline{K}^*(892)^0\eta'(958)\big)/\Gamma\big(K^-\pi^+\eta'(958)\big)$ — $\Gamma_{110}/\Gamma_{109}$

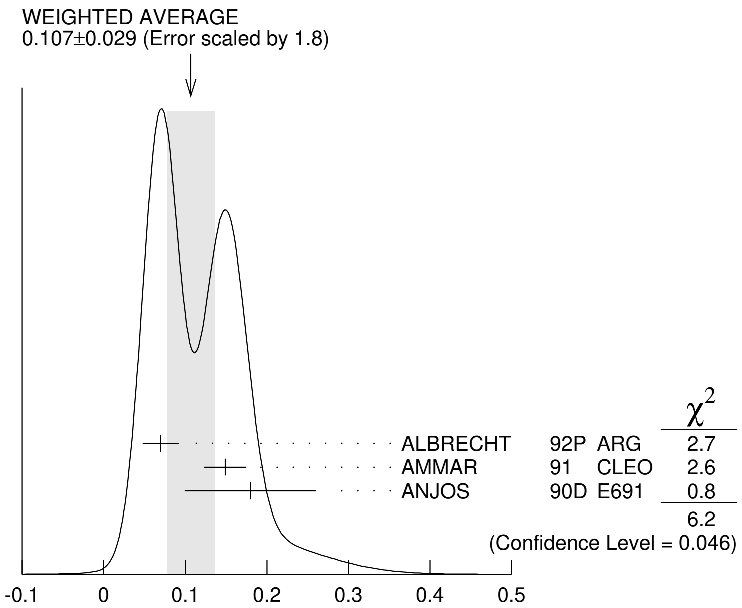
Unseen decay modes of the $\overline{K}^*(892)^0$ are included.

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

$\Gamma\big(\overline{K}^0\pi^+\pi^+\pi^-\pi^-\big)/\Gamma\big(\overline{K}^0\pi^+\pi^-\big)$ — Γ_{60}/Γ_{21}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.107±0.029 OUR AVERAGE	Error includes scale factor of 1.8. See the ideogram below.				
0.07 ±0.02 ±0.01	11	[64] 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

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



$\Gamma\big(\overline{K}^0\pi^+\pi^+\pi^-\pi^-\big)/\Gamma\big(\overline{K}^0\pi^+\pi^-\big)$

$\Gamma\big(\overline{K}^0\pi^+\pi^-\pi^0\pi^0(\pi^0)\big)/\Gamma_{\rm total}$ — Γ_{61}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$0.106^{+0.073}_{-0.029}\pm0.006$	4	[65] AGUILAR-...	87F	HYBR	πp, $p p$ 360, 400 GeV

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

$\Gamma(\overline{K}^0 K^+ K^-)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ $\quad\Gamma_{62}/\Gamma_{21} = (\Gamma_{64}+\frac{1}{2}\Gamma_{74})/\Gamma_{21}$

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

$\Gamma(\overline{K}^0 \phi)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ $\quad\Gamma_{74}/\Gamma_{21}$

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

$\Gamma(\overline{K}^0 K^+ K^- \text{ non-}\phi)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ $\quad\Gamma_{64}/\Gamma_{21}$

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

$\Gamma(K^0_S K^0_S K^0_S)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ $\quad\Gamma_{65}/\Gamma_{21}$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0154±0.0025 OUR AVERAGE					
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	γ Be $\overline{E}_\gamma$=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

$\Gamma(K^+ K^- K^- \pi^+)/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ $\quad\Gamma_{66}/\Gamma_{37}$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0028±0.0007±0.0001	20	FRABETTI	95C	E687	γ Be, $\overline{E}_\gamma \approx$ 200 GeV

$\Gamma(K^+ K^- \overline{K}^0 \pi^0)/\Gamma_{\text{total}}$ $\quad\Gamma_{67}/\Gamma$

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.0072^{+0.0048}_{-0.0035}}$	[66] BARLAG	92C	ACCM	π^- Cu 230 GeV

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

Pionic modes

$\Gamma(\pi^+\pi^-)/\Gamma(K^-\pi^+)$ — Γ_{111}/Γ_{19}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0397±0.0021 OUR AVERAGE					
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	$e^+e^- \approx \Upsilon(4S)$
0.048 ±0.013 ±0.008	51	ADAMOVICH	92	OMEG	π^- 340 GeV
0.055 ±0.008 ±0.005	120	ANJOS	91D	E691	Photoproduction
0.040 ±0.007 ±0.006	57	ALBRECHT	90C	ARG	$e^+e^- \approx$ 10 GeV
0.050 ±0.007 ±0.005	110	ALEXANDER	90	CLEO	e^+e^- 10.5–11 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_{112}/Γ_{19}

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

$\Gamma(\pi^+\pi^-\pi^0)/\Gamma_{\text{total}}$ — Γ_{113}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.016 ±0.011 OUR AVERAGE Error includes scale factor of 2.7.					
$0.0390^{+0.0100}_{-0.0095}$		[67] BARLAG	92C	ACCM	π^- Cu 230 GeV
0.011 ±0.004 ±0.002	10	[68] BALTRUSAIT...	85E	MRK3	e^+e^- 3.77 GeV

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

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

$\Gamma(\pi^+\pi^+\pi^-\pi^-)/\Gamma(K^-\pi^+\pi^+\pi^-)$ — Γ_{114}/Γ_{37}

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	[69] AMMAR	91	CLEO	$e^+e^- \approx$ 10.5 GeV
0.096±0.018±0.007	66	ANJOS	91	E691	γBe 80–240 GeV

[69] 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 ($\rho^0\rho^0$, $a_1^\pm\pi^\mp$, $\rho^0\pi^+\pi^-$).

$\Gamma(\pi^+\pi^+\pi^-\pi^-\pi^0)/\Gamma_{\text{total}}$ — Γ_{115}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.0192^{+0.0041}_{-0.0038}}$	[70] BARLAG	92C	ACCM	π^- Cu 230 GeV

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

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.0004±0.0003	[71] BARLAG	92C	ACCM	π^- Cu 230 GeV

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

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

$\Gamma(K^+K^-)/\Gamma(K^-\pi^+)$ — Γ_{117}/Γ_{19}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.1109±0.0033 OUR FIT					
0.1109±0.0033 OUR AVERAGE					
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 ±0.029 ±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
0.107 ±0.010 ±0.009	193	ANJOS	91D	E691	Photoproduction
0.10 ±0.02 ±0.01	131	ALBRECHT	90C	ARG	$e^+e^- \approx$ 10 GeV
0.117 ±0.010 ±0.007	249	ALEXANDER	90	CLEO	e^+e^- 10.5–11 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

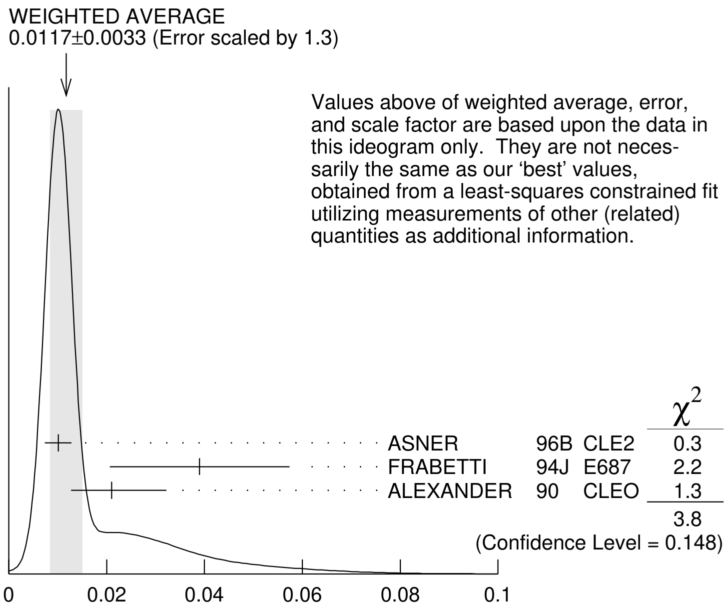
$\Gamma(K^+K^-)/\Gamma(\pi^+\pi^-)$ — $\Gamma_{117}/\Gamma_{111}$

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	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
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_{118}/Γ_{21}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0120±0.0033 OUR FIT Error includes scale factor of 1.3.					
0.0117±0.0033 OUR AVERAGE Error includes scale factor of 1.3. See the ideogram below.					
0.0101±0.0022±0.0016	26	ASNER	96B	CLE2	$e^+e^- \approx \Upsilon(4S)$
0.039 ±0.013 ±0.013	20	FRABETTI	94J	E687	γBe $\overline{E}_\gamma$=220 GeV
0.021 $^{+0.011}_{-0.008}$ ±0.002	5	ALEXANDER	90	CLEO	e^+e^- 10.5–11 GeV



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

$\Gamma(K^0\overline{K}^0)/\Gamma(K^+K^-)$ — $\Gamma_{118}/\Gamma_{117}$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.15±0.04 OUR FIT Error includes scale factor of 1.2.					
0.24±0.16	4	[72] CUMALAT	88	SPEC	nN 0–800 GeV

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

$\Gamma(K^0K^-\pi^+)/\Gamma(K^-\pi^+)$ — Γ_{119}/Γ_{19}

VALUE	DOCUMENT ID		TECN	COMMENT
0.168±0.026 OUR FIT Error includes scale factor of 1.1.				
0.16 ±0.06	[73] ANJOS	91	E691	γBe 80–240 GeV

[73] 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_{119}/Γ_{21}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.118±0.018 OUR FIT Error includes scale factor of 1.1.					
0.119±0.021 OUR AVERAGE Error includes scale factor of 1.3.					
0.108±0.019	61	AMMAR	91	CLEO	$e^+e^- \approx$ 10.5 GeV
0.16 ±0.03 ±0.02	39	ALBRECHT	90C	ARG	$e^+e^- \approx$ 10 GeV

$\Gamma(\overline{K}^*(892)^0K^0)/\Gamma(K^-\pi^+)$ — Γ_{139}/Γ_{19}

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

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.00^{+0.03}_{-0.00}$	[74] ANJOS	91	E691	γBe 80–240 GeV

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

$\Gamma\big(\overline{K}^*(892)^0 K^0\big)/\Gamma\big(\overline{K}^0 \pi^+ \pi^-\big)$ — Γ_{139}/Γ_{21}

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

$\Gamma\big(K^*(892)^+ K^-\big)/\Gamma\big(K^- \pi^+\big)$ — Γ_{140}/Γ_{19}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.090±0.020 OUR FIT				
0.16 $^{+0.08}_{-0.06}$	[75] ANJOS	91	E691	γ Be 80–240 GeV

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

$\Gamma\big(K^*(892)^+ K^-\big)/\Gamma\big(\overline{K}^0 \pi^+ \pi^-\big)$ — Γ_{140}/Γ_{21}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.064±0.014 OUR FIT	Error includes scale factor of 1.1.				
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

$\Gamma\big(K^0 K^- \pi^+ \text{ nonresonant}\big)/\Gamma\big(K^- \pi^+\big)$ — Γ_{122}/Γ_{19}

VALUE	DOCUMENT ID		TECN	COMMENT
0.06±0.06	[76] ANJOS	91	E691	γ Be 80–240 GeV

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

$\Gamma\big(\overline{K}^0 K^+ \pi^-\big)/\Gamma\big(K^- \pi^+\big)$ — Γ_{123}/Γ_{19}

VALUE	DOCUMENT ID		TECN	COMMENT
0.129±0.025 OUR FIT				
0.10 ±0.05	[77] ANJOS	91	E691	γ Be 80–240 GeV

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

$\Gamma\big(\overline{K}^0 K^+ \pi^-\big)/\Gamma\big(\overline{K}^0 \pi^+ \pi^-\big)$ — Γ_{123}/Γ_{21}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.091±0.018 OUR FIT					
0.098±0.020	55	AMMAR	91	CLEO	$e^+e^- \approx$ 10.5 GeV

$\Gamma\big(K^*(892)^0 \overline{K}^0\big)/\Gamma\big(K^- \pi^+\big)$ — Γ_{141}/Γ_{19}

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

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.00^{+0.04}_{-0.00}$	[78] ANJOS	91	E691	γ Be 80–240 GeV

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

$\Gamma(K^*(892)^0 \overline{K}^0)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ — Γ_{141}/Γ_{21}

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

$\Gamma(K^*(892)^- K^+)/\Gamma(K^- \pi^+)$ — Γ_{142}/Γ_{19}

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

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.00^{+0.03}_{-0.00}$	[79] ANJOS	91	E691	γBe 80–240 GeV

[79] 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_{142}/Γ_{21}

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_{126}/Γ_{19}

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

[80] 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_{127}/Γ_{29}

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_{128}/Γ

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

$\Gamma(\phi \pi^0)/\Gamma_{\text{total}}$ — Γ_{143}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0014	90	ALBRECHT	94I	ARG	$e^+e^- \approx$ 10 GeV

$\Gamma(\phi \eta)/\Gamma_{\text{total}}$ — Γ_{144}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0028	90	ALBRECHT	94I	ARG	$e^+e^- \approx$ 10 GeV

$\Gamma(\phi \omega)/\Gamma_{\text{total}}$ — Γ_{145}/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_{129}/Γ_{37}

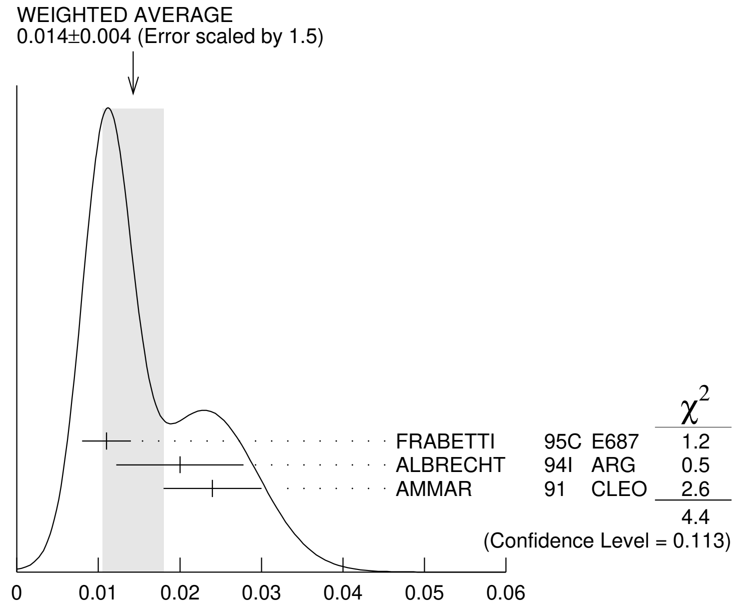
VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0334±0.0028 OUR AVERAGE					
0.0313±0.0037±0.0036	136	AITALA	98D	E791	π^- nucleus, 500 GeV
0.035 ±0.004 ±0.002	244	FRABETTI	95C	E687	γBe, $\overline{E}_\gamma \approx$ 200 GeV
0.041 ±0.007 ±0.005	114	ALBRECHT	94I	ARG	$e^+e^- \approx$ 10 GeV
0.0314±0.010	89	AMMAR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

$\Gamma(\phi\pi^+\pi^-)/\Gamma(K^-\pi^+\pi^+\pi^-)$ — Γ_{146}/Γ_{37}

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	γBe, $\overline{E}_\gamma \approx$ 200 GeV
0.020 ±0.006 ±0.005	28	ALBRECHT	94I	ARG	$e^+e^- \approx$ 10 GeV
0.024 ±0.006	34	[81] 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	γBe 80–240 GeV

[81] 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 $\phi\pi^+\pi^-$.

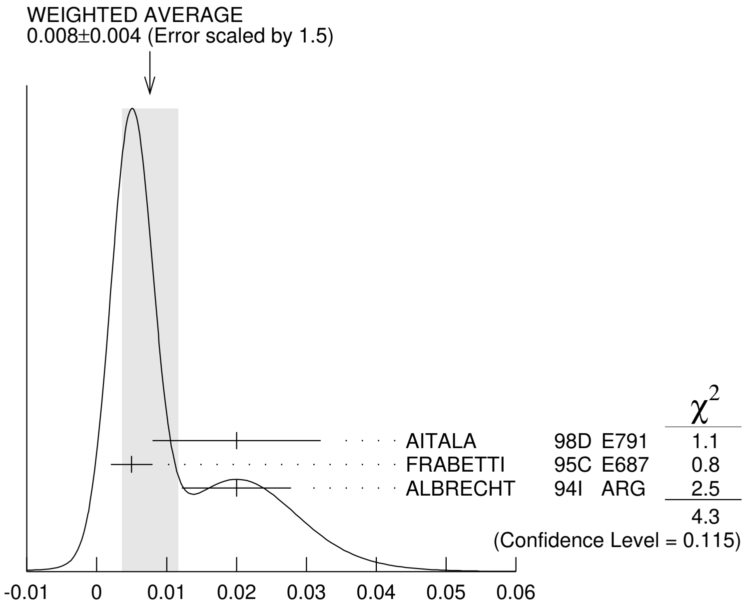


$\Gamma(\phi\pi^+\pi^-)/\Gamma(K^-\pi^+\pi^+\pi^-)$

$\Gamma(\phi\rho^0)/\Gamma(K^-\pi^+\pi^+\pi^-)$ $\qquad\qquad$ Γ_{147}/Γ_{37}

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	γBe, $\overline{E}_\gamma \approx$ 200 GeV
0.020±0.006±0.005	28	ALBRECHT	94I	ARG	$e^+e^- \approx$ 10 GeV



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

$\Gamma(\phi\pi^+\pi^-$ 3-body$)/\Gamma(K^-\pi^+\pi^+\pi^-)$ $\qquad\qquad$ Γ_{148}/Γ_{37}

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

$\Gamma(K^+K^-\rho^0$ 3-body$)/\Gamma(K^-\pi^+\pi^+\pi^-)$ $\qquad\qquad$ Γ_{132}/Γ_{37}

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

$\Gamma(K^*(892)^0K^-\pi^+ +$ c.c.$)/\Gamma(K^-\pi^+\pi^+\pi^-)$ $\qquad\qquad$ Γ_{149}/Γ_{37}

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

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.01	90	[82] AITALA	98D	E791	π^- nucleus, 500 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					

<0.017	90	[82] 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

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

$\Gamma(K^*(892)^0 K^- \pi^+)/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{150}/Γ_{37}

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±0.014±0.009	55	[83] ALBRECHT	94I	ARG	$e^+ e^- \approx$ 10 GeV

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

$\Gamma(\overline{K}^*(892)^0 K^+ \pi^-)/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{151}/Γ_{37}

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±0.013±0.009	30	[84] ALBRECHT	94I	ARG	$e^+ e^- \approx$ 10 GeV

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

$\Gamma(K^*(892)^0 \overline{K}^*(892)^0)/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{152}/Γ_{37}

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		[85] AMMAR	91	CLEO	$e^+ e^- \approx$ 10.5 GeV

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

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

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.0017±0.0005	[86] BARLAG	92C	ACCM	π^- Cu 230 GeV

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

$\Gamma(K^+ K^- \pi^+ \pi^-$ nonresonant$)/\Gamma(K^- \pi^+ \pi^+ \pi^-)$ Γ_{136}/Γ_{37}

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

$\Gamma(K^0 \overline{K}^0 \pi^+ \pi^-)/\Gamma(\overline{K}^0 \pi^+ \pi^-)$ Γ_{137}/Γ_{21}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.126±0.038±0.030	25	ALBRECHT	94I	ARG	$e^+ e^- \approx$ 10 GeV

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.0031±0.0020	[87] BARLAG	92C	ACCM	π^- Cu 230 GeV

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

Radiative modes

$\Gamma(\rho^0\gamma)/\Gamma_{total}$ — Γ_{153}/Γ

VALUE	CL%	DOCUMENT ID		TECN
$<2.4\times10^{-4}$	90	ASNER	98	CLE2

$\Gamma(\omega\gamma)/\Gamma_{total}$ — Γ_{154}/Γ

VALUE	CL%	DOCUMENT ID		TECN
$<2.4\times10^{-4}$	90	ASNER	98	CLE2

$\Gamma(\phi\gamma)/\Gamma_{total}$ — Γ_{155}/Γ

VALUE	CL%	DOCUMENT ID		TECN
$<1.9\times10^{-4}$	90	ASNER	98	CLE2

$\Gamma(\overline{K}^*(892)^0\gamma)/\Gamma_{total}$ — Γ_{156}/Γ

VALUE	CL%	DOCUMENT ID		TECN
$<7.6\times10^{-4}$	90	ASNER	98	CLE2

Rare or forbidden modes

$\Gamma(K^+\ell^-\overline{\nu}_\ell(\text{via }\overline{D}^0))/\Gamma(K^-\ell^+\nu_\ell)$ — Γ_{157}/Γ_7

This is a D^0-$\overline{D}^0$ mixing limit without the complications of possible doubly-Cabibbo-suppressed decays that occur when using hadronic modes. 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
<0.005	90	[88] AITALA	96C	E791	π^- nucleus, 500 GeV

[88] 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.

$\Gamma(K^+\pi^-)/\Gamma(K^-\pi^+)$ — Γ_{158}/Γ_{19}

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. 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. Some of the experiments can use the decay-time information to disentagle the two modes. Here, we list the DCS branching 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 (EPJ **C3** 1) edition.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
0.0038 ±0.0008 OUR AVERAGE Error includes scale factor of 1.1.					
$0.00332^{+0.00063}_{-0.00065} \pm 0.00040$		45	[89] GODANG 00	CLE2	e^+e^-
$0.0068\ ^{+0.0034}_{-0.0033} \pm 0.0007$			[90] AITALA 98	E791	π^- nucleus, 500 GeV
$0.0184 \pm 0.0059 \pm 0.0034$		19	[91] BARATE 98W	ALEP	e^+e^- at Z^0
$0.0077 \pm 0.0025 \pm 0.0025$		19	[92] CINABRO 94	CLE2	$e^+e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.011	90		[92] AMMAR 91	CLEO	$e^+e^- \approx$ 10.5 GeV
<0.015	90	1 ± 6	[93] ANJOS 88C	E691	Photoproduction
<0.014	90		[92] ALBRECHT 87K	ARG	e^+e^- 10 GeV

[89] This GODANG 00 result assumes no D^0-$\overline{D}^0$ mixing; the DCS ratio becomes $0.0048 \pm 0.0012 \pm 0.0004$ when mixing is allowed.

[90] This AITALA 98 result assumes no D^0-$\overline{D}^0$ mixing; the DCS ratio becomes $0.0090^{+0.0120}_{-0.0109} \pm 0.0044$ when mixing is allowed.

[91] BARATE 98W gets $0.0177^{+0.0060}_{-0.0056} \pm 0.0031$ for the DCS ratio when mixing is allowed, assuming no interference between the DCS and mixing amplitudes.

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

[93] ANJOS 88C allows mixing but assumes no interference between the DCS and mixing amplitudes. When interference is allowed, the limit degrades to 0.049.

$\Gamma(K^+\pi^-(\text{via }\overline{D}^0))/\Gamma(K^-\pi^+)$ Γ_{159}/Γ_{19}

This is a D^0-$\overline{D}^0$ mixing limit. 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 $\left|m_{D_1^0} - m_{D_2^0}\right|$ 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
$<4.1 \times 10^{-4}$ (CL = 95%)					
<0.00041	95		[94] GODANG 00	CLE2	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0092	95		[95] BARATE 98W	ALEP	e^+e^- at Z^0
<0.005	90	1 ± 4	[96] ANJOS 88C	E691	Photoproduction

[94] This GODANG 00 result 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.

[95] This BARATE 98W result assumes no interference between the DCS and mixing amplitudes. When interference is allowed, the limit degrades to 0.036 (95%CL).

[96] This ANJOS 88C result assumes no interference between the DCS and mixing amplitudes. When interference is allowed, the limit degrades to 0.019. Combined with results on $K^\pm\pi^\mp\pi^+\pi^-$, the limit is, assuming no interference, 0.0037.

$\Gamma(K^+\pi^-\pi^+\pi^-)/\Gamma(K^-\pi^+\pi^+\pi^-)$ — Γ_{160}/Γ_{37}

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. The experiments here use the charge of the pion in $D^*(2010)^\pm \rightarrow (D^0$ or $\overline{D}^0)\ \pi^\pm$ decay to tell whether a D^0 or a $\overline{D}^0$ was born. Some of the experiments can use the decay-time information to disentagle the two modes. Here, we list the DCS branching 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 (EPJ **C3** 1) edition.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.0025^{+0.0036}_{-0.0034}\pm0.0003}$			[97] AITALA	98	E791	π^- nucleus, 500 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.018	90		[98] AMMAR	91	CLEO	$e^+e^- \approx$ 10.5 GeV
<0.018	90	5 ± 12	[99] ANJOS	88C	E691	Photoproduction

[97] AITALA 98 uses the charge of the pion in $D^{*\pm} \rightarrow (D^0$ or $\overline{D}^0)\ \pi^\pm$ to tell whether a D^0 or a $\overline{D}^0$ was born. This result assumes no D^0-$\overline{D}^0$ mixing; it becomes $-0.0020^{+0.0117}_{-0.0106} \pm 0.0035$ when mixing is allowed and decay-time information is used to distinguish doubly Cabibbo-suppressed decays from mixing.

[98] AMMAR 91 cannot distinguish between doubly Cabibbo-suppressed decay and D^0-$\overline{D}^0$ mixing.

[99] 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. 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_{161}/Γ_{37}

This is a D^0-$\overline{D}^0$ mixing limit. The experiments here (1) use the charge of the pion in $D^*(2010)^\pm \rightarrow (D^0$ 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 $|m_{D_1^0} - m_{D_2^0}|$ and $(\Gamma_{D_1^0} - \Gamma_{D_2^0})/\Gamma_{D^0}$ that come from the best mixing limit, see near the beginning of these D^0 Listings.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<0.005	90	0 ± 4	[100] ANJOS	88C	E691	Photoproduction

[100] 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. When interference is allowed, the limit degrades to 0.007. Combined with results on $K^\pm\pi^\mp$, the limit is, assuming no interference, 0.0037.

$\Gamma(K^+\pi^-\ \text{or}\ K^+\pi^-\pi^+\pi^-\,(\text{via}\ \overline{D}^0))/\Gamma(K^-\pi^+\ \text{or}\ K^-\pi^+\pi^+\pi^-)$ — Γ_{162}/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	[101] AITALA	98	E791	π^- nucleus, 500 GeV

[101] 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 $0.0021 \pm 0.0009 \pm 0.0002$.

$\Gamma(\mu^-\ \text{anything (via}\ \overline{D}^0))/\Gamma(\mu^+\ \text{anything})$ Γ_{163}/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

$\Gamma(e^+e^-)/\Gamma_{\text{total}}$ Γ_{164}/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
<6.2 $\times 10^{-6}$ (CL = 90%)						
<6.2 $\times 10^{-6}$	90		AITALA	99G	E791	π^- N 500 GeV
• • • 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
<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

$\Gamma(\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{165}/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
<4.1 $\times 10^{-6}$	90		ADAMOVICH	97	BEAT	π^- Cu, W 350 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<1.56 $\times 10^{-5}$	90		PRIPSTEIN	00	E789	p nucleus, 800 GeV
<5.2 $\times 10^{-6}$	90		AITALA	99G	E791	π^- N 500 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		[102] 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. μ^- N

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

$\Gamma(\pi^0 e^+e^-)/\Gamma_{\text{total}}$ Γ_{166}/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 $\times 10^{-5}$	90	0	FREYBERGER	96	CLE2	e^+e^- $\approx$ $\Upsilon(4S)$

$\Gamma(\pi^0 \mu^+ \mu^-)/\Gamma_{\text{total}}$ Γ_{167}/Γ

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

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

$\Gamma(\eta e^+ e^-)/\Gamma_{\text{total}}$ Γ_{168}/Γ

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

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

$\Gamma(\eta \mu^+ \mu^-)/\Gamma_{\text{total}}$ Γ_{169}/Γ

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

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

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

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

VALUE	*CL%*	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.0 \times 10^{-4}$	90	2	[103] FREYBERGER	96	CLE2	$e^+ e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$<4.5 \times 10^{-4}$	90	2	HAAS	88	CLEO	$e^+ e^-$ 10 GeV

[103] 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.

$\Gamma(\rho^0 \mu^+ \mu^-)/\Gamma_{\text{total}}$ Γ_{171}/Γ

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

VALUE	*CL%*	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<2.3 \times 10^{-4}$	90	0	KODAMA	95	E653	π^- emulsion 600 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$<4.9 \times 10^{-4}$	90	1	[104] FREYBERGER	96	CLE2	$e^+ e^- \approx \Upsilon(4S)$
$<8.1 \times 10^{-4}$	90	5	HAAS	88	CLEO	$e^+ e^-$ 10 GeV

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

$\Gamma(\omega e^+ e^-)/\Gamma_{\text{total}}$ Γ_{172}/Γ

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

VALUE	*CL%*	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.8 \times 10^{-4}$	90	1	[105] FREYBERGER	96	CLE2	$e^+ e^- \approx \Upsilon(4S)$

[105] 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_{173}/Γ

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

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<8.3 \times 10^{-4}$	90	0	[106] FREYBERGER 96	CLE2	$e^+ e^- \approx \Upsilon(4S)$

[106] 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.

$\Gamma(\phi e^+ e^-)/\Gamma_{total}$ Γ_{174}/Γ

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

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<5.2 \times 10^{-5}$	90	2	[107] FREYBERGER 96	CLE2	$e^+ e^- \approx \Upsilon(4S)$

[107] 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.

$\Gamma(\phi \mu^+ \mu^-)/\Gamma_{total}$ Γ_{175}/Γ

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

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<4.1 \times 10^{-4}$	90	0	[108] FREYBERGER 96	CLE2	$e^+ e^- \approx \Upsilon(4S)$

[108] 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_{176}/Γ

Allowed by first-order weak interaction combined with electromagnetic interaction.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<1.1 \times 10^{-4}$	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_{177}/Γ

Allowed by first-order weak interaction combined with electromagnetic interaction.

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

$\Gamma(\overline{K}^*(892)^0 e^+ e^-)/\Gamma_{total}$ Γ_{178}/Γ

Allowed by first-order weak interaction combined with electromagnetic interaction.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<1.4 \times 10^{-4}$	90	1	[109] FREYBERGER 96	CLE2	$e^+ e^- \approx \Upsilon(4S)$

[109] 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.

$\Gamma(\overline{K}^*(892)^0 \mu^+ \mu^-)/\Gamma_{total}$ Γ_{179}/Γ

Allowed by first-order weak interaction combined with electromagnetic interaction.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<1.18 \times 10^{-3}$	90	1	[110] FREYBERGER 96	CLE2	$e^+ e^- \approx \Upsilon(4S)$

[110] 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_{180}/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_{181}/Γ

A test of lepton family number conservation.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
< 8.1 × 10^{-6} (CL = 90%)						
< 8.1 × 10^{-6}	90		AITALA	99G	E791	$\pi^- N$ 500 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
< 1.72 × 10^{-5}	90		PRIPSTEIN	00	E789	p nucleus, 800 GeV
< 1.9 × 10^{-5}	90	2	[111] FREYBERGER	96	CLE2	$e^+e^- \approx \Upsilon(4S)$
< 1.0 × 10^{-4}	90	4	ALBRECHT	88G	ARG	e^+e^- 10 GeV
< 2.7 × 10^{-4}	90	9	HAAS	88	CLEO	e^+e^- 10 GeV
< 1.2 × 10^{-4}	90		BECKER	87C	MRK3	e^+e^- 3.77 GeV
< 9 × 10^{-4}	90		PALKA	87	SILI	200 GeV πp
<21 × 10^{-4}	90	0	[112] RILES	87	MRK2	e^+e^- 29 GeV

[111] This is the corrected result given in the erratum to FREYBERGER 96.

[112] 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_{182}/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 × 10^{-5}	90	2	FREYBERGER	96	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\eta e^\pm\mu^\mp)/\Gamma_{total}$ — Γ_{183}/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 × 10^{-4}	90	0	FREYBERGER	96	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\rho^0 e^\pm\mu^\mp)/\Gamma_{total}$ — Γ_{184}/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 × 10^{-5}	90	0	[113] FREYBERGER	96	CLE2	$e^+e^- \approx \Upsilon(4S)$

[113] 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_{185}/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 × 10^{-4}	90	0	[114] FREYBERGER	96	CLE2	$e^+e^- \approx \Upsilon(4S)$

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

$\Gamma(\phi e^{\pm}\mu^{\mp})/\Gamma_{total}$ — Γ_{186}/Γ

A test of lepton family number conservation. The value is for the sum of the two charge states.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<3.4 \times 10^{-5}$	90	0	[115] FREYBERGER 96	CLE2	$e^+e^- \approx \Upsilon(4S)$

[115] This FREYBERGER 96 limit is obtained using a phase-space model. The limit changes to $< 3.3 \times 10^{-5}$ using a photon pole amplitude model.

$\Gamma(\overline{K}^0 e^{\pm}\mu^{\mp})/\Gamma_{total}$ — Γ_{187}/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	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\overline{K}^*(892)^0 e^{\pm}\mu^{\mp})/\Gamma_{total}$ — Γ_{188}/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	[116] FREYBERGER 96	CLE2	$e^+e^- \approx \Upsilon(4S)$

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

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
0.026±0.035 OUR AVERAGE				
$-0.010\pm0.049\pm0.012$	609	[117] AITALA 98C	E791	$-0.093 < A_{CP} < +0.073$ (90% CL)
$+0.080\pm0.061$		BARTELT 95	CLE2	$-0.022 < A_{CP} < +0.18$ (90%CL)
$+0.024\pm0.084$		[117] FRABETTI 94I	E687	$-0.11 < A_{CP} < +0.16$ (90% CL)

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

$A_{CP}(\pi^+\pi^-)$ 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
$-0.049\pm0.078\pm0.030$	343	[118] AITALA 98C	E791	$-0.186 < A_{CP} < +0.088$ (90% CL)

[118] AITALA 98C measures $N(D^0 \to \pi^+\pi^-)/N(D^0 \to K^-\pi^+)$, the ratio of numbers of events observed, and similarly for the $\overline{D}^0$.

$A_{CP}(K^0_S \phi)$ 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	DOCUMENT ID		TECN	COMMENT
-0.018 ± 0.030	BARTELT	95	CLE2	$-0.067 < A_{CP} < +0.031$ (90%CL)

$A_{CP}(K^\pm \pi^\mp)$ 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
$+0.02^{+0.19}_{-0.20} \pm 0.01$	45	[119] GODANG	00	CLE2	$-0.43 < A_{CP} < +0.34$ (95%CL)

[119] 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.

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. • • •				
$5.8 \pm 0.5 \pm 0.6$	[120] ADLER	88C	MRK3	$e^+ e^-$ 3.768 GeV
7.3 ± 1.3	[121] PARTRIDGE	84	CBAL	$e^+ e^-$ 3.771 GeV
$8.00 \pm 0.95 \pm 1.21$	[122] SCHINDLER	80	MRK2	$e^+ e^-$ 3.771 GeV
11.5 ± 2.5	[123] PERUZZI	77	MRK1	$e^+ e^-$ 3.774 GeV

[120] 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 $1.36 \pm 0.23 \pm 0.14$.

[121] 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.

[122] 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.

[123] 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 REFERENCES

GODANG	00	hep-ex/0001060	R. Godang *et al.*	(CLEO Collab.)
PRL (to be publ.)				
JUN	00	PRL 84 1857	S.Y. Jun *et al.*	(FNAL SELEX Collab.)
PDG	00	EPJ C15 1		
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)		
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.)
AMENDOLIA	88	EPL 5 407	S.R. Amendolia *et al.*	(NA1 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		
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.*	
ADLER	87	PL B196 107	J. Adler *et al.*	(Mark III Collab.)
AGUILAR-...	87D	PL B193 140	M. Aguilar-Benitez *et al.*	(LEBC-EHS Collab.)
Also	88B	ZPHY C40 321	M. Aguilar-Benitez *et al.*	(LEBC-EHS 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		
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.)
CSORNA	87	PL B191 318	S.E. Csorna *et al.*	(CLEO Collab.)
PALKA	87	PL B189 238	H. Palka *et al.*	(ACCMOR Collab.)
RILES	87	PR D35 2914	K. Riles *et al.*	(Mark II Collab.)
ABE	86	PR D33 1	K. Abe *et al.*	
BAILEY	86	ZPHY C30 51	R. Bailey *et al.*	(ACCMOR Collab.)
BEBEK	86	PRL 56 1893	C. Bebek *et al.*	(CLEO Collab.)
GLADNEY	86	PR D34 2601	L. Gladney *et al.*	(Mark II Collab.)
LOUIS	86	PRL 56 1027	W.C. Louis *et al.*	(PRIN, CHIC, ISU)
USHIDA	86B	PRL 56 1771	N. Ushida *et al.*	(AICH, FNAL, KOBE, SEOU+)
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.)
BAILEY	85	ZPHY C28 357	R. Bailey *et al.*	(ABCCMR 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.)

OTHER RELATED PAPERS

RICHMAN	95	RMP 67 893	J.D. Richman, P.R. Burchat	(UCSB, STAN)
ROSNER	95	CNPP 21 369	J. Rosner	(CHIC)